



**CITY OF LA MARQUE
CITY COUNCIL
REGULAR AGENDA
of
July 14, 2025**

Notice is hereby given that the City Council of the City of La Marque, Texas will conduct a **Regular Meeting** on **July 14, 2025**, beginning at **6:00 PM** in the **Council Chambers** at **1109-B Bayou Road La Marque, Texas as well as via video-conference hosted through Zoom (councilzoom.cityoflamarque.org)**. In accordance with Section 551.127(b) of the Texas Government Code the presiding officer and a quorum of the La Marque City Council intend to be and will be physically present at 1109-B Bayou Road, La Marque, Texas. This location will be open to the public and the meeting will be broadcast at this location, on Channel 16, and via YouTube (<https://www.youtube.com/watch?v=L6G8ypjyEDo>).

The Council will meet for the purpose of considering the following agenda:

1. CALL MEETING TO ORDER
2. ROLL CALL
3. INVOCATION AND PLEDGE OF ALLEGIANCE
4. PRESENTATIONS
 - 4.I. La Marque Safe City Initiative Update
 - 4.II. Proclamation: National Parks Month
5. CITIZENS PARTICIPATION
LIMITED TO THREE MINUTES PER PERSON

Comments from the public will be heard at this time. Any person with city-related business who has signed up may speak to Council (limited to three (3) minutes). If wishing to speak give the Mayor or presiding officer your full legal name and the item you wish to speak about. In compliance with Texas Open Meeting Act, the City may not deliberate on comments. Personal attacks will not be allowed, and personnel matters should be addressed to the City Manager during normal business hours. *Press *6 to mute or unmute if you are participating by telephone, press the unmute button if attending via zoom on a smartphone, tablet or computer, or stand if attending in person, and the mayor will call on you in turn.*

6. MINUTES
 - 6.I. Regular City Council Minutes 04.14.2025
 - 6.II. Special City Council Minutes 12.05.2024

7. OLD BUSINESS

Items presented to the Council for discussion and possible action:

7.I. Boards and Commissions Appointments

Appointing, reappointing, and/or removing members of boards, commissions, and committees - *City Clerk*

7.II. Special/ Joint Meetings Scheduling

Scheduling a workshop between Council and Public Works to discuss street projects
- *Public Works*

7.III. Special Events

Drafting a Special Events Calendar for FY 25 - 26 - *Administration*

8. NEW BUSINESS

Items presented to the Council for discussion and possible action:

8.I. Amended Ordinance No. O-2025-0010

An Amended and Restated Ordinance authorizing the issuance and sale of the City of La Marque, Texas, Tax and Subordinate Lien Revenue Certificates of Obligation, Series 2025; authorizing execution and delivery of paying agent/registrar agreement and an escrow agreement relating to such certificates; prescribing the form of said certificates; levying a tax and pledging subordinate lien on the net revenues of the water, sewer and wastewater system in payment thereof; and enacting other provisions relating thereto - *Finance / Legal*

8.II. Ordinance No. O-2025-0014

Approving the Project Plan and Reinvestment Zone Financing Plan for Tax Increment Reinvestment Zone Number 2 in the City of La Marque, Texas, providing an effective date, and making other provisions related to the subject - *City Clerk / TIRZ Board #2*

8.III. Authorization to Solicit Bids for Existing Wastewater Treatment Plant Rehabilitation - Headworks and Disinfection System Improvements

Approving authorization to staff to publicly advertise and solicit competitive bids for the rehabilitation of the Wastewater Treatment Plant, including improvements to the headworks and disinfection system - *Public Works*

8.IV. Texas Water Development Board

Awarding the Request for Qualifications (RFQ) for Engineering / Architecture / Surveying Services regarding the Texas Water Development Board loan - *Public Works / Finance*

8.V. Texas New Mexico Power

Retaining the law firm of Lloyd Gosselink Rochelle & Townsend, P.C. to negotiate the electric franchise agreement with Texas-New Mexico Power Company, a Texas corporation in an amount not to exceed \$6,000.00 - *Legal*

8.VI. Partnership with N Zone Sports

Approving partnership with N Zone Sports Houston Bay Area as recommended by the La Marque Parks Board - *Parks Board / Public Works*

8.VII. Drug Testing Policy

Reviewing current drug testing policy - *District B*

8.VIII. Council Retreat

Scheduling a Council Retreat - *City Clerk*

8.IX. Mayor Pro Tem

Electing a Mayor Pro Tem -*District A/District D*

9. CITY MANAGER REPORT

A submitted report to update Council and Community on the standard operations of the City. Report can be acknowledged as whole or discussed at the pleasure of Council.

9.I. May 2025 Library Statistics

9.II. June 2025 Economic Development Corporation Monthly Report

9.III. June 2025 Mosquito Spraying Report

9.IV. 2024-June 2025 Comprehensive Storm Water Report

9.V. Mahan Park Boat Ramp Update

9.VI. La Marque High School Update

9.VII. Items for the Good of the Order

10. EXECUTIVE SESSION

The City Council for the City of La Marque, Texas reserves the right to adjourn into executive session at any time during this meeting to discuss any of the matters listed above, as authorized by the Texas Government Code Section 551.071 (Consultation with Attorney), 551.072(Deliberations about Real Property), 551.073 (Deliberations about Gifts and Donations), 551.074 (Personnel Matters), 551.076 (Deliberations about Security Devices), and 551.087 (Economic Development)

10.I. Section 551.074 Personnel Matters

To deliberate the appointment, employment, evaluation, reassignment, duties, discipline, or dismissal of a public officer or employee: City Manager

10.II. Section 551.074 Personnel Matters

To deliberate the appointment, employment, evaluation, reassignment, duties, discipline, or dismissal of a public officer or employee: City Clerk - *District C/District B*

10.III. Consultation with Attorney

La Marque EDC vs. Texas City Terminal Railroad Company Cause No. 20-CV-0633

11. ACTIONS TAKEN FROM EXECUTIVE SESSION

11.I. Section 551.074 Personnel Matters

To deliberate the appointment, employment, evaluation, reassignment, duties, discipline, or dismissal of a public officer or employee: City Manager

11.II. Section 551.074 Personnel Matters

To deliberate the appointment, employment, evaluation, reassignment, duties, discipline, or dismissal of a public officer or employee: City Clerk - *District C/District B*

11.III. Consultation with Attorney

La Marque EDC vs. Texas City Terminal Railroad Company Cause No. 20-CV-0633

12. REQUESTS AND ANNOUNCEMENTS

Requests by Mayor and Council Members of items to be placed on future City Council agendas and announcements on city events/community interests TEX. GOV'T CODE §551.415. (b), "items of community interest" include: (1) expressions of thanks, congratulations, or condolence; (2) information regarding holiday schedules; (3) an honorary or salutary recognition of a public official, public employee, or other citizen, except that a discussion regarding a change in the status of a person's public office or public employment is not an honorary or salutary recognition for purposes of this subdivision; (4) a reminder about an upcoming event organized or sponsored by the governing body (5) information regarding a social, ceremonial, or community event organized or sponsored by an entity other than the governing body that was attended or is scheduled to be attended by a member of the governing body or an official or employee of the municipality or county; and (6) announcements involving an imminent threat to the public health and safety of people in the municipality or county that has arisen after the posting of the agenda

13. ADJOURNMENT

CERTIFICATION:

I hereby certify that the above notice of meeting was posted at 1109-B Bayou Road, La Marque, Texas on July 11, 2025, by 12:00 p.m.

Kasey Lott
Deputy City Clerk

La Marque Safe City Initiative
(Final Goals—Approved Effective February 3, 2022)
Status of LMSCI (3rd Year) Effective 12-31-2024 (Listed in Red Text)

- **Goal #1:** (Consists of items A through E.)

A. Reintroduce *Community Oriented Policing*.

- 1st Year Goal (2022): Introduce three (3) Community Watch Areas with an assigned Community Policing Officer (CPO) for each area.
- **Status of LMSCI as of 12-31-2022:** Five (5) have been implemented.
- **Status of LMSCI as of 10-1-2023:** Eight (8) Community Watch Areas have been introduced.
- 3rd Year Goal (As of December 31, 2024): A total of nine (9) Community Watch Areas will be instituted with an assigned Community Policing Officer (CPO) for each area.
- **Status of LMSCI as of 12-31-2024:** Twelve (12) Community Watch Areas have been introduced.
- 5th Year Goal (As of December 31, 2026): A total of 15 Community Watch Areas will be instituted with an assigned Community Policing Officer (CPO) for each area.

B. Reintroduce *CompStat* program.

- 1st Year Goal (2022): CompStat program fully instituted and active.
- **Status of LMSCI as of 12-31-2022:** Eight (8) CompStat Briefings have been conducted.
- 3rd Year Goal (As of December 31, 2024): CompStat operation evolves into inviting Mayor and Council Members attending the monthly meetings if so desired.
- **Status of LMSCI as of 12-31-2024:** Thirty (30) CompStat Briefings have been conducted. Several Council Members have attended CompStat Briefings.
- 5th Year Goal: (As of December 31, 2026): Assessment of program and modification, as necessary.

C. Establish a fully trained “Gang” Unit.

- 1st Year Goal (2022): Two (2) of three (3) Officers are fully trained in gang operations to include: maintaining a working relationship with schools, social services agencies, community-based organizations, and other criminal justice organizations in a systematic approach to the prevention, intervention, and suppression of criminal gang activity. relating to identification, operations, and finally interdiction. At year end, Gang Unit conducts survey to determine gangs in operation to establish a “baseline” of gang membership and activities.
- **Status of LMSCI as of 12-31-2022:** Two (2) Officers are now fully trained Gang Unit Officers. Survey will be conducted in December 2022.

- 3rd Year Goal (As of December 31, 2024): All three (3) Officers are trained in gang operations. Survey conducted by Gang Unit with a goal of discerning a 15% reduction in gang membership and activities from year #1 initial survey.
- **Status of LMSCI as of 12-31-2024:** Though three (3) fully trained “gang operations officers” was the initial goal, at this juncture the department has four (4). The department really needs a full-time officer to serve as the leader of the “Gang Specialist Team.” Unfortunately, submission of grants to fund this desired position has not been fruitful.
- 5th Year Goal (As of December 31, 2026): Acquire one (1) Gang Unit Officer in a full-time status working with two (2) Gang Unit Officers that serve on a part time basis. Survey conducted by Gang Unit with a goal of discerning a 20% reduction in gang membership and activities from year #1 initial survey.

D. Hire a contractor to assist to perform “crime analyst” functions.

1st Year Goal (2022): This contractor will assist in formulating & delivering crime statistics for CompStat meetings.

- **Status of LMSCI as of 12-31-2022:** This was performed and initiated during May 2022.

3rd Year Goal (As of December 31, 2024): Contractor will become a part-time employee.

- **Status of LMSCI as of 12-31-2024:** “No match” grant for \$300K has been awarded to LMPD during CY 2023 that funded a full-time Crime Analyst for a 3-year period.

5th Year Goal: (As of December 31, 2026): Contractor will become a full-time employee.

E. Matriculate into the Texas Recognition Program.

(The *Law Enforcement Recognition Program* is a voluntary process where police agencies in Texas prove their compliance with 170 Texas Law Enforcement Best Practices).

1st Year Goal (2022): LMPD will initiate developing policies and procedures that align with the 170 standards.

- **Status of LMSCI as of 12-31-2022** This has initiated and departmental policies are being reviewed for implementation.

3rd Year Goal (As of December 31, 2024): LMPD will officially matriculate into the program and complete the requirements for “recognition.”

- **Status of LMSCI as of 12-31-2024:** Effective March 2025, the LMPD was officially matriculated into the Texas Recognition Program. The department has until March 2027 to complete the accreditation process as evidenced by a passing grade on the final “on-site Assessment”.

5th Year Goal: (As of December 31, 2026): LMPD will have completed the recognition program and be working on its next assessment (after successfully completing recognition status an assessment is due every four [4] years).

- **Goal #2:**

Employ the department's Special Response Team (SRT) as often as practicable to conduct "Directive Patrol Actions" (DPA's) in drug & crime hot spots.

- 1st, 3rd, and 5th Year Goals are all standardized relating to conducting DPA's as often as practicable

- **Status of LMSCI as of 12-1-2024:** During CY 2022 there were 17 SRT missions; during CY 2023 there were 20 missions; during CY 2024 there were 11 missions: total since 2022 = 48 total missions.

- **Goal #3.**

A. Apply for a grant to fund Officers to form three (3) Officer teams that will have a dual role for the Officers to serve as SRT members **and** Community Policing Officers (when not conducting SRT missions),

B. Should grants not be available, budget for FY 2022/2023 to fund a minimum of one-three (3) Officer Team to operate full-time as per "Goal #3 A." above.

- 1st, 3rd, and 5th Year Goals are all standardized relating to working toward acquiring a grant and operations. Should a grant not be awarded by FY 2022/2023, perform staff actions to seek funding for this 3-Officer Team via the city's operating budget.

- **Status of LMSCI as of 10-1-2023:** "COPS Hiring Grant" totaling \$750 K was awarded to the COLM during October 2022 funding six (6) Community Policing Officers.

- **Status of LMSCI as of 12-31-2024:** A "no match" "COPS Hiring Grant" totaling \$581 K was awarded to the COLM during FY 2025 funding two (2) Community Policing Officers. Currently the department employs three (3) officers that serve in the Crime Suppression Unit" (CSU) conducting enforcement operations targeting crime and drug "hot spots".

- **Goal #4:**

Conduct a study/cost analysis to assess our city's lighting needs and priorities. Goal will be to upgrade COLM streetlights (east & west side of city) with LED lights and install streetlights wherever deemed necessary.

- 1st Year Goal (2022): Consultant will complete needs assessment of lighting (and estimated cost) for the entire COLM: to include "safety lighting" for Omega Bay.

- **Status of LMSCI as of 12-31-2022:** Consultant has been acquired (Dinh Ho). LMPD Patrol Officers continue to provide PW of locations of inoperative lights throughout the COLM: this is ongoing. City is now funding electricity expense for Omega Bay "safety lights."

- **Status of LMSCI as of 10-1-2023:** Lighting improvements have been greatly enhanced: PW Director to provide brief verbal narrative.

- 3rd Year Goal (As of December 31, 2024): Should funding be acquired contractors will initiate work.
- **Status of LMSCI as of 12-31-2024:** Lighting improvements have been greatly enhanced: PW Director to provide brief verbal narrative

5th Year Goal: (As of December 31, 2026): Lighting project will be completed.

- **Goal #5:**

- 1st Year Goal (2022):

A. Hire a Social Worker to fill the department's already budgeted vacant position.

- **Status of LMSCI as of 12-31-2022:**

- Due to the "property tax roll back" election this goal could not be executed; however, the good news is that during recent Collective Bargaining Agreement negotiations it was solidified that a joint COLM/Union committee would be formulated to hire (as a contractor) a qualified mental health professional that meets this committee's needs and priorities. The goal is to have this contractor to provide such mental health services to COLM first responders (i.e., police, fire, EMS) on an as-needed basis.

- **Status of LMSCI as of 12-31-2024:** There really has not been any interest from the COLM/Union committee on this matter.

B. Initiate an MOU with the Resource Crisis Center (RCC) that will work in partnership with the Social Worker. The RCC will (to the greatest extent possible) serve as the "hub"/key organizer in acquiring other social service agencies to assist the COLM with activities and socio-economic programs to enhance the quality of life of our residents: with an emphasis on developing youth advocacy programs/efforts for prevention, intervention, and treatment of juveniles—to include after-school curriculums (e.g., sports leagues, entertainment/youth centers, etc.) Supplementing all mentioned within this goal will be development of the following committees with an emphasis on youth advocacy: Community Action Team (CAT), Community Oriented Policing Leadership Committee/Chief's Diversity Committee (members will serve on both committees), Chief's Youth Advisory Committee, and finally, rejuvenating the La Marque Ministerial Association.

- **Status of LMSCI as of 10-1-2023:**

- Currently the RCC has introduced the "Be Strong" program at the La Marque High School and Sara Giles Middle School (in Texas City). This program essentially teaches skills to attendees (female students) to: 1. promote social norms that protect against violence; 2. prevent sexual violence; and finally, 3. provide opportunities to empower and support girls and women. The courses began the second week in September and will run for a period of 12 weeks (or 12 total classes), with the series ending the last week of November. The Middle School program is on Tuesdays and the High School is Wednesday. Each class is one hour in length.

- The “Be Strong” initiative was cancelled due to a Texas mandate; however, an MOU has been officiated with the RCC of which, besides the above programs, now includes having an assigned certified *Crisis Intervention Specialist* who has a desk at the police department and works two eight (8) hour shifts every other week. This subject matter expert serves as an advisor/consultant to officers (and will go on calls with officers as necessary) relating to matters relating to: family violence, sexual assault, and human trafficking. Additionally, an MOU has been officiated with the *Gulf Coast Center* to provide having an assigned certified *Mental Health Specialist* who has a desk at the police department and works every other week to cover both day and evening patrol shifts. This subject matter expert serves as an advisor/consultant to officers (and will go on calls with officers as necessary) relating to matters relating to mental health concerns. (*NOTE: the Gulf Coast Center initiative was phased out as there were not enough calls for service to warrant continuance of this service.)
- 3rd Year Goal (As of December 31, 2024): At this juncture, several youth programs (e.g., a “Teen Center”) will have been instituted. Continuing assessment and as necessary modification of outreach programs that have been instituted.

➤ **Status of LMSCI as of 12-31-2024:**

- The department has attempted (via grants) to acquire an officer to manage a “Law Enforcement Explorer Post” which would serve teenagers between the age of 14 to 20 years of age. Should such a grant be acquired, this position would also provide leadership for several other LMPD volunteer programs. In the interim, COLM has successfully instituted a “College Intern Program” (throughout the year) and a “High School Youth Intern Program” (during the summer break).

In 2022 the department acquired a TAPS (Teen and Police Services) grant from the federal Office of Juvenile Justice and Delinquency Prevention (OJJDP) to provide officers to conduct instructional services and presentations to students at the La Marque High School.

The initiative provides a forum for at risk teens and our police officers working together to understand *why crime occurs and most importantly, what to do about it*. One of the major goals is to change the way teens think about police, as well as how police think about at-risk teens. In essence this program is designed to reduce the social distance between police officers and students.

Currently, five (5) officers serve as facilitators/instructors for this program, which has been ongoing since 2022.

“Post Course” surveys have produced extremely high scores (relating to positive feelings about police officers) in comparison with “Pre-Course Surveys.”

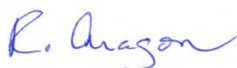
- 5th Year Goal: (As of December 31, 2026): Continuing assessment and as necessary modification of outreach programs that have been instituted.

Goals Relating to Crime Rates

Considering **all** 5 Goals relating to their positive effect on crime rates, it is hoped that the following prediction of preventing and controlling crime (portrayed as crime rates) is produced:

- 1st Year Goal (2022): Violent and Property Crime Rates for CY 2022 over 2021 will each be reduced a minimum of 2%.
- **Status of LMSCI as of 10-1-2022:** Violent Crime is down 8.1% compared to the same timeframe (i.e., January-September of 2021). Property Crime is up 12.1% over this same period.
- **Status of LMSCI as of 10-1-2023:** Violent Crime Rate for CY 2022 over CY 2021 was reduced by 18%. Violent Crime Rate for period up through September 2023 versus same monthly period for 2022 was reduced by 11%. Property Crime Rate for same period was reduced by 43%.
- 3rd Year Goal ((As of December 31, 2024)): 1. Violent and Property Crime Rates for CY 2021, 2022, and 2023 will each year be reduced a minimum of 2% from the prior CY; 2. During this juncture [i.e., January 2023] a “citizen’s survey” will be conducted by an external agency to measure “citizen’s fear of crime,” crime concerns, and recommendations from citizens.)
 - **Status of LMSCI as of 12-31-2024:** For CY 2024 over CY 2023, Violent Crime decreased 11%, Property Crime decreased 15%, and overall crime decreased 14%. Considering CY’s 2022, 2023, & 2024, the average drop in crime rates over the three year period is as follows: Violent Crime has decreased a total of 8%, Property Crime has decreased a total of 18%, and overall crime has decreased 17%.
- 5th Year Goal: (As of December 31, 2026): 1. Violent and Property Crime Rates for CY 2024 and 2025 will each year be reduced a minimum of 2% from the prior CY; 2. Violent and Property Crime Rate for CY 2025 will be less than or equal to the Texas Violent and Property crime rates; 3. During this juncture (effective January 2025) a citizen’s survey will be conducted by an external agency to measure “citizen’s fear of crime,” crime concerns, and recommendations from citizens.)

Official:



Randall Aragon
Chief of Police

Office of the Mayor
for the City of La Marque

PROCLAMATION

WHEREAS, 2025 marks the 40th anniversary of the designation of July as Parks & Recreation Month by the U.S. House of Representatives; and

WHEREAS, this year's official theme—"Build Together, Play Together"—celebrates the workforce of park and recreation professionals, alongside countless part-time, seasonal staff, volunteers, and community partners who maintain and enhance access to parks, trails, and recreational programs nationwide; and

WHEREAS, parks and recreation services enhance public health, environmental resilience, social equity, civic pride, and community connection through shared access to green spaces, active living, arts, sports, and educational programming; and

WHEREAS, the City of La Marque recognizes and celebrates its Parks & Recreation Department, dedicated staff, volunteers, and partners for their vital contributions to enriching community life and fostering inclusive, accessible outdoor spaces;

NOW THEREFORE, we the Mayor and City Council, urge all citizens and businesses to join and hereby proclaim the month of July, as:

"NATIONAL PARKS AND RECREATION MONTH"

in La Marque and urge all residents, organizations, and city departments to support and participate in local events and initiatives to continue building and playing as a community.

In testimony whereof, witness my hand and the Seal of the City of La Marque, this 1st day of July 2025.

Keith Bell, Mayor



**CITY OF LA MARQUE
CITY COUNCIL
REGULAR MINUTES
of
April 14, 2025**

1. CALL MEETING TO ORDER

Mayor Bell called the meeting to order at 6:03 p.m.

2. ROLL CALL

Present:

Keith Bell

Joe Compian

Kimberley Yancy

Joseph Lowry

James Ross

Mayor

Mayor Pro Tem/ District B (arrived via Zoom at 7:07 p.m.
900 North Shoreline Drive, Corpus Christi, TX)

District A

District C

District D

3. INVOCATION AND PLEDGE OF ALLEGIANCE

Mayor Bell gave the invocation and City Clerk Kierra Nance led the pledge.

4. PROCLAMATIONS:

4.I. Arbor Day

Mayor Bell acknowledged Arbor Day on April 25th, 2025.

4.II. Child Abuse Prevention Month

JoAnna Mendoza and Alli Hines, representing Court Appointed Special Advocates (CASA) of Galveston County, received a proclamation in honor of Child Abuse Prevention Month.

4.III. Earth Day

Keep La Marque Beautiful Commission Vice-Chair Re'Chard Loftis and Code Compliance Supervisor Jose Hernandez received a proclamation honoring Earth Day on April 22, 2025.

4.IV. Fair Housing Month

Mayor Bell acknowledged April 2025 as Fair Housing Month.

4.V. National Public Safety Telecommunicators Week 2025

Mayor Bell honored members of the City of La Marque Telecommunications Division with a proclamation honoring National Public Safety Telecommunicators Week April 13-19, 2025.

4.VI. National Wildlife Federation's Monarch Butterfly Awareness Month

Library Director Amy Miller received a proclamation honoring March as Monarch Butterfly Awareness Month.

Library Director Miller invited the public to a Monarch Butterfly release on April 22, 2025 at 10:00 a.m. held at Walter Feigle Park.

4.VII. Work Zone Awareness Week

Interim Public Works Director Shannon Breaux received a proclamation honoring Work Zone Awareness Week in place of the Public Works Streets Division, as they were called for emergency repairs.

5. CITIZENS PARTICIPATION

- Re'Chard Loftis (309 Johnson) requested that the council review the security procedures in the council chambers. He is requesting that the council and staff also be required to utilize the security features for the safety of the community members.
- Brandon Kautowski (2030 Oaklawn) says that he has seen a lot of foolishness online. He does not feel that it is becoming of anyone to be name-called or "accusors". There is something bigger happening in the city than bickering among ourselves. There is evil, and darkness in this country. He also spoke to issues with his neighbor and he has lost faith in the system as the police keep playing "devil's advocate".
- Jacqueline Perrin (1304 Rhodora) states that her name is not "Jackie Smith" as an impersonation account has been made. She stated that she is sick, so she is wearing a mask. She noted that many elected officials have been attacked and no one has done anything, so how could she feel safe after filing a report. She stated that a councilmember is a felon, and should not be seated on the council. She also questioned why this had not been investigated. She does not feel safe in the city anymore.

6. MINUTES

Councilmember Ross made a motion to approve all minutes as submitted.

Councilmember Yancy seconded.

Councilmember Lowry requested that specific information regarding certificates of obligation be added to the Special Financial Retreat minutes.

*** Councilmember Ross rescinded his motion.*

Councilmember Lowry was asked to clarify his request. It was determined that he was referencing a conversation regarding the remaining balance of the Certificates of Obligation obtained to purchase the property known as the ABC Buildings (4916 Texas Ave., La Marque, TX 77568) which he estimated to equate to approximately \$2.5 million that could be utilized for a police station.

Finance Director Turner was asked to give the amount that remained in the account.

Councilmember Lowry made a motion to amend the Special Financial Retreat Minutes 04.08.2025 to include a conversation regarding the remaining balance of the Certificates of Obligation obtained to purchase the property known as the ABC Buildings (4916 Texas Ave., La Marque, TX 77568) in the amount of \$2,666,037.84 that

could be utilized for a police station.
Councilmember Ross seconded.

MOTION CARRIED UNANIMOUSLY.

6.I. Special Financial Retreat 04.08.2025

6.II. Special Joint Minutes 04.07.2025

6.III. Special City Council Minutes 03.10.2025

6.IV. Special City Council Minutes 02.24.2025

7. PUBLIC HEARING

***Mayor Bell recessed the Regular Meeting and entered into the Public Hearing at 6:50 p.m.*

7.I. Ordinance No. O-2025-0005

There was no public comment.

8. OLD BUSINESS

***Mayor Bell closed the Public Hearing and reconvened the Regular Meeting at 6:51 p.m.*

8.I. Naming Policy

City Clerk Nance gave a brief overview of the history of this item, citing that it has been before council before and pointing out the differences since the last presentation, including the petition and notice process, the approval process, and regulations. She identified that this policy does not have fees included and direction is needed from the council.

Councilmember Yancy thanked Ms. Nance for adjusting the policy to reflect best practices, and stated that she does not have a recommendation for fees.

Discussions regarding setting a standard rate or assessing the true cost of the conversion ensued.

Councilmember Yancy made a motion to approve the Naming Policy with the addition of the payment of true costs and administrative fees. Councilmember Ross seconded. **MOTION CARRIED UNANIMOUSLY.**

8.II. Ordinance No. O-2025-0005

Brent Berthier, ADICO Engineering, gave a brief history of the item. He shared that the current proposed recommendation is 50% of the true recommendation.

Interim City Manager Pritchett shared that in the updated document it shows the surrounding cities in the Greater Houston Area's updated impact fees.

Councilmember Lowry feels that this is a deterrent to attracting business. He feels that this is moving in the wrong direction.

Mayor Bell understands the effort, but he is in the mindset that this is "a tad bit too high for us". He noticed that larger cities are at a rate of \$9,000 or higher, and acknowledged that the current rate is the lowest. He requested a rate in the middle, somewhere between the rates of Iowa Colony and Galveston. He believes the \$8,400 is a problem.

Interim City Manager Pritchett acknowledged a "Grandfather Clause" that states any development that is currently underway would have one year after the passage of the ordinance to be charged at the current impact fees.

Mr. Berthier reiterated that this is simply a recommendation; the council has the authority to adjust.

***Mayor Pro Tem Compian entered the meeting at 7:07 p.m. via Zoom*

Mayor Pro Tem Compian requested that this item not move forward, due to the unrest around raising rates at both the state and national level.

Mayor Bell stated that he would not support the current recommendation at \$8,400, but would support a lower amount, around \$6,300 or \$6,500. Stating that the current proposal could be detrimental from a home buyer's perspective.

Councilmember Yancy confirmed that the current proposal is based on the infrastructure needs, stating that the "piss poor" infrastructure is the reason she moved away previously. She asked if this could be reviewed again in one year.

It was confirmed by City Attorney Knebel that this assessment has to be done "at least" every five years, but if the council wants to amend the ordinance, that is their prerogative.

Mr. Berthier identified that this recommendation is actually a 50% reduction from what their process actually discovered. However, in accordance with the law, they were allowed to provide that deduction. However, he warned that if the funds are not retrieved from the impact fees, they will need to come from elsewhere, which could be a burden to the taxpayer.

Mayor Pro Tem Compian made a motion to hold the rate, and continue to research an appropriate rate in the current state of the economy. **MOTION CARRIED WITH 3 AYES (BELL / COMPIAN / LOWRY) 1 NAY (ROSS) AND 1 ABSTENTION (YANCY)**

9. NEW BUSINESS

9.II. Ordinance No. O-2025-00xx (INC)

9.I. Ordinance No. O-2025-0006

***Councilmember Lowry exited the meeting at 7:22 p.m.*

Councilmember Ross made a motion to approve Ordinance No. O-2025-0006.

Councilmember Yancy seconded. **MOTION CARRIED UNANIMOUSLY.**

9.II. Ordinance No. O-2025-0007

Councilmember Ross made a motion to approve Ordinance No. O-2025-0007.

Councilmember Yancy seconded. **MOTION CARRIED UNANIMOUSLY.**

9.III. Ordinance No. O-2025-0008

Councilmember Ross made a motion to approve Ordinance No. O-2025-0008.

Councilmember Yancy seconded. **MOTION CARRIED UNANIMOUSLY.**

9.IV. Ordinance No. O-2025-0009

Councilmember Ross made a motion to approve Ordinance No. O-2025-0009.

Councilmember Yancy seconded. **MOTION CARRIED UNANIMOUSLY.**

9.V. ARPA Purchasing

***Councilmember Lowry returned at 7:25 p.m.*

***Councilmember Ross exited the meeting at 7:25 p.m. and returned at 7:27 p.m.*

Brief discussions were held regarding the amount of K9 officers this purchase would allocate. It was determined by Chief Aragon and Interim City Manager Pritchett that this would potentially allow for one (1) or two (2) additional dogs depending on the cost. It was clarified that the department already has two K9 units. This expenditure would be the third and possibly fourth.

Mayor Bell questioned what the process would be if there was a need for a K9 officer to be dispatched.

Councilmember Yancy shared her concerns regarding acquiring additional K9 officers when there have already been "incidences" in the past. She feels that if the council supports this expenditure, additional training should be held for the handlers.

Chief Aragon assured her that there is extensive training that the handlers receive, but there really should be one K9 unit on each shift.

Interim City Manager Pritchett relayed to Councilmember Yancy that the K9 officer that she is referencing had "gone to be with Jesus". The two K9 officers the city has currently are newer additions and, fortunately, have not had any such instances.

Mayor Pro Tem Compian asked for clarity regarding how many officers would come with this expenditure. It was clarified that there is not a set number of officers in this allocation, just a dollar amount. The department would like to receive two (2) but if the funding does not allow for it, there will at least be one (1) additional K9 officer.

Councilmember Ross made a motion to approve the ARPA expenditure in the amount of \$41,250 to obtain K9 officers. Councilmember Lowry seconded. **MOTION CARRIED UNANIMOUSLY.**

9.VI. Saltgrass Park Name Change

Mayor Bell questioned the necessity of this item if the council had not voted to name this park land.

Mayor Pro Tem Compian identified that while there was no official name given to this land, the city made a commitment to include a park in this area.

After a brief discussion, Councilmember Yancy made a motion to name the area West Side City Park. Councilmember Ross seconded. **MOTION CARRIED UNANIMOUSLY.**

9.VII. Volunteer Background Checks

Mayor Pro Tem Compian requested additional time to review this item. **THIS ITEM WAS TABLED.**

9.VIII. Waiver of Fees for Highland Bayou Pavilion Rental

Discussions regarding the current fees ensued.

Councilmember Ross made a motion to waive the Highland Bayou Pavillion rental fees for the Southeast Texas Sports Fishing Association event on May 3, 2025.

Councilmember Yancy seconded. **MOTION CARRIED UNANIMOUSLY.**

9.IX. Council Privileges

City Clerk Nance identified that this item is a request for clarity as the current

council is "very active" and she and her staff need direction on what is being expected from the department. Her team spends a significant amount of time on these requests, which she clarified that the item was not to complain, but just to ask what the expectations were.

Mayor Bell asked City Attorney Knebel to explain to the public what legislative privileges are.

City Attorney Knebel shared that it is the council's right to information as it pertains to creating policy. This would include additional information not necessarily available to the general public, because it is needed to create policies and procedures in their official capacity.

Mayor Bell asked City Clerk Nance what exactly she intended for the council to do with this item. She responded that the intent was for the council to discuss and consider a policy to set "guardrails", including how they would like this information to be tracked and if there were any requests for how to process.

Councilmember Lowry claimed that this item was only being brought up because of him, which City Clerk Nance denied.

Councilmember Lowry stated that being an elected official gives privileges to view documents that are not readily available to the public. He believes that if information is being withheld from him, then he cannot do his job properly. He ventured to say that people put in open records requests that are at times sent to "a very dishonest law firm", Olson & Olson, who he asserts is untruthful and "won't tell the whole story". He believes the law firm is used to hide information from the public and that information shouldn't be hidden from the public or an elected official. He asserts that as an elected official he has the right to view information such as credit card information and body cams.

A brief discussion regarding the differences between legislative privilege and executive privilege ensued.

Councilmember Lowry said that "the bottom line is as an elected official we have the right to view information" and "anything being withheld I think is a disservice to the taxpayers that elected us". He followed by stating that this is one of the biggest reasons that he ran for political office, because of the dishonesty with open records, and he claims that it is still happening today.

Mayor Bell asked for clarity from Councilmember Lowry regarding what "his job" is.

Councilmember Lowry stated that if he wanted to audit credit cards, then that's his job. His job is the will of the people.

Mayor Bell and Councilmember Lowry veered into a discussion regarding a statement Councilmember made regarding having watched bodycam footage, where Councilman Lowry asserted that an Executive Session had been broken apart. Mayor Bell questioned what the elements were that would dispel an Executive Session, to which Councilmember Lowry did not respond. Mayor Bell explained that during the incident in question, he, Councilmember Ross, and Councilmember Yancy remained in the meeting room. The city attorney stepped out of the room, which was inconsequential because he was there at the pleasure of the council. He asserts that since the quorum was not broken and the presiding officer of the meeting did not recess the closed session, it's confidentiality is still intact.

***The council was requested to remain on the agenda topic by City Attorney Knebel and City Clerk Nance.*

Councilmember Lowry continued his outburst at one point, stating "We're going to get it, we're going to get it because it's the law."

Mayor Bell stated his opinion that an open records request be filed for all information submitted to council.

***Councilmember Lowry continued to speak over the other councilmembers and Mayor Bell requested that he allow the other Councilmembers to speak.*

Councilmember Ross asked clarifying questions regarding the supporting document which included an email from Councilmember Lowry.

City Clerk Nance apologized for the confusion. Her intent was to show that the topic of Council Privileges was not only a concern to her and her team, but that Councilmembers had concerns as well. She did not intend for this item to cause so much heartburn, she merely wanted a policy or procedure for how to move forward.

Mayor Pro Tem Compian questioned the existence of legislative privileges at the municipal level. He believes if an item is on an agenda to be discussed in an open session, then the Councilmember can request additional clarity.

Councilmember Yancy supported Mayor Pro Tem Compian's position. She requested that the City Clerk bring to the council a form and the beginnings of a policy for the council to review. She stated that she had not seen a lack of transparency nor has she felt as if she had not receive information that had been requested.

Councilmember Ross made a motion for the council to utilize the Public Information Request process to make council requests while the City Clerk's Office drafts a standard operating procedure for processing council requests.

Councilmember Yancy seconded. **MOTION CARRIED 3 AYES (BELL / YANCY / ROSS) 1 NAY (LOWRY) 1 ABSENT (COMPIAN).**

10. CITY MANAGER REPORT

***Items 10.I, 10.V, and 10.VI were pulled for discussion.*

10.I. March 2025 Sales Tax Revenue (January receipts)

Interim City Manager Pritchett shared that there is an increase in the amount this month. This is being handled with caution until the amount can be legitimized.

10.II. February 2025 Finance Report

This item stood as submitted.

10.III. February 2025 Crime Statistics

This item stood as submitted.

10.IV. February 2025 La Marque Public Library Report

This item stood as submitted.

10.V. Update on Wastewater Treatment Plant Expansion and Upcoming Bid Phase

***Mayor Pro Tem Compian exited the meeting at 8:04 p.m.*

Interim Public Works Director Breaux gave a brief timeline of the project, concluding with an estimated completion date of October 30th.

10.VI. Manhole Project Update

Interim Public Works Director Breaux clarified the legend provided in the supporting documents, bringing attention to the green dots which represent all the completed manhole covers. The crew is currently working in Zone 4.

10.VII. Wal-Mart Foundation Grant Application

This item stood as submitted.

10.VIII. Items for the Good of the Order

Interim City Manager Pritchett announced a series of events hosted by the City of La Marque, including a Monarch Butterfly Release program to be held April 22 at 10:00 a.m. at the La Marque Public Library, Annual Spring Cleanup on April 26, Senior Safety Summit on April 29, Hurricane Huddle and Community Fair on May 17, Juneteenth Gala on June 18, and Life and Liberty on July 5th. He emphasized that there would be a new addition to the police and fire charity softball game as other unions have asked to participate.

He reported that the Public Works department is undergoing some significant changes in order to better serve the community primarily in the areas of stormwater and the creation of a mosquito control spraying plan. The current plan will entail mosquito sprays three nights a week for approximately three to six hours per night between the hours of 8:00 p.m. and 4:30 a.m., peak mosquito activity hours. This is also an effort to protect the pollinators in the community.

11. EXECUTIVE SESSION

***Mayor Bell and Councilmember Ross both waived their rights to a closed session, opting to speak in open session.*

Mayor Bell gave the ground rules for discussion. The complaint will be read uninterrupted, a rebuttal from the subject of the complaint will follow. After the subject concludes, questions are allowed from the Council and, if necessary, action will follow. The council will not interrupt each other. If the council does not adhere to the rules, the discussion would stop to be heard at a later date.

11.I. For the purpose of hearing a complaint or charge against an officer or employee:
Councilmember District D - *District C/ District D*

11.II. For the purpose of hearing a complaint or charge against an officer or employee:
Mayor - *District C/ District D*

12. ACTIONS TAKEN FROM EXECUTIVE SESSION

Councilmember Lowry questioned if the events leading to the complaint happened in executive session, would they be allowed to be discussed in public.

City Attorney Knebel clarified that the complaint that Councilmember Lowry made referenced statements made in open session, if the events he would like to discuss are from another executive session, then generally those would not be able to be discussed in public. However, the council has the right to waive that privilege.

City Clerk Nance read the complaint that was submitted and seconded into the record. The complaint was received Wednesday, March 26th via email stating, "here's an actual valid ethics complaint, I would like to file an ethics complaint against Keith Bell and

James Ross for lying on the dias about what I said. I can bring both videos to watch as a powerpoint presentation their lies vs my truth. Joseph Lowry, Slx Brothers Concrete and Pumping."

Councilmember Lowry claims that he asked for additional discussion for actions taken in executive session, to which City Clerk Nance states that while he did send emails to her related to the event, those emails did not reference a request for agenda consideration.

Councilmember Lowry stated that he would resubmit those complaints for consideration at a future meeting.

Councilmember Yancy gave her opinion that she had no problem with discussing the executive session at this time.

Discussion with the City Attorney regarding this revelation ensued taking careful consideration that the additional discussion was not noticed, nor seconded for discussion on this agenda.

Councilmember Ross agreed to second the discussion at resubmission.

Mayor Bell asked to move forward.

Councilmember Lowry stated that he would resubmit the complaint at a future meeting with the additional context.

Both Mayor Bell and Councilmember Ross stated that they would like to address the concerns already proposed to the council, to which Councilmember Lowry refused.

12.I. For the purpose of hearing a complaint or charge against an officer or employee:
Councilmember District D - *District C/ District D*

12.II. For the purpose of hearing a complaint or charge against an officer or employee:
Mayor - *District C/ District D*

13. REQUESTS AND ANNOUNCEMENTS

Councilmember Lowry requested that ditches be cleaned out in "District.... all of them". He gave a shoutout to the Drainage District for work done on the canals. He also asked for cleanup of the overgrowth on the roadways around Mac McGaffey Highland Bayou Park as it has been an area of concern for residents.

Councilmember Ross announced the Spring Cleanup event on April 23, 2025, and directed the public to his social media pages for additional information regarding the events he is participating in.

Councilmember Yancy stated that she took a tour with representatives of Drainage District #2 and agrees with Councilmember Lowry. She requested that the area the city owns on Lake Road be paved for a more "professional" look. She again requested a judicial ruling and Open Records Request on Councilmember Lowry's alleged criminal background "so we can put this to rest". She announced Stop the Violence which would be April 23 through April 26, 2025. She apologized to the Mayor for the lack of respect.

Mayor Bell requested a report from all contractors regarding major water main breaks, the start date for the civic academy, an update from Habitat for Humanities on Heroes Village, and a workshop with the Texas Department of Transportation in reference to debris left alongside the road.

14. ADJOURNMENT

Councilmember Yancy made a motion to adjourn. Councilmember Ross seconded.

MOTION CARRIED UNANIMOUSLY.

***Meeting was adjourned at 8:38 p.m.*



**CITY OF LA MARQUE
CITY COUNCIL
SPECIAL MINUTES
of
December 5, 2024**

1. CALL MEETING TO ORDER

Mayor Bell called the meeting to order at 4:01 p.m.

2. ROLL CALL

PRESENT:

Keith Bell	Mayor
Joe Compian	Mayor Pro Tem/ District B
Kimberley Yancy	District A
Joseph Lowry	District C
James Ross	District D

3. EXECUTIVE SESSION

***Mayor Bell recessed the Special Meeting and entered into Executive Session at 4:04 p.m.*

3.1. Section 551.074 (Personnel Matter)

4. ACTIONS TAKEN FROM EXECUTIVE SESSION

***Mayor Bell closed the Executive Session and reconvened the Special Meeting at 5:55 p.m.*

4.1. Section 551.074 (Personnel Matter)

Mayor Pro Tem Compian shared that there have been discussions regarding the city manager's accomplishments and successes. However, there are still some areas of concern. He made a motion that the council establish a 60-day probationary period for which the council sets out their expectations in writing and submits them to the city manager. If the areas have not been addressed within the 60 days, then a separation may occur at that time. Councilmember Ross seconded.

Mayor Bell asked all the council if they would like to add anything for discussion. All the councilmembers declined. He followed by stating that it is his belief that City Manager Garcia has not done an adequate job for the city, as he has not been happy with the budget process for the last 3 years. He cited concerns regarding staff supervision, the city manager's actions regarding the summer program, promotions and planning of events, the reporting of the budget for the All America City, and the lack of a system regarding grant matching funds. He also spoke about the issues presented by the department heads and chairpersons of volunteer boards, commissions and committees as reflected in their evaluation, such as lack of ownership, and communication. He will not be voting for the probation as he

believes the partnership has run its course. He thinks that City Manager Garcia is a great human being, and applauds him for being "the first in the locker room, and the last to leave". He believes that this level of dedication has the potential to be a great leader. However, he believes that he lacks as a manager.

MOTION FAILED WITH 2 AYES (COMPIAN / YANCY) AND 3 NAYS (BELL / LOWRY / ROSS)

Councilmember Ross stated that he unfortunately believed that it was time to "sever the umbilical cord and move on". He made a motion to prepare a resolution for separation for the next meeting. Councilmember Lowry seconded. **MOTION CARRIED WITH 3 AYES (BELL / LOWRY / ROSS) AND 2 NAYS (COMPIAN / YANCY).**

City Manager Garcia requested that his evaluation scores be read for the record.

Councilmember Yancy stated that his overall score was a 7.7 out of 10.

Councilmember Ross clarified that by his math of the 19 evaluations his score would have been 6.4. Discussions regarding the scoring ensued.

5. ADJOURNMENT

Councilmember Ross made a motion to adjourn. Councilmember Lowry seconded. **MOTION CARRIED UNANIMOUSLY.**

***Meeting was adjourned at 6:09 P.M.*



CITY COUNCIL AGENDA FORM

Meeting Date: July 14, 2025

Prepared by: Kasey Lott

Department: City Clerk

Agenda Item: 7.I.

Reviewed by: _____

AGENDA ITEM DESCRIPTION:

Appointing, reappointing, and/or removing members of boards, commissions, and committees
- *City Clerk*

STAFF BRIEFING:

Several Boards and Commissions still need to fill in or replace appointments. The following have vacancies:

District A: Planning & Zoning Commission

District B: KLMBC (Alternate), Ordinance Review Committee

District C: Board of Adjustments, Building Standards Commission, Cemetery Board, KLMBC, Ordinance Review Committee

Mayor: Cemetery Board

Youth Council - 5 applications received; no appointments have been made at this time

Special Events Committee - all Councilmembers can appoint 1 person to this committee. No appointments have been made at this time.

HISTORY:

12/9/2024 - Council Agenda - several appointments / reappointment made

01/13/2025 - Council Agenda; appointments made by Mayor & District D

03/10/2025 - Council Agenda, appointment made by District B (Parks)

03/24/2025 - Council Agenda, appointments made by District A (BOA, BSC, Ordinance Review Board, and P&Z**) (Appointee has not responded to City Clerk's Office on appointment - 3 attempts have been made), District B (EDC & BSC), and District D

06/09/2025 - Special Events Committee ordinance (O-2025-0012) passed and adopted by council.

FISCAL IMPACT:

N/A

Boards and Commissions Terms for Reappointment

1. Mayor Appointments
 - Cemetery Board – VACANT
 - Special Events Committee
 - Youth Advisory Board
2. District A Appointments
 - Planning & Zoning – VACANT – Jazlyn Randall has not responded to City Clerk's Office reachouts
 - Parks Board – VACANT
 - Youth Advisory Board
3. District B Appointments
 - KLMBC (Alternate) – VACANT
 - Youth Advisory Board
4. District C Appointments
 - Board of Adjustments – Ariel Nixon Guillory **Up for appointment**
 - Building Standards – VACANT
 - Cemetery – Joel Camacho **Up for appointment**
 - Planning & Zoning – Greg Cornett **Up for appointment**
 - Ordinance Review – VACANT
 - Youth Advisory Board
5. District D Appointments
 - Youth Advisory Board

Board / Commission / Committee:	Name:	Year Applied:	Currently on Board?:
Board of Adjustments:	Billy Jefferson	2023	Y
	Virginia (Ginger) Mannett	2023	Y
	Jaylen Henderson (2)	2025	
	Jaylyn Perry	2025	
Building Standards:	Scott Moon	2023	
	Sally Austin	2024	Y
		2024	Y - Public Safety Building Committee
	Jamie Ray Loftis		
	Marima Gutierrez (2)	2024	
	Kathy Kidd	2024	
	Carolyn Small (2)	2025	
Charter Review:	Sally Austin	2024	Y- Building Standards
		2024	Y - Public Safety Building Committee
	Jamie Ray Loftis		
		2024	Y - Public Safety Building Committee
	Robert Michetich		
	Ray Medina	2024	Y - Ordinance Review
Civil Service:	Terry Taylor (3)	2025	Y - Ordinance Review
	Rashad Davis (2)	2023	
	Collin Cooper	2023	
	Jackie Pennington	2023	Y
	Deborah Stewart (2)	2024	Y - Ordinance Review
	Shawntale Woodland (2)	2024	Y- Ordinance Review
	Larinda Essary	2024	
	Carla Jefferson	2025	Y - Building Standards
	Jaylen Henderson	2025	
Cemetery:	Michael Augustus	2023	
	Michael Pruden (2)	2024	
	Terry Taylor	2025	Y - Ordinance Review
Economic Development:	Jeremy Silva	2023	

	Rashad Davis	2023	
	Stephanie Gordon	2023	
	Scott Moon (2)	2023	
	Deborah Stewart	2024	Y - Ordinance Review
	Sade Williams (2)	2024	
	Marima Gutierrez	2024	
	Kathy Kidd (2)	2024	
		2024	Y - Public Safety Building Committee
	Orlando Archibald		
	Kelley Woods	2024	
	Jared Williams (2)	2024	Y - P&Z
	Philip Sukal	2024	
	Ikeysha Lewis	2024	
	Greg Cornett	2025	Y - P&Z
	Robert Young (2)	2025	Y - Parks Board
		2025	Y - Public Safety Building Committee
	Jamie Ray Loftis		
	Felix Brown (2)	2025	
	Chandra Stafford (2)	2025	
	Sade Williams (2)	2025	
Library Board:	Michael Augustus (2)	2023	
	Shawntale Woodland	2024	Y- Ordinance Review
	Kimberly Phillips	2024	
	Ronald Caraway	2024	
	Terry Taylor (2)	2025	Y- Ordinance Review
	Melanie Stowe	2025	Y - Building Standards
Keep La Marque Beautiful:	Deborah Stewart (3)	2024	Y - Ordinance Review
	Mardella Park	2024	
	Sade Williams	2024	
	Larinda Essary (2)	2024	
	Kimberly Phillips (2)	2024	
	Michael Porter (2)	2024	
	Ronald Caraway (2)	2024	
	Ikeysha Lewis (2)	2024	
	Jaylyn Perry (2)	2025	
Ordinance Review:	Jerry Edwards	2025	

		2025	Y - Public Safety Building Committee
	Roberty Michetich		
	Chandra Stafford	2025	
		2025	Y- Building Standards
	Melanie Stowe		
	Carolyn Small	2025	
	Felix Brown	2025	
Parks:			
	Collin Cooper	2023	
	Mike Bock	2023	Y
	Allen Honish	2024	
	Michael Pruden	2024	
		2024	Y - Ordinance Review
	Ray Medina		
	Allen Honish	2025	
	Robert Young	2025	Y
		2025	Y - Public Safety Building Committee
	Jamie Ray Loftis		
	Jason Wells	2025	
Planning & Zoning:			
	Jeremy Silva (2)	2023	
	Stephanie Gordon (2)	2023	
	Allen Honish (2)	2024	
		2024	Y - Public Safety Building Committee
	Orlando Archibald (2)		
	Michael Porter	2024	
	Jared Williams	2024	Y
	Philip Sukal (2)	2024	
		2025	Y - Building Standards
	Carla Jefferson		
	Greg Cornett (2)	2025	Y
		2025	Y - Ordinance Review
	Terry Taylor (4)		
	Allen Honish (2)	2025	
	Sade Williams	2025	
	Jason Wells (2)	2025	

Parks Board 2025												
Name	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Mike "Rock" Bock	P	CANCELLED	P	P	NO QUORUM	P						
Tonia Giffin	P		A	P		P						
Mike Wev	P		P	P		A						
Tamara Smith	P		RESIGNED									
Mary Limones	P		P	P		A						
Robert Young				P		P						
"P" Present "AN" Absent Not Excused "AE" Absent Excused 3 for a Quorum												

BOARD OF ADJUSTMENTS COMMISSION ATTENDANCE 2025				
Name	Jan	April	July	Oct
Alexa Cross	P	P		
Ginger Mannett	AN	AN		
Billy Jefferson - Chairperson	P	P		
Ariel Guillory	AE	P		
Sheila Brown	P	AN		
Crystal Cooper		AE		

"P" Present
 "AE" Absent Excused
 "AN" Absent Not
 Excused
 3 for a Quorum
 "NQ" Cancelled, No
 Quorum
 "NM" No Meeting

Building Standards 2025												
Name	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Sally Austin	A	P	P	P	P	P						
David Pennington	P	P	P	P	P	P						
Maggie Manuel	P	P	P	P	AN	RESIGNED						
Veverly Sumlin	P	P	A	AN	P	A						
Kaleb Smith	A	A	RESIGNED									
Carla Jefferson				P	P	P						
Christine Linscomb (Alt)				P	AN	A						
"P" Present												
"AN" Absent Not Excused												
"AE" Absent Excused												
3 for a Quorum												
"NM" No Meeting												

Cemetery Board 2025				
Name	March- NQ	June- NQ	Oct	Dec
Bim Crowder	NQ	P - NQ		
Kurt Koopman	NQ	AE		
Brigette Johnson	NQ	AN		
Joel Camacho	NQ	AN		
"P" Present				
"AN" Absent Not Excused				
"AE" Absent Excused				
3 for a Quorum				

Civil Service Commission 2025												
Name	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Morris Martin Jr.	P	n/a	n/a	n/a	P	n/a						
Lucy Glenn	P	n/a	n/a	n/a	P	n/a						
Jackie Pennington	P	n/a	n/a	n/a	P	n/a						

"P" Present
 "AN" Absent Not Excused
 "AE" Absent Excused
 3 for a Quorum

Economic Development Corporation 2025												
Name	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Gene Smith	No	P	P	P	AE	P						
Cleveland Lane	Meeting	P	P	P	P	P						
Bobby Hocking		resigned										
Joe Compian				P	P	P						
James Osteen		AE	AE	P	P	P						
Tracie Steans		P	P	P	P	A						
"P" Present												
"AN" Absent Not Excused												
"AE" Absent Excused												
3 for a Quorum												

Keep La Marque Beautiful Commission 2025												
Name	Jan	Feb-NQ	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Lyndsey Gonzales	A	P-NQ	A	P	P	P						
Re'Chard Loftis	P	A	P	P	P	P						
Terry Pettijohn	P	A	P	P	AE	P						
Kathy Herrin	A	P-NQ	A	P	P	P						
Ashley Gooden-Stewart	P	A	P	A	P	A						

"P" Present

"AN" Absent Not Excused

"AE" Absent Excused

3 for a Quorum

"NM" No Meeting

PLANNING & ZONING COMMISSION ATTENDANCE 2025												
Name	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Alan Waters, Chair	A	NO QUORUM			CANCELLED							
Greg Cornett, Vice Chairperson	P		P	P / P		P						
Bradley Stephenson	P		P	P / P		P						
Corey McCarra	P		P	A/P		P						
Jared Williams			P / P			A						
"P" Present												
"AN" Absent Not Excused												
"AE" Absent Excused												
3 for a Quorum												
NM - No Meeting												

Public Safety Building Committee 2025												
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Jamie Loftis	P	A	P	P	A/P	CANCELLED						
Wilmon Smith	P	P	P	P	P/P							
Robert Michetich	P	P	A	P	P/P							
Jose Divora	P											
Orlando Archibald		P	P	P	P/A							
Dash Cantu	P	P	P	A	P/P							
Sally Austin (A)	P	A	P	P	P/P							
Jackie Pennington (A)	P	A	P	P	A/P							
Conan King (A)	P	A	A	P	A/A							

"P" Present
 "AN" Absent Not Excused
 "AE" Absent Excused
 3 for a Quorum

TIRZ 2025												
Name	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	14-Nov	12-Dec
Patty Shipley	P	N/A	P	N/A	P	P						
Leslie Cruz	P	N/A	A	N/A	P	P						
Darlene Barnes	P	N/A	P	N/A	A	P						
Doug Boudin	P	N/A	P	N/A	P	P						
Sheryl Ann Farrell	P	N/A	A	N/A	A	P						
Sherryl Gray	P	N/A	P	N/A	P	P						
Al Horcica	P	N/A	P	N/A	P	P						
"P" Present												
"AN" Absent Not Excused												
"AE" Absent Excused												
3 for a Quorum												

6/02/2025

TO: City of La Marque Building and Standards Board Members

FROM: Maggie Manuel, Board Member

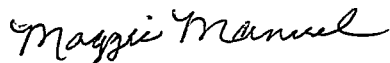
SUBJECT: Resignation Letter

To Whom It May Concern:

After careful consideration and after having given much thought and consideration into this decision, I have chosen to submit my letter of resignation effective 6/01/2025. It has been my honor to be a part of the City of La Marque's growth and development all of these years, but with that being said, I feel that with new residents moving into town along with having fresh and new ideas, perhaps it's time to pass the torch on to someone else. I have very much enjoyed my time while serving as a board member of this committee and will always support my hometown community of La Marque not only today, but in the future.

I wish everyone the very best and should you have any questions or concerns, please feel free to reach out to me @ (409)938-7627.

Respectfully,



Maggie Manuel



CITY COUNCIL AGENDA FORM

Meeting Date: July 14, 2025
Prepared by: _____
Department: Administration

Agenda Item: 7.II.
Reviewed by: _____

AGENDA ITEM DESCRIPTION:

Scheduling a workshop between Council and Public Works to discuss street projects - *Public Works*

STAFF BRIEFING:

EDC Joint meeting is scheduled for 7.28.2025 @ 1:00 p.m.
Streets workshop to include Public Works to review plans and areas in most need of repair. A request from Public Works is to set the workshop for end of August/early September.

HISTORY:

This request was made from the dias at a prior meeting.

FISCAL IMPACT:

n/a



CITY COUNCIL AGENDA FORM

Meeting Date: July 14, 2025
Prepared by: _____
Department: City Clerk

Agenda Item: 7.III.
Reviewed by: _____

AGENDA ITEM DESCRIPTION:

Drafting a Special Events Calendar for FY 25 - 26 - *Administration*

STAFF BRIEFING:

HISTORY:

FISCAL IMPACT:

YEARLY EVENTS (DATES TBD):

- Bayou Fest
- Fair on the Square
- Spring Cleanup
- Fall Cleanup
- Hurricane Huddle
- Back to School Event – August

CALENDAR OF EVENTS (FY 25-26):

- Founder's Day – October 8, 2025
- Trunk or Treat – October 23, 2025
- Veteran's Day Breakfast – November 11, 2025
- Christmas Parade- December 2, 2025
- Volunteer Appreciation Dinner – December 11, 2025
- MLK Parade- January
- Easter Egg Scramble – March 28, 2026
- BTR Cajun Throwdown Event – April 10 and 11, 2026
- Election Day – May 2, 2026
- Lemonade Day- May 2, 2026
- Cinco de Mayo- May 5, 2026
- Servolution – May 9, 2026
- Juneteenth Gala – June 18, 2026
- Life & Liberty – July 3, 2026
- Founder's Day – October 8, 2025
- Trunk or Treat – October 22, 2026
- Veteran's Day Breakfast – November 11, 2026
- Christmas Parade- December 1, 2026



CITY COUNCIL AGENDA FORM

Meeting Date: July 14, 2025
Prepared by: _____
Department: Administration

Agenda Item: 8.I.
Reviewed by: _____

AGENDA ITEM DESCRIPTION:

An Amended and Restated Ordinance authorizing the issuance and sale of the City of La Marque, Texas, Tax and Subordinate Lien Revenue Certificates of Obligation, Series 2025; authorizing execution and delivery of paying agent/registrar agreement and an escrow agreement relating to such certificates; prescribing the form of said certificates; levying a tax and pledging subordinate lien on the net revenues of the water, sewer and wastewater system in payment thereof; and enacting other provisions relating thereto - *Finance / Legal*

STAFF BRIEFING:

The amendment to the ordinance updates the interest rates to reflect current TWDB rates and changes the dated date of the certificates of obligation. Other than a recital that explains those changes, are no other changes to the ordinance. I've attached a redline so that you can see the updates. These changes were required by the TWDB in connection with the fulfillment of the closing conditions.

HISTORY:

07.07.2025 - Email received from Stifel indicating deadlines for processing. This amendment must be heard by 7/14.

FISCAL IMPACT:

City of La Marque, TX Series 2025 TWDB CWSRF L1001953 \$9,985,000

AMENDED AND RESTATED ORDINANCE NO. O-2025-0010

**AUTHORIZING THE
ISSUANCE OF**

**CITY OF LA MARQUE, TEXAS
TAX AND SUBORDINATE LIEN REVENUE CERTIFICATES OF OBLIGATION
SERIES 2025**

Adopted: July 14, 2025

TABLE OF CONTENTS

Page

ARTICLE I.

DEFINITIONS AND OTHER PRELIMINARY MATTERS

Section 1.1.	Definitions	2
Section 1.2.	Findings	7
Section 1.3.	Table of Contents, Titles, and Headings	7
Section 1.4.	Interpretation	7

ARTICLE II.

TAX LEVY; SERIES 2025 DEBT SERVICE FUND; PLEDGE OF REVENUES; RATE COVENANT

Section 2.1.	Tax Levy	7
Section 2.2.	Series 2025 Debt Service Fund	8
Section 2.3.	Pledge of Revenues	8
Section 2.4.	Special Funds	9
Section 2.5.	Flow of Funds	10
Section 2.6.	Subordinate Lien Debt Service Fund	11
Section 2.7.	Application of Chapter 1208, Texas Government Code	11
Section 2.8.	Rate Covenant	11
Section 2.9.	Additional Obligations	12

ARTICLE III.

AUTHORIZATION; GENERAL TERMS AND PROVISIONS REGARDING THE CERTIFICATES

Section 3.1.	Authorization	12
Section 3.2.	Date, Denomination, Maturities, and Interest	12
Section 3.3.	Medium, Method, and Place of Payment	13
Section 3.4.	Execution and Registration of Certificates	14
Section 3.5.	Ownership	15
Section 3.6.	Registration, Transfer, and Exchange	15
Section 3.7.	Cancellation	16
Section 3.8.	Replacement Certificates	16
Section 3.9.	Book-Entry-Only System	17
Section 3.10.	Successor Securities Depository; Transfer Outside Book-Entry-Only System	18
Section 3.11.	Payments to Cede & Co	18

ARTICLE IV.

REDEMPTION OF CERTIFICATES BEFORE MATURITY

Section 4.1.	Limitation on Redemption	18
Section 4.2.	Optional Redemption	19
Section 4.3.	Partial Redemption	19
Section 4.4.	Notice of Redemption to Owners	19
Section 4.5.	Payment Upon Redemption	20
Section 4.6.	Effect of Redemption	20
Section 4.7.	Lapse of Payment	21

ARTICLE V.

PAYING AGENT/REGISTRAR AND ESCROW AGENT

Section 5.1.	Appointment of Initial Paying Agent/Registrar	21
Section 5.2.	Qualifications	21
Section 5.3.	Maintaining Paying Agent/Registrar	21
Section 5.4.	Termination	22
Section 5.5.	Notice of Change to Owners	22
Section 5.6.	Agreement to Perform Duties and Functions	22
Section 5.7.	Delivery of Records to Successor	22
Section 5.8.	Escrow Agreement	22

ARTICLE VI.

FORM OF THE CERTIFICATES

Section 6.1.	Form Generally	22
Section 6.2.	Form of the Certificates	23
Section 6.3.	CUSIP Registration	28
Section 6.4.	Legal Opinion	29

ARTICLE VII.

SALE AND DELIVERY OF CERTIFICATES; DEPOSIT OF PROCEEDS; OFFICIAL STATEMENT

Section 7.1.	Sale of Certificates	29
Section 7.2.	Project Fund	29
Section 7.3.	Control and Delivery of Certificates	30
Section 7.4.	Private Placement Memorandum	30

ARTICLE VIII.

PARTICULAR REPRESENTATIONS AND COVENANTS

Section 8.1.	Payment of the Certificates	30
Section 8.2.	Other Representations and Covenants.....	30
Section 8.3.	Provisions Concerning Federal Income Tax Matters	31

ARTICLE IX.

SPECIAL PROVISIONS RELATING TO THE TWDB

Section 9.1.	Compliance with Rules and Statutes	32
Section 9.2.	Compliance with Environmental Findings of Executive Administrator	32
Section 9.3.	Audited Financial Statements.....	32
Section 9.4.	Outlay Reports.....	32
Section 9.5.	Compliance with Davis-Bacon and Federal Disadvantaged Business Enterprises Program	33
Section 9.6.	Federal Funding Accountability and Transparency Act.....	33
Section 9.7.	Use of Iron and Steel Products	33
Section 9.8.	Build America, Buy America Act	33
Section 9.9.	Telecommunication and Video-Surveillance	33
Section 9.10.	Insurance	33
Section 9.11.	Maintenance of Project Fund	33
Section 9.12.	Project Schedule	33
Section 9.13.	Completion of the Project; Surplus Funds	33
Section 9.14.	Notice of Suit by the Attorney General of the State of Texas.....	34
Section 9.15.	Special TWDB Tax Covenants	34
Section 9.16.	Remedies	34
Section 9.17.	Sampling, Testing, Removing and Disposing of Contaminated Soil.....	34

ARTICLE X.

DISCHARGE

Section 10.1.	Discharge.....	34
---------------	----------------	----

ARTICLE XI.

CONTINUING DISCLOSURE UNDERTAKING

Section 11.1.	Annual Reports.....	35
Section 11.2.	Event Notices	35
Section 11.3.	Limitations, Disclaimers and Amendments	37

ARTICLE XII.

AMENDMENTS TO ORDINANCE AND PRICING CERTIFICATE

Section 12.1.	Amendments to Ordinance.....	38
Section 12.2.	Notice and Adoption of Amendment	39
Section 12.3.	Consent of Owner Irrevocable	39
Section 12.4.	Changes in Connection with Attorney General Approval.....	39

ARTICLE XIII.

MISCELLANEOUS

Section 13.1.	Partial Invalidity	39
Section 13.2.	Repealer.....	39
Section 13.3.	Individuals Not Liable.....	39
Section 13.4.	Related Matters	40
Section 13.5.	Force and Effect	40

AMENDED AND RESTATED ORDINANCE NO. O-2025-0010

AN AMENDED AND RESTATED ORDINANCE AUTHORIZING THE
ISSUANCE AND SALE OF THE CITY OF LA MARQUE, TEXAS, TAX AND
SUBORDINATE LIEN REVENUE CERTIFICATES OF OBLIGATION,
SERIES 2025; AUTHORIZING EXECUTION AND DELIVERY OF A PAYING
AGENT/REGISTRAR AGREEMENT AND AN ESCROW AGREEMENT
RELATING TO SUCH CERTIFICATES; PRESCRIBING THE FORM OF SAID
CERTIFICATES; LEVYING A TAX AND PLEDGING SUBORDINATE LIEN
ON THE NET REVENUES OF THE WATER, SEWER AND WASTEWATER
SYSTEM IN PAYMENT THEREOF; AND ENACTING OTHER PROVISIONS
RELATING THERETO

THE STATE OF TEXAS	§
COUNTY OF GALVESTON	§
CITY OF LA MARQUE	§

WHEREAS, under the provisions of Subchapter C, Chapter 271, Texas Local Government Code, as amended (the “Chapter 271”), the City of La Marque, Texas (the “City”), is authorized to issue certificates of obligation for the purposes specified in this Ordinance and for the payment of all or a portion of the contractual obligations for professional services, including that of engineers, attorneys, and financial advisors in connection therewith, and to sell the same for cash as herein provided; and

WHEREAS, the City is authorized to provide that such obligations will be payable from and secured by a direct and continuing annual ad valorem tax levied, within the limits prescribed by law, against all taxable property within the City, in combination with a pledge of a subordinate lien on the net revenues of the City’s water, sewer and wastewater system (the “System”) as authorized by the Chapter 271 and Chapter 1502, Texas Government Code (“Chapter 1502,” together with Chapter 271, the “Act”); and

WHEREAS, the City Council has found and determined that it is necessary and in the best interests of the City and its citizens that it issue such certificates of obligation authorized by this Ordinance; and

WHEREAS, pursuant to a resolution heretofore passed by this governing body, notice of intention to issue certificates of obligation of the City payable as provided in this Ordinance was published and posted at the times and in the manner required by the constitution and laws of the State of Texas, including Chapter 271, which notice provided that the principal amount of such certificates of obligation would not exceed \$9,985,000 and the proceeds would be used for the purpose of paying contractual obligations to be incurred for the purposes set forth in Section 3.1 hereof; and

WHEREAS, such notice provided that the City tentatively planned to adopt an ordinance authorizing the issuance of the Certificates (as defined herein) on April 28, 2025, and at that meeting the City Council passed a motion specifying that the ordinance authorizing the Certificates would be considered at the City Council meeting held on May 12, 2025; and

WHEREAS, in order to comply with certain closing conditions imposed by the Texas Water Development Board (the “TWDB”), the TWDB requested that the City postpone closing on the Certificates until August 20, 2025, which resulted in a need to update the interest rates on the Certificates as well as certain dates included in the Ordinance, while leaving the remaining portions of the Ordinance previously adopted by the City Council unchanged; and

WHEREAS, no petition of any kind has been filed with the City Clerk, any member of the City Council or any other official of the City, protesting the issuance of such certificates of obligation; and

WHEREAS, this City Council is now authorized and empowered to proceed with the issuance of said certificates of obligation and to sell the same for cash; and

WHEREAS, the meeting at which this Ordinance is considered is open to the public as required by law, and public notice of the time, place, and purpose of said meeting was given as required by Chapter 551, Texas Government Code, as amended; Now, Therefore,

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LA MARQUE, TEXAS:

ARTICLE I.

DEFINITIONS AND OTHER PRELIMINARY MATTERS

Section 1.1. Definitions. Unless otherwise expressly provided or unless the context clearly requires otherwise in this Ordinance, the following terms shall have the meanings specified below:

“Act” means Chapter 271 and Chapter 1502.

“Bond Counsel” means Bracewell LLP.

“Business Day” means a day that is not a Saturday, Sunday, legal holiday or other day on which banking institutions in the city where the Designated Payment/Transfer Office is located are required or authorized by law or executive order to close.

“Certificate” or “Certificates” means the City’s certificates of obligation entitled, “City of La Marque, Texas, Tax and Subordinate Lien Revenue Certificates of Obligation, Series 2025” authorized to be issued by Section 3.1 of this Ordinance.

“Chapter 271” means Chapter 271, Texas Local Government Code, as amended.

“Chapter 1502” means Chapter 1502, Texas Government Code, as amended.

“City” means the City of La Marque, Texas.

“Closing Date” means the date of the initial delivery of and payment for the Certificates.

“Code” means the Internal Revenue Code of 1986, as amended, and with respect to a specific section thereof, such reference shall be deemed to include (a) the Regulation promulgated under such section, (b) any successor provision of similar import hereafter enacted, (c) any corresponding provision of any subsequent Internal Revenue Code and (d) the regulations promulgated under the provisions described in (b) and (c).

“Dated Date” means August 1, 2025.

“Designated Payment/Transfer Office” means (i) with respect to the initial Paying Agent/Registrar named in this Ordinance, the Designated Payment/Transfer Office as designated in the Paying Agent/Registrar Agreement, or at such other location designated by the Paying Agent/Registrar and (ii) with respect to any successor Paying Agent/Registrar, the office of such successor designated and located as may be agreed upon by the City and such successor.

“DTC” means The Depository Trust Company of New York, New York, or any successor securities depository.

“DTC Participant” means brokers and dealers, banks, trust companies, clearing corporations and certain other organizations on whose behalf DTC was created to hold securities to facilitate the clearance and settlement of securities transactions among DTC Participants.

“Escrow Agent” means BOKF, NA, Dallas, Texas, and its successors and assigns, or such other escrow agent as may be approved by the Mayor or Mayor Pro Tem and acceptable to the TWDB.

“Escrow Agreement” means the escrow agreement by and between the City and the Escrow Agent pertaining to the deposit of the proceeds of the Certificates.

“Executive Administrator” has the meaning ascribed thereto in Section 9.13 of this Ordinance.

“Financial Obligation” means a (i) debt obligation, (ii) derivative instrument entered into in connection with, or pledged as security or a source of payment for, an existing or planned debt obligation, or (iii) guarantee of a debt obligation or any such derivative instrument; provided that “financial obligation” shall not include municipal securities as to which a final official statement (as defined in the Rule) has been provided to the MSRB consistent with the Rule.

“Fiscal Year” means such fiscal year as shall from time to time be set by the City Council.

“Gross Revenues” means, for any period, all revenues, income and receipts of every nature derived or received by the City from the operation and ownership of the System and the interest income from the investment or deposit of money in the Revenue Fund and any other revenues hereinafter pledged to the payment of obligations secured by Net Revenues. When used with reference to the Certificates and any additional obligations secured by Net Revenues hereafter issued, Gross Revenues shall not include any of the following:

(a) utility deposits and other funds collected by the City to which a third party holds a contractually based reversionary interest or other legal or equitable ownership interest;

(b) payments received from the federal government, unless the City first receives an opinion from nationally recognized bond counsel to the effect that such payments, if included in Gross Revenues, would not adversely affect the excludability of the interest on any obligations secured by Net Revenues the interest on which is otherwise excludable from gross income for federal income tax purposes;

(c) the proceeds of any obligations secured by Net Revenues;

(d) any monies received as grants, appropriations, or gifts unless they are designated by official action of the City Council at the time of receipt as being included as part of Gross Revenues; and

(e) the revenue or income derived from a contract or contracts with persons, corporations, municipal corporations, political subdivisions, or other entities that are pledged for the requirements of the obligations issued to finance Special Projects or the revenue or income derived from the operation of such Special Projects, unless otherwise provided by City Council.

“Initial Certificate” means the initial certificate authorized by Section 3.4 of this Ordinance.

“Interest Payment Date” means the date or dates upon which interest on the principal of the Certificates is scheduled to be paid until their respective dates of maturity or prior redemption, such dates being February 1 and August 1 of each year, commencing on February 1, 2026.

“Limited Pledge Obligations” means any bonds, notes, warrants, certificates of obligation or other evidence of indebtedness hereafter issued by the City that are secured by and payable in part from a limited pledge of Net Revenues.

“Maintenance and Operation Expenses” means the reasonable and necessary expenses of operation and maintenance of the System, including (i) all salaries, labor, materials, repairs and extensions necessary to provide efficient service (but only such repairs and extensions as, in the judgment of City Council, are necessary to (1) keep the System in operation and provide adequate service to the City and its residents, or (2) respond to a physical accident or condition which would otherwise impair the System), which expenses include payments to the City’s general fund or other funds for expenses, salaries, benefits, materials and labor associated with the operation and maintenance of the System, (ii) payments under contracts for the purchase of water supply, treatment of sewage, or other materials, goods, or services for the System to the extent authorized by law and the provision of such contracts, including without limitation water supply contracts with the Gulf Coast Water Authority or its successor, and (iii) all payments under contracts now or hereafter defined as operating expenses under the laws of the State. Maintenance and Operation Expenses shall specifically exclude the following:

(a) any allowance for depreciation, property retirement, depletion, or obsolescence;

(b) other items not requiring an outlay of cash;

(c) so long as payments received from the federal government are excluded from Gross Revenues, an amount of expenses that would otherwise constitute Maintenance and Operation

Expenses for such period equal to the payments received from the federal government for such period to the extent that the payments received from the federal government are used to pay such expenses; and

(d) so long as monies received as grants, appropriations or gifts are excluded from Gross Revenues, an amount of expenses that would otherwise constitute Maintenance and Operation Expenses for such period equal to such grants, appropriations or gifts to the extent that they are used to pay such expenses.

“MSRB” means the Municipal Securities Rulemaking Board.

“Net Revenues” means the revenues to be derived from the System, after the payment of all Maintenance and Operation Expenses thereof.

“Ordinance” as used herein and in the Certificates means this ordinance authorizing the Certificates.

“Outstanding,” when used with respect to Subordinate Lien Obligations, means all Subordinate Lien Obligations secured by and payable from a subordinate lien on the Net Revenues of the System, except;

(a) Subordinate Lien Obligations theretofore canceled by the Paying Agent/Registrar or delivered to the Paying Agent/Registrar for cancellation;

(b) Subordinate Lien Obligations for whose payment or redemption money or securities authorized for that purpose under Texas law shall have theretofore been deposited with the Paying Agent/Registrar or any paying agent or escrow agent for such Subordinate Lien Obligations in trust for the Owners of such Subordinate Lien Obligations; provided, that, if such Subordinate Lien Obligations are to be redeemed, notice of such redemption has been duly given or waived or irrevocable provision for the giving of such notice satisfactory to the Paying Agent/Registrar has been made; and

(c) Subordinate Lien Obligations upon transfer of or in exchange for or in lieu of which other Subordinate Lien Obligations have been authenticated and delivered pursuant to this Ordinance.

“Owner” means the person who is the registered owner of a Certificate or Certificates, as shown in the Register.

“Paying Agent/Registrar” means initially BOKF, NA, Dallas, Texas or any successor thereto as provided in this Ordinance.

“Paying Agent/Registrar Agreement” means the Paying Agent/Registrar Agreement between the Paying Agent/Registrar and the City relating to the Certificates.

“Project” means all or any part of the costs associated with the (i) the eligible costs for improvements to the City’s wastewater system, including the planning, design and construction of

capital repairs and improvements to the City's sewer collection system and manholes to address inflow and infiltration, and (ii) cost of professional services incurred in connection therewith.

"Project Fund" has the meaning ascribed thereto in Section 7.2 of this Ordinance.

"Record Date" means the fifteenth day of the month next preceding an Interest Payment Date.

"Register" means the bond register specified in Section 3.6(a) of this Ordinance.

"Regulations" means the applicable, proposed, temporary or final Treasury Regulations promulgated under the Code, or, to the extent applicable to the Code, under the Internal Revenue Code of 1954, as such regulations may be amended or supplemented from time to time.

"Representation Letter" means the Blanket Letter of Representations between the City and DTC.

"Rule" means SEC Rule 15c2-12, as amended from time to time.

"SEC" means the United States Securities and Exchange Commission.

"Senior Lien Obligations" means obligations of any kind or class, including bonds, notes, bond anticipation notes, commercial paper and other obligations that are secured by and payable from a pledge of a first lien on Net Revenues.

"Series 2025 Debt Service Fund" means the debt service fund established by Section 2.2 of this Ordinance.

"State" means the State of Texas.

"Special Project" means, to the extent permitted by law, any water, sewer and wastewater system property, improvement or facility declared by the City not to be part of the System and substantially all of the costs of acquisition, construction, and installation of which is paid from proceeds of a financing transaction other than the issuance of bonds payable from ad valorem taxes or Gross Revenues or Net Revenues of the System, and for which all maintenance and operation expenses are payable from sources other than Gross Revenues or Net Revenues of the System.

"Subordinate Lien Debt Service Fund" means the fund established under Section 2.4(a)(iii) of this Ordinance.

"Subordinate Lien Obligations" means the Certificates and each series of obligations of any kind or class, including bonds, notes, bond anticipation notes, commercial paper and other obligations that are secured by and payable from a pledge of a second lien on Net Revenues.

"System" as used in this Ordinance means all properties, facilities, improvements, equipment, interests, and rights constituting the water, sewer and wastewater system of the City, including all future extensions, replacements, betterments, additions, and improvements to the System. The System shall not include any Special Project.

“TWDB” means the Texas Water Development Board.

“TWDB Source Series Bonds” means the TWDB source series bonds identified in the Federal Tax Certificate delivered by the City in connection with the Certificates.

“Unclaimed Payments” means money deposited with the Paying Agent/Registrar for the payment of principal, redemption premium, if any, or interest on the Certificates as the same becomes due and payable or money set aside for the payment of Certificates duly called for redemption prior to maturity and remaining unclaimed by the Owners of such Certificates for 90 days after the applicable payment or redemption date.

Section 1.2. Findings. The declarations, determinations, and findings declared, made, and found in the recitals to this Ordinance are hereby adopted, restated, and made a part of the operative provisions hereof.

Section 1.3. Table of Contents, Titles, and Headings. The table of contents, titles, and headings of the Articles and Sections of this Ordinance have been inserted for convenience of reference only and are not to be considered a part hereof and shall not in any way modify or restrict any of the terms or provisions hereof and shall never be considered or given any effect in construing this Ordinance or any provision hereof or in ascertaining intent, if any question of intent should arise.

Section 1.4. Interpretation.

(a) Unless the context requires otherwise, words of the masculine gender shall be construed to include correlative words of the feminine and neuter genders and vice versa, and words of the singular number shall be construed to include correlative words of the plural number and vice versa.

(b) Any action required to be taken on a date which is not a Business Day shall be taken on the next succeeding Business Day and have the same effect as if taken on the date so required.

(c) This Ordinance and all the terms and provisions hereof shall be liberally construed to effectuate the purposes set forth herein to sustain the validity of this Ordinance.

(d) Article and section references shall mean references to articles and sections of this Ordinance unless otherwise designated.

ARTICLE II.

TAX LEVY; SERIES 2025 DEBT SERVICE FUND; PLEDGE OF REVENUES; RATE COVENANT

Section 2.1. Tax Levy.

(a) Pursuant to the authority granted by the Texas Constitution and the laws of the State, there shall be levied and there is hereby levied for the current year and for each succeeding year thereafter while any of the Certificates or any interest thereon is outstanding and unpaid, an

ad valorem tax on each one hundred dollars valuation of taxable property within the City, at a rate sufficient, within the limit prescribed by law, to pay the debt service requirements of the Certificates, being (i) the interest on the Certificates, and (ii) a sinking fund for their redemption at maturity or a sinking fund of 2% per annum (whichever amount is greater), when due and payable, full allowance being made for delinquencies and costs of collection.

(b) The ad valorem tax thus levied shall be assessed and collected each year against all property appearing on the tax rolls of the City most recently approved in accordance with law and the money thus collected shall be deposited as collected to the Series 2025 Debt Service Fund.

(c) If Net Revenues or other lawfully available funds are actually on deposit in the Series 2025 Debt Service Fund in advance of the time when ad valorem taxes are scheduled to be levied for any year, the amount of taxes that otherwise would have been required to be levied may be reduced to the extent and by the amount of funds then on deposit in the Interest and Sinking Fund.

(d) Said ad valorem tax, the collections therefrom, and all amounts on deposit in or required hereby to be deposited to the Series 2025 Debt Service Fund are hereby pledged and committed irrevocably to the payment of the principal of and interest on the Certificates when and as due and payable in accordance with their terms and this Ordinance and associated expenses.

Section 2.2. Series 2025 Debt Service Fund.

(a) The City hereby establishes a special fund or account to be designated the “City of La Marque, Texas, Tax and Subordinate Lien Revenue Certificates of Obligation, Series 2025, Debt Service Fund” (the “Series 2025 Debt Service Fund”), which fund shall be maintained at an official depository bank of the City separate and apart from all other funds and accounts of the City.

(b) Money on deposit in, or required by this Ordinance to be deposited to, the Series 2025 Debt Service Fund shall be used solely for the purpose of paying the interest on and principal of the Certificates when and as due and payable and associated costs in accordance with their terms and this Ordinance.

(c) To pay debt service coming due on the Certificates prior to receipt of the taxes levied to pay such debt service, there is hereby appropriated from current funds on hand, which are hereby certified to be on hand and available for such purpose, an amount sufficient to pay such debt service, and such amount shall be used for no other purpose.

Section 2.3. Pledge of Revenues.

(a) The Certificates are Subordinate Lien Obligations, and the payment of the principal of and interest on the Certificates when due is additionally secured by and payable from a subordinate (second) lien on the Net Revenues.

(b) If the City does not levy taxes in any year as provided in Section 2.1, the City shall transfer and deposit in the Series 2025 Debt Service Fund out of the Subordinate Lien Debt Service Fund each month an amount of not less than 1/12th of the annual debt service on the Certificates

until the amount on deposit in the Series 2025 Debt Service Fund equals the amount required for annual debt service on the Certificates and the City shall not transfer Net Revenues to any fund outside of the System until such time as an amount equal to the annual debt service on the Certificates for the then current fiscal year has been deposited in the Series 2025 Debt Service Fund.

(c) The City reserves the right to establish additional rules for the calculation, deposit, and treatment of debt service associated with obligations secured by Net Revenues in connection with the future issuance of such obligations.

(d) Each year that the Certificates are outstanding, and prior to the time taxes are to be levied for such year, the City shall establish, adopt, and maintain an annual budget that provides for the monthly deposit of sufficient Net Revenues, the monthly deposit of any other legally available funds on hand at the time of the adoption of the annual budget, the deposit of tax revenues, or a combination thereof, into the Series 2025 Debt Service Fund for the payment of debt service on the Certificates.

(e) To the extent a limited pledge of Net Revenues secures an obligation issued as a Limited Pledge Obligation, such limited pledge shall be considered extinguished upon the deposit in the applicable debt service fund of an amount equal to the limited pledge.

Section 2.4. Special Funds.

(a) The following special funds are hereby created, established and confirmed, and such funds shall be maintained and accounted for as hereinafter provided, so long as the Certificates remain Outstanding:

(i) System Revenue Fund (the “Revenue Fund”);

(ii) Such funds and accounts created for the payment, security and benefit of any Senior Lien Obligations hereafter issued by the City in accordance with the terms and provisions of any ordinance authorizing their issuance;

(iii) Subordinate Lien Debt Service Fund (the “Subordinate Lien Debt Service Fund”);

(iv) Such funds and accounts created for the payment, security and benefit of any Subordinate Lien Obligations hereafter issued by the City in accordance with the terms and provisions of any ordinance authorizing their issuance; and

(v) Such funds and accounts created for the payment, security and benefit of any obligations secured by a pledge of Net Revenues junior and subordinate to those securing the Senior Lien Obligations and Subordinate Lien Obligations hereafter issued by the City or for any other lawful purpose in accordance with the terms and provisions of any ordinance authorizing their issuance.

(b) The Revenue Fund shall be maintained as a separate account on the books of the City. The Subordinate Lien Debt Service Fund shall be maintained at an official depository bank

of the City separate and apart from all other funds and accounts of the City and shall constitute trust funds which shall be held in trust for the benefit of the Owners of the Subordinate Lien Obligations and the proceeds of which shall be and are hereby pledged to the payment of the Subordinate Lien Obligations.

(c) The City reserves the right to establish additional funds and accounts and subaccounts within any fund as necessary or desirable in furtherance of the intents, and purposes of the City. Each such fund and account or subaccount within a fund shall be designated in a manner that indicates the identity of such fund and that distinguishes such account or subaccount from all other accounts and subaccounts established under this Ordinance.

(d) The City reserves the right to establish one or more additional funds or accounts and subaccounts within a fund for such purposes as the City may determine from time to time, including, but not limited to the purposes of providing for the issuance of Senior Lien Obligations, additional obligations issued on parity with the Subordinate Lien Obligations, or obligations that are secured by a lien on the Net Revenues that is junior and subordinate to those securing the Senior Lien Obligations and Subordinate Lien Obligations and the creation of reserves for any lawful City purpose.

Section 2.5. Flow of Funds. All Gross Revenues of the System (except for interest and earnings on investments in the any reserve fund or debt service fund) shall be deposited as collected into the Revenue Fund. Money from time to time on deposit in the Revenue Fund shall be applied as follows in the following order of priority:

- (a) First, to pay Maintenance and Operation Expenses.
- (b) Second, to make all deposits into any funds and accounts created for the payment, security and benefit of any Senior Lien Obligations hereafter issued by the City in accordance with the terms and provisions of any ordinance authorizing their issuance.
- (c) Third, to make all deposits into the Subordinate Lien Debt Service Fund as required by this Ordinance and any ordinance authorizing the issuance of additional Subordinate Lien Obligations.
- (d) Fourth, to make all deposits into any additional funds and accounts created for the payment, security and benefit of any Subordinate Lien Obligations hereafter issued by the City in accordance with the terms and provisions of any ordinance authorizing their issuance.
- (e) Fifth, to make all deposits into any funds and accounts created for the payment, security and benefit of any obligations secured by a pledge of Net Revenues junior and subordinate to those securing the Senior Lien Obligations and Subordinate Lien Obligations hereafter issued by the City in accordance with the terms and provisions of any ordinance authorizing their issuance.
- (f) Sixth, for (i) the payment of any certificates of obligation or general obligation bonds or refunding bonds issued for a System purpose or secured by a pledge of Net Revenues subordinate to the Senior Lien Obligations, Subordinate Lien Obligations or any future obligations with a pledge of revenues superior to that securing such obligations, (ii) the payment of a franchise

fee or similar charge for the benefit of operating the System as established by the City Council from time to time, (iii) the redemption prior to maturity of any Outstanding obligations secured by or payable from revenues of the System, or (iv) any lawful City purpose.

Whenever the total amounts on deposit to the credit of the Subordinate Lien Debt Service Fund shall be equivalent to the sum of the aggregate principal amount of all Outstanding Subordinate Lien Obligations plus the aggregate amount of all interest accrued and to accrue thereon, no further payments need be made into the Subordinate Lien Debt Service Fund, and such Subordinate Lien Obligations shall not be regarded as being Outstanding except for the purpose of being paid with money on deposit in such Funds.

Section 2.6. Subordinate Lien Debt Service Fund. On or before the last Business Day of each month so long as any Subordinate Lien Obligations remain Outstanding, after making all required payments under Section 2.5(a) and (b), there shall be transferred into the Subordinate Lien Debt Service Fund from the Revenue Fund, such amounts as will be sufficient, when added to amounts already on deposit therein, to equal the aggregate amount of (i) debt service on all Subordinate Lien Obligations accrued through such date, plus (ii) all charges and other costs and expenses relating thereto accrued through such date.

Money deposited to the credit of the Subordinate Lien Debt Service Fund shall be used solely for the purpose of paying principal (at stated maturity or prior redemption or to purchase Subordinate Lien Obligations issued as term bonds in the open market to be credited against mandatory redemption requirements), interest, any redemption premium and other amounts due on the Subordinate Lien Obligations, plus all bank charges and other costs and expenses relating to such payment. Except as provided below for TWDB obligations, such as the Certificates, on or before each payment date on the Subordinate Lien Obligations, the City shall transfer from the Subordinate Lien Debt Service Fund to the paying agent for the Subordinate Lien Obligations amounts sufficient to make such payment.

Money deposited to the credit of the Subordinate Lien Debt Service Fund for the Certificates (or other Subordinate Lien Obligations issued to the TWDB that are additionally secured by a pledge of ad valorem taxes) shall be transferred to the Series 2025 Debt Service Fund as provided in Section 2.3(c) or in accordance with the requirements of an ordinance authorizing a subsequent series of Subordinate Lien Obligations to the TWDB.

Section 2.7. Application of Chapter 1208, Texas Government Code. Chapter 1208, Texas Government Code, applies to the issuance of the Certificates and the pledge of the taxes and revenues granted by the City under Article II of this Ordinance, and such pledge is therefore valid, effective and perfected. If State law is amended at any time while the Certificates are outstanding and unpaid such that the pledge of the taxes and revenues granted by the City under Article II of this Ordinance is to be subject to the filing requirements of Chapter 9, Texas Business & Commerce Code, then in order to preserve to the registered owners of the Certificates the perfection of the security interest in said pledge, the City agrees to take such measures as it determines are reasonable and necessary under State law to comply with the applicable provisions of Chapter 9, Texas Business & Commerce Code and enable a filing to perfect the security interest in said pledge to occur.

Section 2.8. Rate Covenant. While the Certificates are outstanding, the City will at all times maintain sufficient rates and charges for the payment of the Maintenance and Operation Expenses, and to the extent that ad valorem taxes are not available for such purpose, the City will at all times maintain sufficient rates and charges to produce Net Revenues not less than 1.0 times the annual debt service obligations of all outstanding obligations of the City secured in whole or in part by the Net Revenues for which the City is budgeting to make payments from Net Revenues. Upon the written request of the TWDB, the City shall provide documentation that evidences the levy of ad valorem taxes for the payment of debt service on the Certificates or information demonstrating that the City has budgeted Net Revenues of the System or other lawfully available revenues sufficient for the payment of debt service on the Certificates.

Section 2.9. Additional Obligations. The City hereby reserves the right to issue, for any lawful purpose at any time, in one or more installments, bonds, notes, bond anticipation notes, commercial paper and other obligations of any kind payable in whole or in part from the Net Revenues, secured by a pledge of the Net Revenues that may be prior and superior in right to, on a parity with, or junior and subordinate to the pledge of the Net Revenues securing the Certificates and any other Subordinate Lien Obligations.

ARTICLE III.

AUTHORIZATION; GENERAL TERMS AND PROVISIONS REGARDING THE CERTIFICATES

Section 3.1. Authorization. The City's "City of La Marque, Texas, Tax and Subordinate Lien Revenue Certificates of Obligation, Series 2025" are hereby authorized to be issued and delivered in accordance with the Constitution and laws of the State of Texas, specifically Subchapter C, Chapter 271, Texas Local Government Code, as amended. The Certificates shall be issued in the aggregate principal amount of \$9,985,000 for the purpose of paying the costs of the Project.

Section 3.2. Date, Denomination, Maturities, and Interest.

(a) The Certificates shall be dated the Dated Date. The Certificates shall be in fully registered form, without coupons, in the denomination of \$5,000 or any integral multiple thereof and shall be numbered separately from R-1 upward, except the Initial Certificate, which shall be numbered I-1.

(b) The Certificates shall mature on February 1 in the years and in the principal amounts set forth in the following schedule:

<u>Year</u>	<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Year</u>	<u>Principal Amount</u>	<u>Interest Rate</u>
2026	\$380,000	1.53%	2036	495,000	2.17%
2027	415,000	1.54	2037	510,000	2.30
2028	425,000	1.54	2038	520,000	2.41
2029	430,000	1.54	2039	535,000	2.50
2030	440,000	1.59	2040	545,000	2.57
2031	450,000	1.67	2041	560,000	2.64
2032	455,000	1.76	2042	575,000	2.71
2033	465,000	1.81	2043	590,000	2.76
2034	475,000	1.91	2044	610,000	2.80
2035	485,000	2.00	2045	625,000	2.82

(c) Interest shall accrue and be paid on each Certificate, respectively, until the principal amount thereof has been paid or provision for such payment has been made, from the later of the Closing Date or the most recent Interest Payment Date to which interest has been paid or provided for at the rate per annum for each respective maturity specified in the schedule contained in subsection (b) above. Such interest shall be payable semiannually on each Interest Payment Date, computed on the basis of a 360-day year composed of twelve 30-day months.

Section 3.3. Medium, Method, and Place of Payment.

(a) The principal of and interest on the Certificates shall be paid in lawful money of the United States of America.

(b) Interest on the Certificates shall be paid by check dated as of the Interest Payment Date, and sent by United States mail, first class, postage prepaid, by the Paying Agent/Registrar to each Owner, as shown in the Register at the close of business on the Record Date, at the address of each such Owner as such appears in the Register or by such other customary banking arrangements acceptable to the Paying Agent/Registrar and the person to whom interest is to be paid; provided, that such person shall bear the risk and expense of such other customary banking arrangement. Notwithstanding the previous proviso, for so long as the TWDB is the Owner of the Certificates, all payments of principal and interest will be made in wire transfer form at no cost to the TWDB.

(c) The principal of each Certificate shall be paid to the Owner thereof on the Maturity Date or upon prior redemption upon presentation and surrender of such Certificate at the Designated Payment/Transfer Office of the Paying Agent/Registrar.

(d) If the date for the payment of the principal of or interest on the Certificates is not a Business Day, the date for such payment shall be the next succeeding Business Day, and payment on such date shall for all purposes be deemed to have been made on the due date thereof as specified in this Section.

(e) In the event of a nonpayment of interest on a scheduled payment date, and for 30 days thereafter, a new record date for such interest payment (a "Special Record Date") will be established by the Paying Agent/Registrar, if and when funds for the payment of such interest have been received from the City. Notice of the Special Record Date and of the special payment date of the past due interest (the "Special Payment Date," which shall be 15 days after the Special Record Date) shall be sent at least five Business Days prior to the Special Record Date by United States mail, first class, postage prepaid, to the address of each Owner of a Certificate appearing on the books of the Paying Agent/Registrar at the close of business on the fifteenth day next preceding the date of mailing of such notice.

(f) Unclaimed Payments shall be segregated in a special account and held in trust, uninvested by the Paying Agent/Registrar, for the account of the Owner of the Certificates to which the Unclaimed Payments pertain. Subject to Title 6, Texas Property Code, Unclaimed Payments remaining unclaimed by the Owners entitled thereto for three (3) years after the applicable payment or redemption date shall be applied to the next payment or payments on the Certificates thereafter coming due and, to the extent any such money remains after the retirement of all outstanding Certificates, shall be paid to the City to be used for any lawful purpose. Thereafter, neither the City, the Paying Agent/Registrar nor any other person shall be liable or responsible to any holders of such Certificates for any further payment of such unclaimed moneys or on account of any such Certificates, subject to Title 6, Texas Property Code.

Section 3.4. Execution and Registration of Certificates.

(a) The Certificates shall be executed on behalf of the City by the Mayor or Mayor Pro Tem and the City Clerk, by their manual or facsimile signatures, and the official seal of the City shall be impressed or placed in facsimile thereon. Such facsimile signatures on the Certificates shall have the same effect as if each of the Certificates had been signed manually and in person by each of said officers, and such facsimile seal on the Certificates shall have the same effect as if the official seal of the City had been manually impressed upon each of the Certificates.

(b) In the event that any officer of the City whose manual or facsimile signature appears on the Certificates ceases to be such officer before the authentication of such Certificates or before the delivery thereof, such manual or facsimile signature nevertheless shall be valid and sufficient for all purposes as if such officer had remained in such office.

(c) Except as provided below, no Certificate shall be valid or obligatory for any purpose or be entitled to any security or benefit of this Ordinance unless and until there appears thereon the Certificate of Paying Agent/Registrar substantially in the form provided herein, duly authenticated by manual execution by an officer or duly authorized signatory of the Paying Agent/Registrar. It shall not be required that the same officer or authorized signatory of the Paying Agent/Registrar sign the Certificate of Paying Agent/Registrar on all of the Certificates. In lieu of the executed Certificate of Paying Agent/Registrar described above, the Initial Certificate delivered at the Closing Date shall have attached thereto the Comptroller's Registration Certificate substantially in the form provided herein, manually executed by the Comptroller of Public Accounts of the State, or by his duly authorized agent, which certificate shall be evidence that the Initial Certificate has been duly approved by the Attorney General of the State and that it is a valid

and binding obligation of the City, and has been registered by the Comptroller of Public Accounts of the State.

(d) On the Closing Date, one initial Certificate (the "Initial Certificate"), representing the entire principal amount of the Certificates, payable in stated installments to the TWDB or its designee, executed by manual or facsimile signature of the Mayor or Mayor Pro Tem and the City Clerk of the City, approved by the Attorney General of Texas, and registered and manually signed by the Comptroller of Public Accounts of the State of Texas, will be delivered to the TWDB or its designee. Upon payment for the Initial Certificate, the Paying Agent/Registrar shall cancel such Initial Certificate and deliver to DTC on behalf of the TWDB registered definitive Certificates as described in Section 3.9. To the extent the Paying Agent/Registrar is eligible to participate in DTC's FAST System, as evidenced by an agreement between the Paying Agent/Registrar and DTC, the Paying Agent/Registrar shall hold the definitive Bonds in safekeeping for DTC.

Section 3.5. Ownership.

(a) The City, the Paying Agent/Registrar and any other person may treat the Owner as the absolute owner of such Certificate for the purpose of making and receiving payment of the principal thereof, for the purpose of making and receiving payment of the interest thereon (subject to the provisions herein that the interest is to be paid to the person in whose name the Certificate is registered on the Record Date or Special Record Date, as applicable), and for all other purposes, whether or not such Certificate is overdue, and neither the City nor the Paying Agent/Registrar shall be bound by any notice or knowledge to the contrary.

(b) All payments made to the Owner of a Certificate shall be valid and effectual and shall discharge the liability of the City and the Paying Agent/Registrar upon such Certificate to the extent of the sums paid.

Section 3.6. Registration, Transfer, and Exchange.

(a) So long as any Certificates remain outstanding, the City shall cause the Paying Agent/Registrar to keep at its Designated Payment/Transfer Office a register (the "Register") in which, subject to such reasonable regulations as it may prescribe, the Paying Agent/Registrar shall provide for the registration and transfer of Certificates in accordance with this Ordinance.

(b) The ownership of a Certificate may be transferred only upon the presentation and surrender of the Certificate to the Paying Agent/Registrar at the Designated Payment/Transfer Office with such endorsement or other instrument of transfer and assignment as is acceptable to the Paying Agent/Registrar. No transfer of any Certificate shall be effective until entered in the Register.

(c) The Certificates shall be exchangeable upon the presentation and surrender thereof at the Designated Payment/Transfer Office for a Certificate or Certificates of the same maturity and interest rate and in any denomination or denominations of any integral multiple of \$5,000, and in an aggregate principal amount equal to the unpaid principal amount of the Certificates presented for exchange.

(d) The Paying Agent/Registrar is hereby authorized to authenticate and deliver Certificates transferred or exchanged in accordance with this Section. A new Certificate or Certificates will be delivered by the Paying Agent/Registrar, in lieu of the Certificate being transferred or exchanged, at the Designated Payment/Transfer Office, or sent by United States mail, first class, postage prepaid, to the Owner or his designee. Each Certificate delivered by the Paying Agent/Registrar in accordance with this Section shall constitute an original contractual obligation of the City and shall be entitled to the benefits and security of this Ordinance to the same extent as the Certificate or Certificates in lieu of which such Certificate is delivered.

(e) No service charge shall be made to the Owner for the initial registration, subsequent transfer, or exchange for a different denomination of any of the Certificates. The Paying Agent/Registrar, however, may require the Owner to pay a sum sufficient to cover any tax or other governmental charge that is authorized to be imposed in connection with the registration, transfer, or exchange of a Certificate.

(f) Neither the City nor the Paying Agent/Registrar shall be required to transfer or exchange any Certificate called for redemption, in whole or in part, within 45 days prior to the date fixed for redemption; provided, however, such limitation shall not be applicable to an exchange by the Owner of the uncalled balance of a Certificate.

Section 3.7. Cancellation. All Certificates paid or redeemed before scheduled maturity in accordance with this Ordinance, and all Certificates in lieu of which exchange Certificates or replacement Certificates are authenticated and delivered in accordance with this Ordinance, shall be cancelled and proper records made regarding such payment, redemption, exchange, or replacement. The Paying Agent/Registrar shall dispose of such cancelled Certificates in the manner required by the Securities Exchange Act of 1934, as amended.

Section 3.8. Replacement Certificates.

(a) Upon the presentation and surrender to the Paying Agent/Registrar of a mutilated Certificate, the Paying Agent/Registrar shall authenticate and deliver in exchange therefor a replacement Certificate of like tenor and principal amount, bearing a number not contemporaneously outstanding. The City or the Paying Agent/Registrar may require the Owner of such Certificate to pay a sum sufficient to cover any tax or other governmental charge that is authorized to be imposed in connection therewith and any other expenses connected therewith.

(b) In the event that any Certificate is lost, apparently destroyed or wrongfully taken, the Paying Agent/Registrar, pursuant to the applicable laws of the State and in the absence of notice or knowledge that such Certificate has been acquired by a bona fide purchaser, shall authenticate and deliver a replacement Certificate of like tenor and principal amount, bearing a number not contemporaneously outstanding, provided that the Owner first complies with the following requirements:

(i) furnishes to the Paying Agent/Registrar satisfactory evidence of his or her ownership of and the circumstances of the loss, destruction, or theft of such Certificate;

(ii) furnishes such security or indemnity as may be required by the Paying Agent/Registrar to save it and the City harmless;

(iii) pays all expenses and charges in connection therewith, including, but not limited to, printing costs, legal fees, fees of the Paying Agent/Registrar, and any tax or other governmental charge that is authorized to be imposed; and

(iv) satisfies any other reasonable requirements imposed by the City and the Paying Agent/Registrar.

(c) If, after the delivery of such replacement Certificate, a bona fide purchaser of the original Certificate in lieu of which such replacement Certificate was issued presents for payment such original Certificate, the City and the Paying Agent/Registrar shall be entitled to recover such replacement Certificate from the person to whom it was delivered or any person taking therefrom, except a bona fide purchaser, and shall be entitled to recover upon the security or indemnity provided therefor to the extent of any loss, damage, cost, or expense incurred by the City or the Paying Agent/Registrar in connection therewith.

(d) In the event that any such mutilated, lost, apparently destroyed, or wrongfully taken Certificate has become or is about to become due and payable, the Paying Agent/Registrar, in its discretion, instead of issuing a replacement Certificate, may pay such Certificate when it becomes due and payable.

(e) Each replacement Certificate delivered in accordance with this Section shall constitute an original additional contractual obligation of the City and shall be entitled to the benefits and security of this Ordinance to the same extent as the Certificate or Certificates in lieu of which such replacement Certificate is delivered.

Section 3.9. Book-Entry-Only System.

(a) The definitive Certificates shall be initially issued in the form of a separate single fully registered Certificate for each maturity. Upon initial issuance, the ownership of each such Certificate shall be registered in the name of Cede & Co., as nominee of DTC, and except as provided in Section 3.10 hereof, all of the outstanding Certificates shall be registered in the name of Cede & Co., as nominee of DTC.

(b) With respect to Certificates registered in the name of Cede & Co., as nominee of DTC, the City and the Paying Agent/Registrar shall have no responsibility or obligation to any DTC Participant or to any person on behalf of whom such a DTC Participant holds an interest in the Certificates, except as provided in this Ordinance. Without limiting the immediately preceding sentence, the City and the Paying Agent/Registrar shall have no responsibility or obligation with respect to (i) the accuracy of the records of DTC, Cede & Co. or any DTC Participant with respect to any ownership interest in the Certificates, (ii) the delivery to any DTC Participant or any other person, other than an Owner, as shown on the Register, of any notice with respect to the Certificates, including any notice of redemption, or (iii) the payment to any DTC Participant or any other person, other than an Owner, as shown in the Register of any amount with respect to principal of, premium, if any, or interest on the Certificates. Notwithstanding any other provision of this Ordinance to the contrary, the City and the Paying Agent/Registrar shall be entitled to treat and consider the person in whose name each Certificate is registered in the Register as the absolute Owner of such Certificate for the purpose of payment of principal of, premium, if any, and interest

on the Certificates, for the purpose of giving notices of redemption and other matters with respect to such Certificate, for the purpose of registering transfer with respect to such Certificate, and for all other purposes whatsoever. The Paying Agent/Registrar shall pay all principal of, premium, if any, and interest on the Certificates only to or upon the order of the respective Owners, as shown in the Register as provided in this Ordinance, or their respective attorneys duly authorized in writing, and all such payments shall be valid and effective to fully satisfy and discharge the City's obligations with respect to payment of principal of, premium, if any, and interest on the Certificates to the extent of the sum or sums so paid. No person other than an Owner, as shown in the Register, shall receive a certificate evidencing the obligation of the City to make payments of amounts due pursuant to this Ordinance. Upon delivery by DTC to the Paying Agent/Registrar of written notice to the effect that DTC has determined to substitute a new nominee in place of Cede & Co., and subject to the provisions in this Ordinance with respect to interest checks or drafts being mailed to the registered Owner at the close of business on the Record Date, the word "Cede & Co." in this Ordinance shall refer to such new nominee of DTC.

(c) The Representation Letter previously executed and delivered by the City, and applicable to the City's obligations delivered in book entry only form to DTC as securities depository, is hereby ratified and approved for the Certificates.

Section 3.10. Successor Securities Depository; Transfer Outside Book-Entry-Only System. In the event that the City determines that it is in the best interest of the City and the beneficial owners of the Certificates that they be able to obtain certificated Certificates, or in the event DTC discontinues the services described herein, the City shall (i) appoint a successor securities depository, qualified to act as such under Section 17(a) of the Securities and Exchange Act of 1934, as amended, notify DTC and DTC Participants of the appointment of such successor securities depository and transfer one or more separate Certificates to such successor securities depository; or (ii) notify DTC and DTC Participants of the availability through DTC of certificated Certificates and cause the Paying Agent/Registrar to transfer one or more separate registered Certificates to DTC Participants having Certificates credited to their DTC accounts. In such event, the Certificates shall no longer be restricted to being registered in the Register in the name of Cede & Co., as nominee of DTC, but may be registered in the name of the successor securities depository, or its nominee, or in whatever name or names Owners transferring or exchanging Certificates shall designate, in accordance with the provisions of this Ordinance.

Section 3.11. Payments to Cede & Co. Notwithstanding any other provision of this Ordinance to the contrary, so long as the Certificates are registered in the name of Cede & Co., as nominee of DTC, all payments with respect to principal of, premium, if any, and interest on such Certificates, and all notices with respect to such Certificates shall be made and given, respectively, in the manner provided in the Representation Letter of the City to DTC.

ARTICLE IV.

REDEMPTION OF CERTIFICATES BEFORE MATURITY

Section 4.1. Limitation on Redemption. The Certificates shall be subject to redemption before scheduled maturity only as provided in this Article IV.

Section 4.2. Optional Redemption.

(a) The City has reserved the right to redeem at its option the Certificates maturing on and after February 1, 2036, prior to their scheduled maturities, in whole or from time to time in part, in inverse order of maturity, in integral multiples of \$5,000, on August 1, 2035, or any date thereafter at par plus accrued interest to the date of redemption.

(b) The City, at least 45 days before the redemption date, unless a shorter period shall be satisfactory to the Paying Agent/Registrar, shall notify the Paying Agent/Registrar of such redemption and of the principal amount of Certificates to be redeemed.

Section 4.3. Partial Redemption.

(a) If less than all of the Certificates are to be redeemed pursuant to Section 4.2 hereof, the City shall determine the maturity or maturities and the amounts thereof to be redeemed and shall direct the Paying Agent/Registrar to call by lot, or other customary method that results in random selection, the Certificates, or portions thereof, within such maturity or maturities and in such principal amounts for redemption.

(b) A portion of a single Certificate of a denomination greater than \$5,000 may be redeemed, but only in a principal amount equal to \$5,000 or any integral multiple thereof. If such a Certificate is to be partially redeemed, the Paying Agent/Registrar shall treat each \$5,000 portion of the Certificate as though it were a single Certificate for purposes of selection for redemption.

(c) Upon surrender of any Certificate for redemption in part, the Paying Agent/Registrar, in accordance with Section 3.6 of this Ordinance, shall authenticate and deliver an exchange Certificate or Certificates in an aggregate principal amount equal to the unredeemed portion of the Certificate so surrendered, such exchange being without charge.

(d) The Paying Agent/Registrar shall promptly notify the City in writing of the principal amount to be redeemed of any Certificate as to which only a portion thereof is to be redeemed.

Section 4.4. Notice of Redemption to Owners.

(a) The Paying Agent/Registrar shall give notice of any redemption of Certificates by sending notice by United States mail, first class, postage prepaid, not less than 30 days before the date fixed for redemption, to the Owner of each Certificate (or part thereof) to be redeemed, at the address shown on the Register at the close of business on the Business Day next preceding the date of mailing such notice.

(b) The notice shall state the redemption date, the redemption price, the place at which the Certificates are to be surrendered for payment, and if less than all Certificates outstanding are to be redeemed, an identification of the Certificates or portions thereof to be redeemed.

(c) The City reserves the right to give notice of its election or direction to redeem Certificates under Section 4.2 conditioned upon the occurrence of subsequent events. Such notice may state (i) that the redemption is conditioned upon the deposit of moneys and/or authorized

securities, in an amount equal to the amount necessary to effect the redemption, with the Paying Agent/Registrar, or such other entity as may be authorized by law, no later than the redemption date or (ii) that the City retains the right to rescind such notice at any time prior to the scheduled redemption date if the City delivers a certificate of the City to the Paying Agent/Registrar instructing the Paying Agent/Registrar to rescind the redemption notice, and such notice and redemption shall be of no effect if such moneys and/or authorized securities are not so deposited or if the notice is rescinded. The Paying Agent/Registrar shall give prompt notice of any such rescission of a conditional notice of redemption to the affected Owners. Any Certificates subject to conditional redemption where redemption has been rescinded shall remain outstanding and the rescission of such redemption shall not constitute an event of default. Further, in case of a conditional redemption, the failure of the City to make moneys and or authorized securities available in part or in whole on or before the redemption date shall not constitute an event of default.

(d) Any notice given as provided in this Section shall be conclusively presumed to have been duly given, whether or not the Owner receives such notice.

Section 4.5. Payment Upon Redemption.

(a) Before or on each redemption date, the City shall deposit with the Paying Agent/Registrar money sufficient to pay all amounts due on the redemption date and the Paying Agent/Registrar shall make provision for the payment of the Certificates to be redeemed on such date by setting aside and holding in trust such amounts as are received by the Paying Agent/Registrar from the City and shall use such funds solely for the purpose of paying the principal of, redemption premium, if any, and accrued interest on the Certificates being redeemed.

(b) Upon presentation and surrender of any Certificate called for redemption at the Designated Payment/Transfer Office of the Paying Agent/Registrar on or after the date fixed for redemption, the Paying Agent/Registrar shall pay the principal of, redemption premium, if any, and accrued interest on such Certificate to the date of redemption from the money set aside for such purpose.

Section 4.6. Effect of Redemption.

(a) When Certificates have been called for redemption in whole or in part and due provision has been made to redeem same as herein provided, the Certificates or portions thereof so redeemed shall no longer be regarded as outstanding except for the purpose of receiving payment solely from the funds so provided for redemption, and the rights of the Owners to collect interest which would otherwise accrue after the redemption date on any Certificate or portion thereof called for redemption shall terminate on the date fixed for redemption. If the City shall fail to make provision for payment of all sums due on a redemption date, then any Certificate or portion thereof called for redemption shall continue to bear interest at the rate stated on the Certificate until due provision is made for the payment of same.

(b) If the City shall fail to make provision for payment of all sums due on a redemption date, then any Certificate or portion thereof called for redemption shall continue to bear interest at the rate stated on the Certificate until due provision is made for the payment of same by the City.

Section 4.7. Lapse of Payment. Money set aside for the redemption of the Certificates and remaining unclaimed by the Owners thereof shall be subject to the provisions of Section 3.3(f) hereof.

ARTICLE V.

PAYING AGENT/REGISTRAR AND ESCROW AGENT

Section 5.1. Appointment of Initial Paying Agent/Registrar.

(a) The City hereby appoints BOKF, NA, Dallas, Texas, as its initial paying agent, registrar and transfer agent (the "Paying Agent/Registrar") shall keep such books or records and make such transfers and registrations under such reasonable regulations as the City and the Paying Agent/Registrar may prescribe; and the Paying Agent/Registrar shall make such transfer and registrations as herein provided. It shall be the duty of the Paying Agent/Registrar to obtain from the Owners and record in the Register the address of such Owner of each Certificate to which payments with respect to the Certificates shall be mailed, as provided herein. The City or its designee shall have the right to inspect the Register during regular business hours of the Paying Agent/Registrar, but otherwise the Paying Agent/Registrar shall keep the Register confidential and, unless otherwise required by law, shall not permit its inspection by any other entity.

(b) The City hereby further appoints the Paying Agent/Registrar to act as the paying agent for paying the principal of and interest on the Certificates. The Paying Agent/Registrar shall keep proper records of all payments made by the City and the Paying Agent/Registrar with respect to the Certificates, and of all conversions, exchanges and replacements of such Certificates, as provided in this Ordinance.

(c) The form of Paying Agent/Registrar Agreement is hereby approved. The City hereby approves and the Mayor or Mayor Pro Tem and the City Clerk are hereby authorized to execute and deliver a Paying Agent/Registrar Agreement, specifying the duties and responsibilities of the City and the Paying Agent/Registrar.

Section 5.2. Qualifications. Each Paying Agent/Registrar shall be a commercial bank or trust company organized under the laws of the State, or any other entity duly qualified and legally authorized to serve as and perform the duties and services of paying agent and registrar for the Certificates.

Section 5.3. Maintaining Paying Agent/Registrar.

(a) At all times while any Certificates are outstanding, the City will maintain a Paying Agent/Registrar that is qualified under Section 5.2 of this Ordinance.

(b) If the Paying Agent/Registrar resigns or otherwise ceases to serve as such, the City will promptly appoint a replacement, provided no such resignation shall be effective until a successor Paying Agent/Registrar has accepted the duties of Paying Agent/Registrar for the Certificates.

Section 5.4. Termination. The City reserves the right to terminate the appointment of any Paying Agent/Registrar by delivering to the entity whose appointment is to be terminated (i) 45 days written notice of the termination of the appointment and of the Paying Agent/Registrar Agreement, stating the effective date of such termination, and (ii) appointing a successor Paying Agent/Registrar; provided, that, no such termination shall be effective until a successor Paying Agent/Registrar has assumed the duties of Paying Agent/Registrar for the Certificates.

Section 5.5. Notice of Change to Owners. Promptly upon each change in the entity serving as Paying Agent/Registrar, the City will cause notice of the change to be sent to each Owner by United States mail, first class, postage prepaid, at the address in the Register, stating the effective date of the change and the name and mailing address of the replacement Paying Agent/Registrar.

Section 5.6. Agreement to Perform Duties and Functions. By accepting the appointment as Paying Agent/Registrar, the Paying Agent/Registrar is deemed to have agreed to the provisions of this Ordinance and that it will perform the duties and functions of Paying Agent/Registrar prescribed hereby and under the Paying Agent/Registrar Agreement.

Section 5.7. Delivery of Records to Successor. If a Paying Agent/Registrar is replaced, such Paying Agent/Registrar, promptly upon the appointment of the successor, will deliver the Register (or a copy thereof) and all other pertinent books and records relating to the Certificates to the successor Paying Agent/Registrar.

Section 5.8. Escrow Agreement. To facilitate the delivery of and payment for the Certificates pending completion of review of plans and specifications, the City Council hereby authorizes an Escrow Agreement to be entered into by and between the City and the Escrow Agent, the terms and conditions of which are hereby approved, subject to such insertions, additions, and modifications as shall be necessary to comply with all applicable laws, regulations, and procedures and to carry out the intent and purposes of this Ordinance. The Mayor or Mayor Pro Tem and the City Secretary are authorized to execute and deliver such Escrow Agreement in multiple counterparts on behalf of the City.

ARTICLE VI.

FORM OF THE CERTIFICATES

Section 6.1. Form Generally.

(a) The Certificates, including the Registration Certificate of the Comptroller of Public Accounts of the State, the Certificate of the Paying Agent/Registrar, and the Assignment form to appear on each of the Certificates, (i) shall be substantially in the form set forth in this Article, with such appropriate insertions, omissions, substitutions, and other variations as are permitted or required by this Ordinance, and (ii) may have such letters, numbers, or other marks of identification (including identifying numbers and letters of the Committee on Uniform Securities Identification Procedures of the American Bankers Association) and such legends and endorsements (including any reproduction of an opinion of counsel) thereon as, consistently herewith, may be determined by the City or by the officers executing such Certificates, as evidenced by their execution thereof.

(b) The Certificates shall be typewritten, photocopied, printed, lithographed, or engraved, and may be produced by any combination of these methods or produced in any other similar manner, all as determined by the officers executing such Certificates, as evidenced by their execution thereof.

(c) The Initial Certificate submitted to the Attorney General of the State may be typewritten and photocopied or otherwise reproduced.

Section 6.2. Form of the Certificates. The form of the Certificates, including the form of the Registration Certificate of the Comptroller of Public Accounts of the State, the form of Certificate of the Paying Agent/Registrar and the form of Assignment appearing on the Certificates, shall be substantially as follows:

(a) Form of Certificate.

REGISTERED
NO. _____

REGISTERED
\$ _____

**UNITED STATES OF AMERICA
STATE OF TEXAS
GALVESTON COUNTY**

**CITY OF LA MARQUE, TEXAS
TAX AND SUBORDINATE LIEN REVENUE CERTIFICATE OF OBLIGATION
SERIES 2025**

INTEREST RATE: MATURITY DATE: CLOSING DATE: CUSIP NUMBER:
_____ % _____ August 20, 2025 _____

The City of La Marque (the "City"), in Galveston County, State of Texas, for value received, hereby promises to pay to

_____ or registered assigns, on the Maturity Date specified above, the sum of

_____ DOLLARS

and to pay interest on such principal amount from the later of the Closing Date specified above or the most recent interest payment date to which interest has been paid or provided for until payment of such principal amount has been paid or provided for, at the per annum rate of interest specified above, computed on the basis of a 360-day year of twelve 30-day months, such interest to be paid semiannually on February 1 and August 1 of each year, commencing on February 1, 2026.

The principal of this Certificate shall be payable without exchange or collection charges in lawful money of the United States of America upon presentation and surrender of this Certificate

at the corporate trust office of BOKF, NA, Dallas, Texas or such other location designated by the Paying Agent/Registrar (the “Designated Payment/Transfer Office”), of the Paying Agent/Registrar or, with respect to a successor Paying Agent/Registrar, at the Designated Payment/Transfer Office of such successor. Interest on this Certificate is payable by check dated as of the interest payment date, and will be mailed by the Paying Agent/Registrar to the registered owner at the address shown on the registration books kept by the Paying Agent/Registrar or by such other customary banking arrangement acceptable to the Paying Agent/Registrar and the registered owner; provided, however, such registered owner shall bear all risk and expenses of such customary banking arrangement. Notwithstanding the previous proviso, for so long as the TWDB is the Owner of the Certificates, all payments of principal and interest will be made in wire transfer form at no cost to the TWDB. For the purpose of the payment of interest on this Certificate, the registered owner shall be the person in whose name this Certificate is registered at the close of business on the “Record Date,” which shall be the fifteenth day of the month next preceding such interest payment date. In the event of a nonpayment of interest on a scheduled payment date, and for 30 days thereafter, a new record date for such interest payment (a “Special Record Date”) will be established by the Paying Agent/Registrar, if and when funds for the payment of such interest have been received from the City. Notice of the Special Record Date and of the special payment date of the past due interest (the “Special Payment Date,” which date shall be 15 days after the Special Record Date) shall be sent at least five business days prior to the Special Record Date by United States mail, first class, postage prepaid, to the address of each owner of a Certificate appearing on the books of the Paying Agent/Registrar at the close of business on the last day next preceding the date of mailing of such notice.

If the date for the payment of the principal of or interest on this Certificate is not a Business Day, the date for such payment shall be the next succeeding day which is not a Saturday, Sunday or legal holiday, or day on which banking institutions in the State of Texas or the city in which the Designated Payment/Transfer Office of the Paying Agent/Registrar is located are generally authorized or obligated by law or executive order to close (a “Business Day”), and payment on such date shall for all purposes be deemed to have been made on the original date payment was due.

This Certificate is dated August 1, 2025 and is one of a series of fully registered certificates specified in the title hereof issued in the aggregate principal amount of \$9,985,000 (herein referred to as the “Certificates”), issued pursuant to a certain ordinance of the City (the “Ordinance”) for all or any part of the costs associated with the (i) the eligible costs for improvements to the City’s wastewater system, including the planning, design and construction of capital repairs and improvements to the City’s sewer collection system and manholes to address inflow and infiltration, and (ii) cost of professional services incurred in connection therewith.

(a) The City has reserved the right to redeem at its option the Certificates maturing on and after February 1, 2036, prior to their scheduled maturities, in whole or from time to time in part, in inverse order of maturity, in integral multiples of \$5,000, on August 1, 2035, or any date thereafter at par plus accrued interest to the date of redemption. If less than all of the Certificates are to be redeemed, the City shall determine the maturity or maturities and the amounts thereof to be redeemed and shall direct the Paying Agent/Registrar to call by lot the Certificates, or portions thereof, within such maturity and in such principal amounts, for redemption.

Not less than 30 days prior to a redemption date for the Certificates, the City shall cause a notice of redemption to be sent by United States mail, first class, postage prepaid, to the Owners of the Certificates to be redeemed at the address of the Owner appearing on the registration books of the Paying Agent/Registrar at the close of business on the business day next preceding the date of mailing such notice.

The City reserves the right to give notice of its election or direction to redeem Certificates pursuant to an optional redemption conditioned upon the occurrence of subsequent events. Such notice may state (i) that the redemption is conditioned upon the deposit of moneys and/or authorized securities, in an amount equal to the amount necessary to effect the redemption, with the Paying Agent/Registrar, or such other entity as may be authorized by law, no later than the redemption date, or (ii) that the City retains the right to rescind such notice at any time on or prior to the scheduled redemption date if the City delivers a certificate of the City to the Paying Agent/Registrar instructing the Paying Agent/Registrar to rescind the redemption notice and such notice and redemption shall be of no effect if such moneys and/or authorized securities are not so deposited or if the notice is rescinded. The Paying Agent/Registrar shall give prompt notice of any such rescission of a conditional notice of redemption to the affected Owners. Any Certificates subject to conditional redemption and such redemption has been rescinded shall remain outstanding and the rescission of such redemption shall not constitute an event of default. Further, in the case of a conditional redemption, the failure of the City to make moneys and or authorized securities available in part or in whole on or before the redemption date shall not constitute an event of default.

Any notice so mailed shall be conclusively presumed to have been duly given, whether or not the registered owner receives such notice. Notice having been so given and subject, in the case of an optional redemption, to any rights or conditions reserved by the City in the notice, the Certificates called for redemption shall become due and payable on the specified redemption date, and notwithstanding that any Certificate or portion thereof has not been surrendered for payment, interest on such Certificates or portions thereof shall cease to accrue.

As provided in the Ordinance, and subject to certain limitations therein set forth, this Certificate is transferable upon surrender of this Certificate for transfer at the designated office of the Paying Agent/Registrar with such endorsement or other evidence of transfer as is acceptable to the Paying Agent/Registrar; thereupon, one or more new fully registered Certificates of the same stated maturity, of authorized denominations, bearing the same rate of interest, and for the same aggregate principal amount will be issued to the designated transferee or transferees.

The City, the Paying Agent/Registrar, and any other person may treat the person in whose name this Certificate is registered as the owner hereof for the purpose of receiving payment as herein provided (except interest shall be paid to the person in whose name this Certificate is registered on the Record Date) and for all other purposes, whether or not this Certificate be overdue, and neither the City nor the Paying Agent/Registrar shall be affected by notice to the contrary.

IT IS HEREBY certified, recited and covenanted that this Certificate has been duly and validly issued and delivered; that all acts, conditions and things required or proper to be performed, to exist and to be done precedent to or in the issuance and delivery of this Certificate have been

performed, exist and have been done in accordance with law; and that annual ad valorem taxes, within the limits prescribed by law, sufficient to provide for the payment of the interest on and principal of this Certificate, as such interest comes due and such principal matures, have been levied and ordered to be levied against all taxable property in the City.

IT IS FURTHER certified, recited and represented that the Certificates are further secured by a pledge of a subordinate lien on the Net Revenues of the System as provided in the Ordinance. The City has reserved the right to issue, for any lawful purpose at any time, in one or more installments, bonds, notes, bond anticipation notes, commercial paper and other obligations of any kind payable in whole or in part from the Net Revenues, secured by a pledge of the Net Revenues that may be prior and superior in right to, on a parity with, or junior and subordinate to the pledge of the Net Revenues securing the Certificates.

IN WITNESS WHEREOF, the City has caused this Certificate to be executed by the manual or facsimile signature of the Mayor or Mayor Pro Tem of the City and countersigned by the manual or facsimile signature of the City Clerk, and the official seal of the City has been duly impressed or placed in facsimile on this Certificate.

City Clerk
City of La Marque, Texas

Mayor [Pro Tem]¹
City of La Marque, Texas

[SEAL]

¹Delete of the Mayor executes the Initial Certificate

(b) Form of Comptroller's Registration Certificate.

**REGISTRATION CERTIFICATE OF
COMPTROLLER OF PUBLIC ACCOUNTS**

OFFICE OF THE COMPTROLLER §
OF PUBLIC ACCOUNTS § REGISTER NO. _____
THE STATE OF TEXAS §

I HEREBY CERTIFY THAT this Certificate has been examined, certified as to validity, and approved by the Attorney General of the State of Texas and that this Certificate has been registered by the Comptroller of Public Accounts of the State of Texas.

WITNESS MY SIGNATURE AND SEAL OF OFFICE this _____.

Comptroller of Public Accounts
of the State of Texas

[SEAL]

(c) Form of Certificate of Paying Agent/Registrar.

The following Certificate of Paying Agent/Registrar may be deleted from the Initial Certificate if the Comptroller's Registration Certificate appears thereon.

CERTIFICATE OF PAYING AGENT/REGISTRAR

The records of the Paying Agent/Registrar show that the Initial Certificate of this series of certificates of obligation was approved by the Attorney General of the State of Texas and registered by the Comptroller of Public Accounts of the State of Texas, and that this is one of the Certificates referred to in the within-mentioned Ordinance.

BOKF, NA,
as Paying Agent/Registrar

Dated: _____

By: _____
Authorized Signatory

(d) Form of Assignment.

ASSIGNMENT

FOR VALUE RECEIVED, the undersigned hereby sells, assigns, and transfers unto (print or typewrite name, address and zip code of transferee):

(Social Security or other identifying number: _____) the within Certificate and all rights hereunder and hereby irrevocably constitutes and appoints _____ attorney to transfer the within Certificate on the books kept for registration hereof, with full power of substitution in the premises.

Dated: _____

Signature Guaranteed By:

NOTICE: The signature on this Assignment must correspond with the name of the registered owner as it appears on the face of the within Certificate in every particular and must be guaranteed in a manner acceptable to the Paying Agent/Registrar.

Authorized Signatory

(e) The Initial Certificate shall be in the form set forth in paragraphs (a), (b) and (d) of this Section, except for the following alterations:

(i) immediately under the name of the Certificate the headings "INTEREST RATE" and "MATURITY DATE" shall both be completed with the expression "As Shown Below" and "CUSIP NUMBER _____" deleted; and

(ii) in the first paragraph of the Certificate, the words "on the Maturity Date specified above, the sum of _____ DOLLARS" shall be deleted and the following will be inserted: "on February 1 in each of the years, in the principal installments and bearing interest at the per annum rates set forth in the following schedule:"

(Information to be inserted from schedule in Section 3.2 of the Ordinance)

(iii) the Initial Certificate shall be numbered I-1.

Section 6.3. CUSIP Registration. The City may secure identification numbers through the CUSIP Global Services or another entity that provides securities identification numbers for municipal securities and may authorize the printing of such numbers on the face of the Certificates.

It is expressly provided, however, that the presence or absence of CUSIP numbers on the Certificates or any errors or omissions in the printing of such number shall be of no significance or effect in regard to the legality thereof and neither the City nor Bond Counsel are to be held responsible for CUSIP numbers incorrectly printed on the Certificates.

Section 6.4. Legal Opinion. The approving legal opinion of Bond Counsel may be attached to or printed on the reverse side of each Certificate over the certification of the City Clerk of the City, which may be executed in facsimile.

ARTICLE VII.

SALE AND DELIVERY OF CERTIFICATES; DEPOSIT OF PROCEEDS; OFFICIAL STATEMENT

Section 7.1. Sale of Certificates.

(a) The Certificates are hereby sold and shall be delivered to the TWDB, as soon as practicable after adoption of this Ordinance, at a price of par, subject to the approval of the Attorney General and Bond Counsel. At the time the Certificates are delivered to the TWDB, the City shall pay an origination fee to the TWDB equal to \$171,732, in accordance with the rules of the TWDB. The Mayor or Mayor Pro Tem and other appropriate officers, agents and representatives of the City are hereby authorized to do any and all things necessary or desirable to provide for the issuance and delivery of the Certificates.

(b) The obligation of the TWDB to accept delivery of the Certificates is subject to the TWDB being furnished with the final, approving opinion of Bond Counsel to the City, which opinion shall be dated and delivered the Closing Date.

Section 7.2. Project Fund.

(a) There is hereby created and established a special fund of the City, to be known as the "City of La Marque, Texas, Tax and Subordinate Lien Revenue Certificates of Obligation, Series 2025 Project Fund" (the "Project Fund"), which shall be established at an official depository of the City and kept separate and apart from other funds of the City.

(b) The proceeds of the Certificates, shall be deposited in the escrow account for the Certificates that is maintained by the Escrow Agent for the benefit of the City and TWDB under and as more specifically provided in the Escrow Agreement. Upon release from the escrow account, such proceeds shall be deposited and held in the Project Fund until used for authorized purposes. The proceeds of the Certificates, as received, shall be deposited in the Project Fund. Money on deposit in the Project Fund and all interest and income derived therefrom shall be used only for the purposes set forth in Section 3.1 of this Ordinance and to pay costs of issuance.

(c) Money on deposit in the Project Fund, may, at the option of the City, be invested as permitted by State law including, particularly, the Public Funds Investment Act, Texas Government Code, Chapter 2256, and the Public Funds Collateral Act, Texas Government Code, Chapter 2257; provided that all such deposits and investments shall be made in such manner that

the money required to be expended from the Project Fund will be available at the proper time or times.

Section 7.3. Control and Delivery of Certificates.

(a) The Mayor or Mayor Pro Tem of the City is hereby authorized to have control of the Initial Certificate and all necessary records and proceedings pertaining thereto pending investigation, examination, and approval of the Attorney General of the State of Texas, registration by the Comptroller of Public Accounts of the State of Texas and registration with, and initial exchange or transfer by, the Paying Agent/Registrar.

(b) After registration by the Comptroller of Public Accounts, delivery of the Certificates shall be made to the Underwriter under and subject to the general supervision and direction of the Mayor or Mayor Pro Tem, against receipt by the City of all amounts due to the City under the terms of sale.

(c) All officers of the City are authorized to execute such documents, certificates and receipts and to make such elections with respect to the tax-exempt status of the Certificates, as they may deem necessary to consummate the delivery of the Certificates.

Section 7.4. Private Placement Memorandum. The City hereby approves the form and content and distribution of the Private Placement Memorandum delivered to the TWDB.

ARTICLE VIII.

PARTICULAR REPRESENTATIONS AND COVENANTS

Section 8.1. Payment of the Certificates. On or before each Interest Payment Date while any of the Certificates are outstanding and unpaid, there shall be made available to the Paying Agent/Registrar, out of the Series 2025 Debt Service Fund, money sufficient to pay such interest on and principal of, redemption premium, if any, and interest on the Certificates as will accrue or mature on the applicable Interest Payment Date or date of prior redemption.

Section 8.2. Other Representations and Covenants.

(a) The City will faithfully perform, at all times, any and all covenants, undertakings, stipulations, and provisions contained in this Ordinance and in each Certificate; the City will promptly pay or cause to be paid the principal of, redemption premium, if any, and interest on each Certificate on the dates and at the places and manner prescribed in such Certificate; and the City will, at the times and in the manner prescribed by this Ordinance, deposit or cause to be deposited the amounts of money specified by this Ordinance.

(b) The City is duly authorized under the laws of the State of Texas to issue the Certificates; all action on its part for the creation and issuance of the Certificates has been duly and effectively taken; and the Certificates in the hands of the Owners thereof are and will be valid and enforceable obligations of the City in accordance with their terms.

Section 8.3. Provisions Concerning Federal Income Tax Matters.

(a) General. The City covenants not to take any action or omit to take any action that, if taken or omitted, would cause the interest on the Certificates to be includable in gross income for federal income tax purposes. In furtherance thereof, the City covenants to comply with sections 103 and 141 through 150 of the Code and the provisions set forth in the Federal Tax Certificate executed by the City in connection with the Certificates.

(b) No Private Activity Bonds. The City covenants that it will use the proceeds of the Certificates (including investment income) and the property financed, directly or indirectly, with such proceeds so that the Certificates will not be “private activity bonds” within the meaning of section 141 of the Code. Furthermore, the City will not take a deliberate action (as defined in section 1.141-2(d)(3) of the Regulations) that causes the Certificates to be a “private activity bond” unless it takes a remedial action permitted by section 1.141-12 of the Regulations.

(c) No Federal Guarantee. The City covenants not to take any action or omit to take any action that, if taken or omitted, would cause the Certificates to be “federally guaranteed” within the meaning of section 149(b) of the Code, except as permitted by section 149(b)(3) of the Code.

(d) No Hedge Bonds. The City covenants not to take any action or omit to take action that, if taken or omitted, would cause the Certificates to be “hedge bonds” within the meaning of section 149(g) of the Code.

(e) No Arbitrage Bonds. The City covenants that it will make such use of the proceeds of the Certificates (including investment income) and regulate the investment of such proceeds of the Certificates so that the Certificates will not be “arbitrage bonds” within the meaning of section 148(a) of the Code.

(f) Required Rebate. The City covenants that, if the City does not qualify for an exception to the requirements of section 148(f) of the Code, the City will comply with the requirement that certain amounts earned by the City on the investment of the gross proceeds of the Certificates, be rebated to the United States.

(g) Information Reporting. The City covenants to file or cause to be filed with the Secretary of the Treasury an information statement concerning the Certificates in accordance with section 149(e) of the Code.

(h) Record Retention. The City covenants to retain all material records relating to the expenditure of the proceeds (including investment income) of the Certificates and the use of the property financed, directly or indirectly, thereby until six years after the last Certificate is redeemed or paid at maturity (or such other period as provided by subsequent guidance issued by the Department of the Treasury) in a manner that ensures their complete access throughout such retention period.

(i) Registration. If the Certificates are “registration-required bonds” under section 149(a)(2) of the Code, the Certificates will be issued in registered form.

(j) Favorable Opinion of Bond Counsel. Notwithstanding the foregoing, the City will not be required to comply with any of the federal tax covenants set forth above if the City has received an opinion of nationally recognized bond counsel that such noncompliance will not adversely affect the excludability of interest on the Certificates from gross income for federal income tax purposes.

(k) Continuing Compliance. Notwithstanding any other provision of this Ordinance, the City's obligations under the federal tax covenants set forth above will survive the defeasance and discharge of the Certificates for as long as such matters are relevant to the excludability of interest on the Certificates from gross income for federal income tax purposes.

(l) Official Intent. For purposes of section 1.150-2(d) of the Regulations, to the extent that an official intent to reimburse by the City has not been adopted for a particular project, this Ordinance serves as the City's official declaration of intent to use proceeds of the Certificates to reimburse itself from proceeds of the Certificates issued in the maximum amount for certain expenditures paid in connection with the projects set forth herein. Any such reimbursement will only be made (i) for an original expenditure paid no earlier than 60 days prior to the date hereof and (ii) not later than 18 months after the later of (A) the date the original expenditure is paid or (B) the date of which the project to which such expenditure relates is placed in service or abandoned, but in no event more than three years after the original expenditure is paid.

(m) Advanced Refunding. The City covenants to refrain from using the proceeds of the Certificates to pay debt service on another tax-exempt issue more than ninety (90) days after the date of issue of the Certificates in contravention of the requirements of section 149(d) of the Code.

ARTICLE IX.

SPECIAL PROVISIONS RELATING TO THE TWDB

Section 9.1. Compliance with Rules and Statutes. The City covenants that it will comply with TWDB's rules and relevant state statutes in connection with the sale of the Certificates to TWDB and the use of the proceeds in connection with the Project approved by TWDB.

Section 9.2. Compliance with Environmental Findings of Executive Administrator. The City covenants that it will comply with the conditions specified in the final environmental finding of the Executive Administrator when issued, including the standing emergency discovery conditions for threatened and endangered species and cultural resources.

Section 9.3. Audited Financial Statements. The City shall annually submit to the TWDB a copy of its audited financial statements, which shall be prepared by a certified public accountant in accordance with the accounting principles the City may be required to employ from time to time pursuant to State law or regulation.

Section 9.4. Outlay Reports. The City agrees to submit outlay reports with sufficient documentation on costs on a quarterly or monthly basis in accordance with TWDB outlay report guidelines.

Section 9.5. Compliance with Davis-Bacon and Federal Disadvantaged Business Enterprises Program. Laborers and mechanics employed by contractors and subcontractors for the Project shall be paid wages at rates not less than those prevailing on projects of a similar character in the locality in accordance with the Davis-Bacon Act, and the U.S. Department of Labor's implementing regulations. The City, all contractors, and all sub-contractors shall ensure that all Project contracts mandate compliance with the Davis-Bacon Act. All contracts and subcontracts for the construction of the Project carried out in whole or in part with Certificate proceeds shall insert in full in any contract in excess of \$2,000 the contracts clauses as provided by the TWDB. The City covenants to comply with all applicable State and federal procurement requirements, including the federal procurement requirements under the Disadvantaged Business Enterprises program.

Section 9.6. Federal Funding Accountability and Transparency Act. The City shall provide the TWDB with all information required to be reported in accordance with the Federal Funding Accountability and Transparency Act of 2006, Pub. L. 109-282, as amended by Pub. L. 110-252. The City shall obtain a Data Universal Numbering System (DUNS) number and shall register with System for Award Management (SAM), and maintain current registration at all times during which the Certificates are outstanding.

Section 9.7. Use of Iron and Steel Products. The City covenants that it will abide by all applicable construction contract requirements related to the use of iron and steel products produced in the United States, as required by 31 TAC § 375.3, 33 U.S.C. § 1388, and related State Revolving Fund Policy Guidelines.

Section 9.8. Build America, Buy America Act. The City shall abide by all applicable requirements related to the Build America, Buy America Act, Public Law 117-58.

Section 9.9. Telecommunication and Video-Surveillance. The City shall abide by the prohibition on certain telecommunication and video-surveillance services and equipment as required by 2 § CFR 200.216.

Section 9.10. Insurance. The City covenants that the Project will be kept continually insured against such perils in an amount sufficient to protect the TWDB's interest in the Project, to the extent that insurance is customarily carried by cities operating similar facilities in similar locations; provided, however, that the City shall not be required to maintain such insurance so long as builders risk insurance covering such facilities during the period of construction is in effect.

Section 9.11. Maintenance of Project Fund. The City covenants that it will maintain the Project Fund in accordance with generally accepted government accounting principles.

Section 9.12. Project Schedule. Certificate proceeds deposited in the Project Fund shall be timely and expeditiously used, in accordance with the schedule for the Project approved by the TWDB, as may be amended from time to time.

Section 9.13. Completion of the Project; Surplus Funds. In compliance with the published rules and regulations of the TWDB, the City covenants and agrees that upon final completion of the Project to be financed with the proceeds of the Certificates, and if all or any portion of the Certificates shall be held by or on account of the TWDB or the State, the proper

officials of the City shall render due and final accounting of the total cost of the Project and provide a copy of as-built plans for the Project to the TWDB. If, following completion of the Project, funds remain on hand in the Project Fund, or if the TWDB Executive Administrator (the “Executive Administrator”) disapproves construction of any portion of the Project as not being in accordance with the plans and specifications, the City shall use any remaining funds for enhancements to the Project that are approved by the Executive Administrator, or, if no enhancements are authorized by the Executive Administrator, the City shall submit to the TWDB a final accounting and describe the proposed disposition of any unused funds. If any funds are determined to be surplus funds remaining after the completion of the Project and the completion of a final accounting, such surplus funds shall be used for purposes approved by the Executive Administrator.

Section 9.14. Notice of Suit by the Attorney General of the State of Texas. The City shall promptly notify TWDB in writing of any suit against it by the Attorney General of the State of Texas under Section 2.103, Texas Government Code, and Section 1.10(f), Texas Penal Code, related to federal laws regulating firearms, firearm accessories, and firearm ammunition.

Section 9.15. Special TWDB Tax Covenants.

(a) The City will not take, or omit to take, any action, which action or omission would adversely affect the excludability for federal income tax purposes of interest payable on the Certificates or on any series of bonds issued by the TWDB.

(b) The City covenants that neither the City nor a related party thereto will acquire any of the TWDB’s Source Series Bonds in an amount related to the amount of the Certificates to be acquired from the City by the TWDB.

Section 9.16. Remedies. TWDB shall have all remedies available at law or in equity with respect to the Certificates, and any provision of the Certificates that restricts or limits TWDB’s exercise of such remedies shall be of no force and effect.

Section 9.17. Sampling, Testing, Removing and Disposing of Contaminated Soil. The City shall not use proceeds from the sale of the Certificates for sampling, testing, removing or disposing of contaminated soils and/or media at the Project site except for an EC project to address PFAs or any contaminant listed on EPA’s Contaminant Candidate List. To the extent permitted by law, the City is solely responsible for liability resulting from acts or omissions of the City, its employees, contractors, or agents arising from the sampling, analysis, transport, storage, treatment, recycling and disposition of any contaminated sewage sludge, contaminated sediments or contaminated media that may be generated by the City, its contractors, consultants, agents, officials and employees as a result of activities relating to the Project.

ARTICLE X.

DISCHARGE

Section 10.1. Discharge. The Certificates may be defeased, discharged or refunded in any manner now or hereafter permitted by applicable law.

ARTICLE XI.

CONTINUING DISCLOSURE UNDERTAKING

Section 11.1. Annual Reports.

(a) The City agrees to provide to the MSRB, in electronic format, accompanied by identifying information as prescribed by the MSRB, within six months after the end of each Fiscal Year, financial information and operating data with respect to the City of the general type included in the City's annual financial statements. The information will also include the audited financial statements of the City, if the City commissions an audit and it is completed within the required time. If the audit of such financial statements is not complete within such period, then the City will provide unaudited financial statements within such six month period to the MSRB, and audited financial statements if and when the audit report on such statements becomes available. Any financial statements so to be provided shall be prepared in accordance with the accounting principles the City may be required to employ from time to time pursuant to State law or regulation. All such information and operating data shall be provided to the MSRB, in an electronic format, accompanied by identifying information, as prescribed by the MSRB, and will be available via the Electronic Municipal Market Access ("EMMA") System at www.emma.msrb.org.

(b) If the City changes its fiscal year, it will notify the MSRB of the change (and of the date of the new fiscal year end) prior to the next date by which the City otherwise would be required to provide financial information and operating data pursuant to this Section.

(c) The financial information and operating data to be provided pursuant to this Section may be set forth in full in one or more documents or may be included by specific reference to any document (including an official statement or other offering document, if it is available from the MSRB) that theretofore has been provided to the MSRB or filed with the SEC.

Section 11.2. Event Notices.

(a) The City shall provide the following to the MSRB, in an electronic format as prescribed by the MSRB, in a timely manner not in excess of ten (10) business days after the occurrence of the event, notice of any of the following events with respect to the Certificates:

- (1) Principal and interest payment delinquencies;
- (2) Non-payment related defaults, if material;
- (3) Unscheduled draws on debt service reserves reflecting financial difficulties;
- (4) Unscheduled draws on credit enhancements reflecting financial difficulties;
- (5) Substitution of credit or liquidity providers, or their failure to perform;
- (6) Adverse tax opinions, the issuance by the Internal Revenue Service of proposed or final determinations of taxability, Notices of Proposed Issue (IRS Form 5701-TEB) or other material notices or determinations with

respect to the tax status of Certificates, or other material events affecting the tax status of the Certificates;

- (7) Modifications to rights of the holders of the Certificates, if material;
- (8) Certificate calls, if material, and tender offers;
- (9) Defeasances;
- (10) Release, substitution, or sale of property securing repayment of the Certificates, if material;
- (11) Rating changes;
- (12) Bankruptcy, insolvency, receivership or similar event of the City;

Note to paragraph 12: For the purposes of the event identified in paragraph 12 of this section, the event is considered to occur when any of the following occur: the appointment of a receiver, fiscal agent or similar officer for the City in a proceeding under the U.S. Bankruptcy Code or in any other proceeding under state or federal law in which a court or governmental authority has assumed jurisdiction over substantially all of the assets or business of the City, or if such jurisdiction has been assumed by leaving the existing governing body and officials or officers in possession but subject to the supervision and orders of a court or governmental authority, or the entry of an order confirming a plan of reorganization, arrangement or liquidation by a court or governmental authority having supervision or jurisdiction over substantially all of the assets or business of the City.

- (13) The consummation of a merger, consolidation, or acquisition involving the City or the sale of all or substantially all of the assets of the City, other than in the ordinary course of business, the entry into a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such actions, other than pursuant to its terms, if material; and
- (14) Appointment of successor or additional paying agent/registrar or the change of name of a paying agent/registrar, if material;
- (15) Incurrence of a Financial Obligation of the City, if material, or agreement to covenants, events of default, remedies, priority rights, or other similar terms of a Financial Obligation of the City, any of which affect security holders, if material; and
- (16) Default, event of acceleration, termination event, modification of terms, or other similar events under the terms of a Financial Obligation of the City, any of which reflect financial difficulties.

Note to paragraphs (15) and (16): For purposes of the events identified in

paragraphs (15) and (16) of this section and in the definition of Financial Obligation in Section 1.1, the City intends the words used in such paragraphs to have the meanings ascribed to them in SEC Release No. 34-83885 dated August 20, 2018 (the “2018 Release”) and any further written guidance provided by the SEC or its staff with respect to the amendments to the Rule affected by the 2018 Release.

(b) The City shall notify the MSRB, in a timely manner, of any failure by the City to provide financial information or operating data in accordance with Section 10.1. All documents provided to the MSRB pursuant to this section shall be accompanied by identifying information as prescribed by the MSRB.

Section 11.3. Limitations, Disclaimers and Amendments.

(a) The City shall be obligated to observe and perform the covenants specified in this Article for so long as, but only for so long as, the City remains an “obligated person” with respect to the Certificates within the meaning of the Rule, except that the City in any event will give notice of any redemption calls and any defeasances that cause the City to be no longer an “obligated person.”

(b) The provisions of this Article are for the sole benefit of the Owners and beneficial owners of the Certificates, and nothing in this Article, express or implied, shall give any benefit or any legal or equitable right, remedy, or claim hereunder to any other person. The City undertakes to provide only the financial information, operating data, financial statements, and notices which it has expressly agreed to provide pursuant to this Article and does not hereby undertake to provide any other information that may be relevant or material to a complete presentation of the City’s financial results, condition, or prospects or hereby undertake to update any information provided in accordance with this Article or otherwise, except as expressly provided herein. The City does not make any representation or warranty concerning such information or its usefulness to a decision to invest in or sell Certificates at any future date.

UNDER NO CIRCUMSTANCES SHALL THE CITY BE LIABLE TO THE OWNER OR BENEFICIAL OWNER OF ANY CERTIFICATE OR ANY OTHER PERSON, IN CONTRACT OR TORT, FOR DAMAGES RESULTING IN WHOLE OR IN PART FROM ANY BREACH BY THE CITY, WHETHER NEGLIGENT OR WITH OR WITHOUT FAULT ON ITS PART, OF ANY COVENANT SPECIFIED IN THIS ARTICLE, BUT EVERY RIGHT AND REMEDY OF ANY SUCH PERSON, IN CONTRACT OR TORT, FOR OR ON ACCOUNT OF ANY SUCH BREACH SHALL BE LIMITED TO AN ACTION FOR MANDAMUS OR SPECIFIC PERFORMANCE.

(c) No default by the City in observing or performing its obligations under this Article shall constitute a breach of or default under the Ordinance for purposes of any other provisions of this Ordinance.

(d) Nothing in this Article is intended or shall act to disclaim, waive, or otherwise limit the duties of the City under federal and state securities laws.

(e) The provisions of this Article may be amended by the City from time to time to adapt to changed circumstances that arise from a change in legal requirements, a change in law, or a change in the identity, nature, status, or type of operations of the City, but only if (i) the provisions of this Article, as so amended, would have permitted an underwriter to purchase or sell Certificates in the primary offering of the Certificates in compliance with the Rule, taking into account any amendments or interpretations of the Rule to the date of such amendment, as well as such changed circumstances, and (ii) either (A) the Owners of a majority in aggregate principal amount (or any greater amount required by any other provisions of this Ordinance that authorizes such an amendment) of the outstanding Certificates consent to such amendment or (B) a person that is unaffiliated with the City (such as nationally recognized bond counsel) determines that such amendment will not materially impair the interests of the Owners and beneficial owners of the Certificates. The provisions of this Article may also be amended from time to time or repealed by the City if the SEC amends or repeals the applicable provisions of the Rule or a court of final jurisdiction determines that such provisions are invalid, but only if and to the extent that reservation of the City's right to do so would not prevent the underwriters of the initial public offering of the Certificates from lawfully purchasing or selling Certificates in such offering. If the City so amends the provisions of this Article, it shall include with any amended financial information or operating data next provided in accordance with Section 10.1 an explanation, in narrative form, of the reasons for the amendment and of the impact of any change in the type of financial information or operating data so provided.

ARTICLE XII.

AMENDMENTS TO ORDINANCE AND PRICING CERTIFICATE

Section 12.1. Amendments to Ordinance.

The City may, without the consent of or notice to the Owners, from time to time and at any time amend this Ordinance in any manner not detrimental to the interests of the Owners, including the curing of any ambiguity, inconsistency, or formal defect or omission herein. In addition, the City may, with the written consent of the Owners of a majority in aggregate principal amount of the Certificates then outstanding, amend, add to or rescind any of the provisions of this Ordinance; provided, that, without the consent of the Owners of all Certificates then outstanding, no such amendment, addition, or rescission shall:

- (a) affect the rights of the Owners of less than all of the Certificates then outstanding;
- (b) make any change in the maturities of the Certificates;
- (c) reduce the rate of interest borne by any of the Certificates;
- (d) reduce the amount of the principal payable on the Certificates;
- (e) modify the terms of payment of principal of or interest on the Certificates or impose any conditions with respect to such payment; or
- (f) change the minimum percentage of the principal amount of Certificates necessary for consent to such amendment.

Certificates owned or held by or for the account of or for the benefit of the City shall not be deemed to be outstanding for the purpose of amending this Ordinance or the Pricing Certificate.

Section 12.2. Notice and Adoption of Amendment.

If the City desires to amend this Ordinance and such amendment requires the consent of the Owners pursuant to Section 12.01, the City shall cause notice of the proposed amendment to be given in writing to each Owner of Certificates then outstanding. If, within thirty (30) days, or such longer period as shall be prescribed by the City, following the giving of such notice, the Owners of Certificates then outstanding in the aggregate principal amount required by Section 12.01 shall have consented to the amendment as herein provided, no Owner of a Certificate shall have any right to object to any of the terms and provisions contained therein, or in any manner to question the propriety of the execution thereof, and all the rights of all Owners of Certificates shall thereafter be determined, exercised, and enforced hereunder subject in all respects to such amendment.

Section 12.3. Consent of Owner Irrevocable.

Any consent given by any Owner of a Certificate pursuant to the provisions of this Article shall be irrevocable and binding on all future Owners of the same Certificates from the date of such consent.

Section 12.4. Changes in Connection with Attorney General Approval.

Bond Counsel is hereby authorized to make any changes to the terms of this Ordinance if necessary or desirable to carry out the purposes hereof or in connection with the approval of the issuance of the Certificates by the Attorney General of the State.

ARTICLE XIII.

MISCELLANEOUS

Section 13.1. Partial Invalidity. If any section, paragraph, clause or provision of this Ordinance shall for any reason be held to be invalid or unenforceable, the invalidity or unenforceability of such section, paragraph, clause or provision shall not affect any of the remaining provisions of this Ordinance.

Section 13.2. Repealer. All ordinances or resolutions, or parts thereof, heretofore adopted by the City and inconsistent with the provisions of this Ordinance are hereby repealed to the extent of such conflict.

Section 13.3. Individuals Not Liable. No covenant, stipulation, obligation or agreement herein contained shall be deemed to be a covenant, stipulation, obligation or agreement of any member of City Council or agent or employee of City Council or of the City in his or her individual capacity and neither the members of City Council nor any officer thereof, nor any agent or employee of City Council or of the City, shall be liable personally on the Certificates, or be subject to any personal liability or accountability by reason of the issuance thereof.

Section 13.4. Related Matters. To satisfy in a timely manner all of the City's obligations under this Ordinance, the Mayor or Mayor Pro Tem, the City Clerk and all other appropriate officers and agents of the City are hereby authorized and directed to do any and all things necessary and/or convenient in order to consummate the delivery of the Certificates, pay the costs of issuance on the Certificates, and effectuate the terms and purposes of this Ordinance.

Section 13.5. Force and Effect. This Ordinance shall be in full force and effect from and after its final passage, and it is so ordained.

[Signature Page Follows]

PASSED, APPROVED AND EFFECTIVE this 14th day of July, 2025.

City Clerk,
City of La Marque, Texas

Mayor,
City of La Marque, Texas

[SEAL]

CERTIFICATE FOR ORDINANCE

THE STATE OF TEXAS §
COUNTY OF GALVESTON §

I, the undersigned officer of the City Council of the City of La Marque, Texas, hereby certify as follows:

1. The City Council of the City of La Marque, Texas, convened in a regular meeting on the 14th day of July, 2025, and the roll was called of the duly constituted officers and members of said City Council, to wit:

Keith Bell	Mayor
Kimberley Yancy	Council Member, District A
Joe Compian	Mayor Pro Tem and Council Member, District B
Joseph Lowry	Council Member, District C
James Ross	Council Member, District D

and all of said persons were present, except the following absentee(s): _____, thus constituting a quorum. Whereupon, among other business, the following was transacted at said meeting: a written

AMENDED AND RESTATED ORDINANCE NO. O-2025-0010

AN AMENDED AND RESTATED ORDINANCE AUTHORIZING THE ISSUANCE AND SALE OF THE CITY OF LA MARQUE, TEXAS, TAX AND SUBORDINATE LIEN REVENUE CERTIFICATES OF OBLIGATION, SERIES 2025; AUTHORIZING EXECUTION AND DELIVERY OF A PAYING AGENT/REGISTRAR AGREEMENT AND AN ESCROW AGREEMENT RELATING TO SUCH CERTIFICATES; PRESCRIBING THE FORM OF SAID CERTIFICATES; LEVYING A TAX AND PLEDGING SUBORDINATE LIEN ON THE NET REVENUES OF THE WATER, SEWER AND WASTEWATER SYSTEM IN PAYMENT THEREOF; AND ENACTING OTHER PROVISIONS RELATING THERETO

was duly introduced for the consideration of said City Council. It was then duly moved and seconded that said ordinance be adopted; and, after due discussion, said motion, carrying with it the adoption of said ordinance, prevailed and carried by the following vote:

_____ Member(s) of City Council shown present above voted "Aye".

_____ Member(s) of City Council shown present above voted "No".

_____ Member(s) of City Council shown present above who abstained.

2. A true, full and correct copy of the aforesaid ordinance adopted at the meeting described in the above and foregoing paragraph is attached to and follows this certificate; that said

ordinance has been duly recorded in said City Council's minutes of said meeting; that the above and foregoing paragraph is a true, full and correct excerpt from said City Council's minutes of said meeting pertaining to the adoption of said ordinance; that the persons named in the above and foregoing paragraph are the duly chosen, qualified and acting officers and members of said City Council as indicated therein; that each of the officers and members of said City Council was duly and sufficiently notified officially and personally, in advance, of the date, hour, place and purpose of the aforesaid meeting, and that said ordinance would be introduced and considered for adoption at said meeting, and each of said officers and members consented, in advance, to the holding of said meeting for such purpose; that said meeting was open to the public as required by law; and that public notice of the date, hour, place and subject of said meeting was given as required by Chapter 551, Texas Government Code.

SIGNED AND SEALED this 14th day of July, 2024.

City Clerk
City of La Marque, Texas

[SEAL]



CITY COUNCIL AGENDA FORM

Meeting Date: July 14, 2025
Prepared by: _____
Department: City Clerk

Agenda Item: 8.II.
Reviewed by: _____

AGENDA ITEM DESCRIPTION:

Approving the Project Plan and Reinvestment Zone Financing Plan for Tax Increment Reinvestment Zone Number 2 in the City of La Marque, Texas, providing an effective date, and making other provisions related to the subject - *City Clerk / TIRZ Board #2*

STAFF BRIEFING:

HISTORY:

FISCAL IMPACT:

FINAL PROJECT PLAN AND
REINVESTMENT ZONE FINANCING PLAN
FOR
TAX INCREMENT REINVESTMENT ZONE NO. 2
CITY OF LA MARQUE

May 21, 2025

TABLE OF CONTENTS

1. Overview

1.1 Background.....	1
1.2 The Challenge	1
1.3 Responding to the Challenge.....	1

2. Project Plan

2.1 Existing Uses and Conditions, Proposed Uses (311.011(b)(1))	2
2.2 Changes to Municipal Ordinances Required (311.011(b)(2))	2
2.3 Non-Project Costs (311.011(b)(3)).....	2
2.4 Method of Relocation (311.011(b)(4)).....	2

3. Reinvestment Zone Financing Plan

3.1 Estimated Project Cost Description (311.011(c)(1))	3
3.2 Kind, Number, and Location of Proposed Public Improvements (311.011(c)(2)).....	4
3.3 Economic Feasibility (311.011(c)(3))	4
3.4 Estimate of Bonded Indebtedness To Be Incurred (311.011(c)(4))	4
3.5 Estimated Time When Monetary Obligations Are To Be Incurred (311.011(c)(5))	4
3.6 Methods and Sources of Financing (311.011(c)(6)).....	5
3.7 Current Appraised Value of Taxable Real Property (311.011(c)(7))	5
3.8 Estimated Captured Appraised Value By Year(311.011(c)(8))	5
3.9 Duration of Zone (311.011(c)(9)).....	6

Appendix

A. TIRZ Boundary Legal Description	7
B. TIRZ Boundary Map	8

1. OVERVIEW

1.1 Background

The Omega Bay subdivision was constructed in several sections over a number of years within the City of La Marque, Texas. The subdivision consists of approximately 289 single family homes. The City of La Marque Tax Increment Reinvestment Zone #2 is coincident with the boundaries of the subdivision encompassing approximately 73.1 acres.

The location of La Marque Tax Increment Reinvestment Zone #2 within the City of La Marque is shown in Figure 1.

Figure 1 – Vicinity Map



1.2 The Challenge

The streets within Omega Bay were originally platted as private streets and have been maintained as a private obligation of the home owners association funded by property owner assessments. Over time, affordable assessments have proven to be inadequate to fund a level of maintenance on par with the standards in other parts of the City. The roadway infrastructure condition within the subdivision has degraded to the point that complete reconstruction of the roadways is necessary.

1.3 Responding to the Challenge

The City Council created Tax Increment Reinvestment Zone #2 (TIRZ) to create a funding mechanism to rebuild the streets to current minimum standards by Ordinance O-2019-002, adopted on February 11, 2019. The TIRZ will establish a dedicated revenue stream to fund the road improvements which will not negatively impact the overall financial resources of the City which are needed to provide services throughout the City.

2. PROJECT PLAN

This Project Plan and Reinvestment Zone Financing Plan (“The Plan”) has been prepared in accordance with the requirements of Chapter 311.011 of the Texas Tax Code and outlines the improvements to be funded and implemented by the Tax Increment Reinvestment Zone Number 2, La Marque, Texas.

The TIRZ will allow the City and other participating entities, if any, to partner with each other to fund the necessary road improvements. It is anticipated that the natural appreciation of property values will provide the primary source of tax increment to fund the improvements. In the long run, improving the condition of the roadways will also tend to improve and stabilize property values. The road improvement projects are expected to be funded directly by the TIRZ as funds accrue and become available. TIRZ funds will not be expended on physical improvements until the road rights-of-way are made public.

2.1 Existing Uses and Conditions, Proposed Use (311.011(b)(1))

Existing uses within the TIRZ are residential and it is expected that future uses will continue to be residential. The properties are predominantly built out with the homes generally being in good condition. The roadways, and some associated bulkheads, are in poor condition and in need of complete reconstruction.

2.2 Changes to Municipal Ordinances Required (311.011(b)(2))

There are no contemplated changes to the City’s Code of Ordinances, zoning ordinances, master plan, building codes, or subdivision rules and regulations necessary to implement the Plan.

2.3 Non-Project Costs (311.011(b)(3))

There are no contemplated non-project costs associated with implementation of the TIRZ. However, Galveston County MUD 12 is responsible for maintenance and operation of the water, sanitary sewer, and drainage facilities within the proposed TIRZ. If it becomes necessary to modify any MUD facilities during reconstruction of the roadways, the MUD will be asked to fund such work.

2.4 Method of Relocation (311.011(b)(4))

There will be no relocations required to implement the TIRZ.

3. REINVESTMENT ZONE FINANCING PLAN

The TIRZ will provide a funding mechanism for complete reconstruction of the roadways within the Zone. The TIRZ may fund all or a portion of the eligible projects.

3.1 Estimated Project Cost Description (311.011(c)(1))

The project costs in Table 1 below comply with the categories established in Section 311.02 of the Texas Tax Code. The project cost estimates are approximate based on preliminary engineer's estimates of probable costs and are expressed in year 2025 dollars. Project Costs may be adjusted to actual development plans, bid costs and/or for inflation. Projects will be undertaken and paid for as funds are available from increment or other sources. The intent is to complete roadway reconstruction projects in logical discrete packages, such as a on a block by block basis or other method of prioritization, as can be funded from tax increment revenues notwithstanding whether the costs or tax increment exceed the estimates herein and costs may be moved among line items. The expenditure of all TIRZ funds will conform to City of La Marque expenditure policies.

Table 1

Project Description	Project Cost Estimate
Street Reconstruction - Complete Concrete Reconstruction	\$5,500,000
Professional Services Engineering, Surveying, Geotechnical (20% of construction)	\$1,100,000
Creation Costs and Zone Administration	\$200,000
Total Estimated Project Costs	\$6,800,000

In conjunction with the projects described above, the following categories established in Section 311.002 (1) of the Texas Tax Code as eligible project costs are considered eligible project costs. The TIRZ will fund project costs consistent with this Plan at the earliest feasible and practicable date(s), upon approval of the Board of Directors of the TIRZ.

- *Capital Projects* related to demolition, environmental abatement, and remediation including site work and fill, necessary to prepare sites and existing structures for roadway reconstruction, including adjoining bulkheads that have direct support for the road support structure; i.e., where bulkhead function is supporting road shoulder or road base and is not owned by individual property resident. This would include the dead-end roads terminating at a canal.
- *Land Costs* associated with property formally conveyed to the public in conjunction with the implementation of projects otherwise eligible for reimbursement may also be eligible for reimbursement.
- *Matching Funds* may be contributed in support of local, state, federal or other capital improvements programs that benefit the project and the region.
- *Professional Services* incurred for architectural, planning, engineering, legal, landscape architecture, financial, marketing, public relations, management, leasing, bookkeeping,

tax role verification, environmental, archaeological, and other services and advice necessary to a project.

- *Financing Costs* related to city interest, other financing interest, legal fees, underwriter's fees, brokerage charges, transfer or placement charges, premium and fees paid for loans, credit enhancement fees, notes, bonds or other instruments of credit issued to pay for project costs.
- *Operational Expenses* as may be necessary to provide for the proper administration of the Zone, operation of Zone facilities and services provided therein, over the life of the TIRZ.

3.2 Kind, Number and Location of Proposed Public Improvements (311.011(c)(2))

The proposed public improvements include the complete concrete reconstruction of all streets within the Zone. The reconstruction may be completed in phases commensurate with available funds and based on the most advantageous sequencing.

3.3 Economic Feasibility (311.011(c)(3))

An analysis of the property value growth within Omega Bay for the five years since the creation of the Zone is shown in Table 2.

Table 2

	2020	2021	2022	2023	2024	Average
Total Taxable Value	\$ 70,654,176	\$ 79,627,335	\$ 89,358,333	\$ 100,650,341	\$ 107,473,261	NA
Change from Prior	NA	\$ 8,973,159	\$ 9,730,998	\$ 11,292,008	\$ 6,822,920	\$ 9,204,771
% Change from Prior	NA	12.7%	12.2%	12.6%	6.8%	11%

The average annual property value increase during this period was 11.0%. Recognizing that growth of that magnitude is not likely to be sustained for a 30-year period, an annual taxable value growth rate of 4% is projected. A 4% annual growth rate will yield approximately \$11.6 million in City incremental revenue during the 30-year life of the proposed Zone.

3.4 Estimate of Bonded Indebtedness To Be Incurred (311.011(c)(4))

It is not anticipated that bonds, notes or other obligations will be issued. However, the City, at its sole discretion, may issue or cause to be issued bonds, notes, or other obligations secured by tax increment revenues up to the maximum amount that may be financed by available increment. The use of the proceeds of such bonds would be limited to the eligible project costs defined in this Plan.

3.5 Estimated Time When Monetary Obligations Are To Be Incurred (311.011(c)(5))

Obligations will be incurred as increment is available to fund design and/or construction of the eligible street reconstruction projects or a subset of the eligible street reconstruction.

3.6 Methods and Sources of Financing (311.011(c)(6))

The primary source of revenue will be the ad valorem property taxes generated on the annual increment value above the base year value. Table 3 below shows the maximum participation rate of the City. This Plan does not preclude the lawful participation by any other taxing entity which may choose to participate in the Zone at any time.

Table 3

Jurisdiction	% Participation	Duration
City of La Marque	100%	30 Years

To ensure timely construction of public improvements, both pay-as-you-go and various methods of financing may be utilized. These include:

- *Tax Increment Bonds or Notes.* As allowed by annual incremental increases in Zone assessed value, tax-exempt tax increment bonds or notes may be issued to fund improvements.
- *Other private financing.* Some projects may be financed on a short-term basis through private financial institutions.
- *Grants/Other Public Funds.* To the extent permitted by law, efforts will be made to leverage TIRZ funds with other public funds and economic development tools.

3.7 Current Appraised Value of Taxable Real Property (311.011(c)(7))

Based upon the 2019 Galveston Central Appraisal District certified tax roll, the total taxable value of all real property in the TIRZ is \$67,979,945. The Zone was created in 2019 so base year value is \$67,979,945.

3.8 Estimated Captured Appraised Value By Year (311.011(c)(8))

Table 4, on the following page, shows the Captured Appraised Value and the resulting revenue from the City for the duration of the Zone.

3.9 Duration of Zone (311.011(c)(9))

The Zone was created for a 30-year period in 2019, with the final payment of increment being payable on values and at rates for tax year 2049, which revenue will be paid in budget year 2050, which ends September 30, 2050.

Table 4

TIRZ Year	Tax Year	Incremental Value Projection		Increment Revenue Projection		
		Taxable Value	Incremental Value	Tax Rate	Annual Incremental Revenue	Cumulative Revenue
1	2020	\$70,654,176	\$2,674,231	\$0.5507	\$7,168	\$7,168
2	2021	\$79,627,335	\$11,647,390	\$0.5508	\$63,674	\$70,842
3	2022	\$89,358,333	\$21,378,388	\$0.4616	\$97,075	\$167,917
4	2023	\$100,650,341	\$32,670,396	\$0.4180	\$133,973	\$301,890
5	2024	\$107,473,261	\$39,493,316	\$0.4180	\$143,617	\$445,507
6	2025	\$111,772,000	\$43,792,055	\$0.4180	\$176,644	\$622,151
7	2026	\$116,243,000	\$48,263,055	\$0.4180	\$194,679	\$816,830
8	2027	\$120,893,000	\$52,913,055	\$0.4180	\$213,435	\$1,030,265
9	2028	\$125,729,000	\$57,749,055	\$0.4000	\$222,911	\$1,253,177
10	2029	\$130,758,000	\$62,778,055	\$0.4000	\$242,323	\$1,495,500
11	2030	\$135,988,000	\$68,008,055	\$0.4000	\$262,511	\$1,758,011
12	2031	\$141,428,000	\$73,448,055	\$0.3900	\$276,422	\$2,034,433
13	2032	\$147,085,000	\$79,105,055	\$0.3900	\$297,712	\$2,332,145
14	2033	\$152,968,000	\$84,988,055	\$0.3900	\$319,853	\$2,651,997
15	2034	\$159,087,000	\$91,107,055	\$0.3900	\$342,881	\$2,994,879
16	2035	\$165,450,000	\$97,470,055	\$0.3900	\$366,829	\$3,361,707
17	2036	\$172,068,000	\$104,088,055	\$0.3900	\$391,735	\$3,753,443
18	2037	\$178,951,000	\$110,971,055	\$0.3900	\$417,640	\$4,171,082
19	2038	\$186,109,000	\$118,129,055	\$0.3900	\$444,579	\$4,615,661
20	2039	\$193,553,000	\$125,573,055	\$0.3900	\$472,594	\$5,088,255
21	2040	\$201,295,000	\$133,315,055	\$0.3900	\$501,731	\$5,589,986
22	2041	\$209,347,000	\$141,367,055	\$0.3900	\$532,035	\$6,122,021
23	2042	\$217,721,000	\$149,741,055	\$0.3900	\$563,550	\$6,685,572
24	2043	\$226,430,000	\$158,450,055	\$0.3900	\$596,327	\$7,281,898
25	2044	\$235,487,000	\$167,507,055	\$0.3900	\$630,413	\$7,912,311
26	2045	\$244,906,000	\$176,926,055	\$0.3900	\$665,861	\$8,578,172
27	2046	\$254,702,000	\$186,722,055	\$0.3900	\$702,728	\$9,280,901
28	2047	\$264,890,000	\$196,910,055	\$0.3900	\$741,071	\$10,021,972
29	2048	\$275,486,000	\$207,506,055	\$0.3900	\$780,949	\$10,802,921
30	2049	\$286,505,000	\$218,525,055	\$0.3900	\$822,419	\$11,625,340
				Totals	\$11,625,340	

Notes:

Years 2020-2024 taxable value, incremental value, and TIRZ revenue per actual Galveston County Tax Office reports (4/10/25).

Base Year Value (2019): \$67,979,945

Assumed Property Tax Rate: Per Stifel Public Finance Projection 10/22/24

City TIRZ Participation Rate: 100%

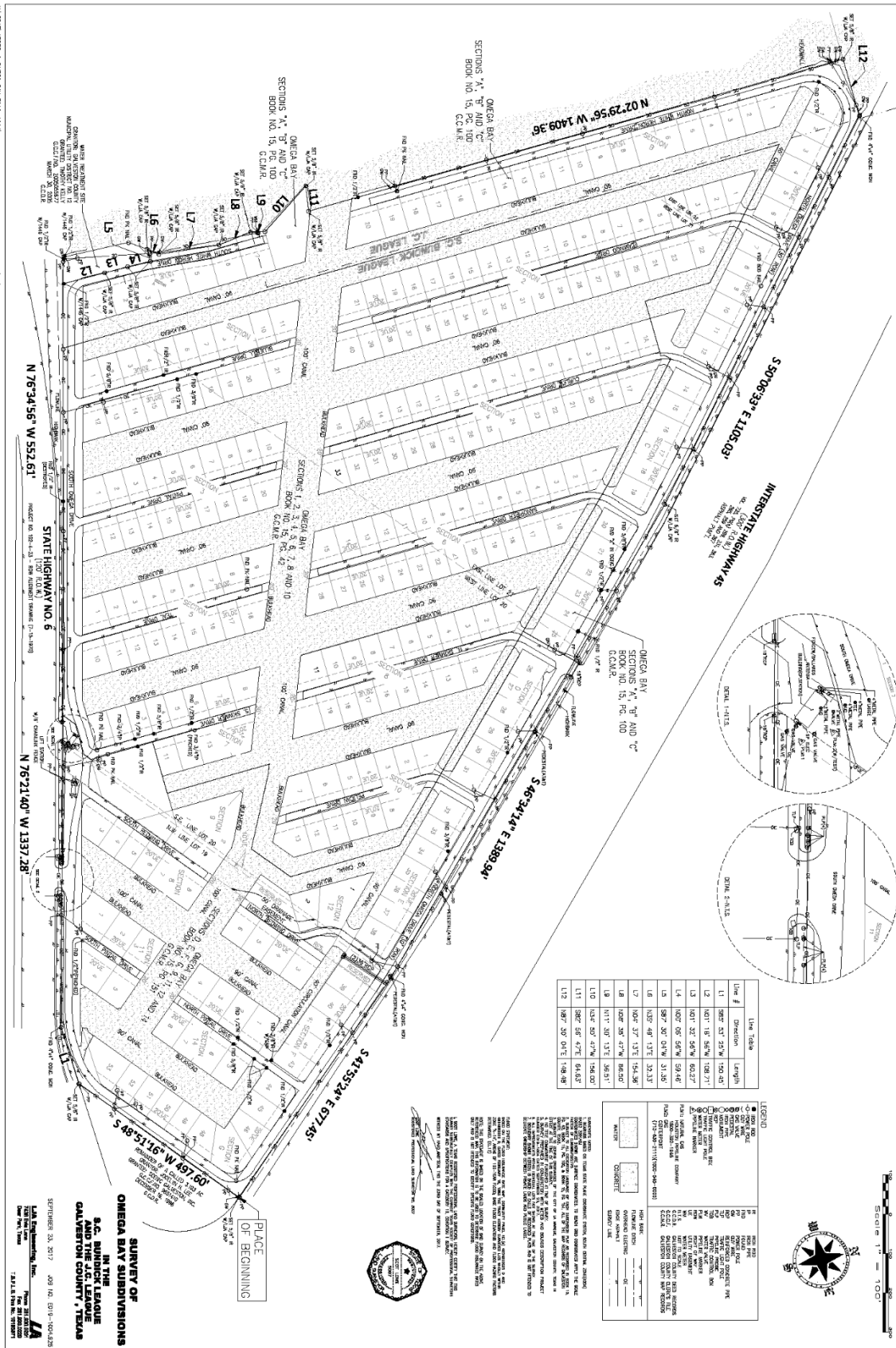
Property Tax Collection Rate: 96.5%

Annual Taxable Value Growth Rate: 4%

APPENDIX A

TIRZ Boundary Legal Description

Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, A, B, C, D, E, F, and, G of the Omega Bay Subdivision in the S.C. Bundick League and the J.C. League, Galveston county, Texas.



FINAL PROJECT PLAN AND
REINVESTMENT ZONE FINANCING PLAN
FOR
TAX INCREMENT REINVESTMENT ZONE NO. 2
CITY OF LA MARQUE

May 21, 2025

TABLE OF CONTENTS

1. Overview

1.1 Background.....	1
1.2 The Challenge	1
1.3 Responding to the Challenge.....	1

2. Project Plan

2.1 Existing Uses and Conditions, Proposed Uses (311.011(b)(1))	2
2.2 Changes to Municipal Ordinances Required (311.011(b)(2))	2
2.3 Non-Project Costs (311.011(b)(3)).....	2
2.4 Method of Relocation (311.011(b)(4)).....	2

3. Reinvestment Zone Financing Plan

3.1 Estimated Project Cost Description (311.011(c)(1))	3
3.2 Kind, Number, and Location of Proposed Public Improvements (311.011(c)(2)).....	4
3.3 Economic Feasibility (311.011(c)(3))	4
3.4 Estimate of Bonded Indebtedness To Be Incurred (311.011(c)(4))	4
3.5 Estimated Time When Monetary Obligations Are To Be Incurred (311.011(c)(5))	4
3.6 Methods and Sources of Financing (311.011(c)(6)).....	5
3.7 Current Appraised Value of Taxable Real Property (311.011(c)(7))	5
3.8 Estimated Captured Appraised Value By Year(311.011(c)(8))	5
3.9 Duration of Zone (311.011(c)(9)).....	6

Appendix

A. TIRZ Boundary Legal Description	7
B. TIRZ Boundary Map	8

1. OVERVIEW

1.1 Background

The Omega Bay subdivision was constructed in several sections over a number of years within the City of La Marque, Texas. The subdivision consists of approximately 289 single family homes. The City of La Marque Tax Increment Reinvestment Zone #2 is coincident with the boundaries of the subdivision encompassing approximately 73.1 acres.

The location of La Marque Tax Increment Reinvestment Zone #2 within the City of La Marque is shown in Figure 1.

Figure 1 – Vicinity Map



1.2 The Challenge

The streets within Omega Bay were originally platted as private streets and have been maintained as a private obligation of the home owners association funded by property owner assessments. Over time, affordable assessments have proven to be inadequate to fund a level of maintenance on par with the standards in other parts of the City. The roadway infrastructure condition within the subdivision has degraded to the point that complete reconstruction of the roadways is necessary.

1.3 Responding to the Challenge

The City Council created Tax Increment Reinvestment Zone #2 (TIRZ) to create a funding mechanism to rebuild the streets to current minimum standards by Ordinance O-2019-002, adopted on February 11, 2019. The TIRZ will establish a dedicated revenue stream to fund the road improvements which will not negatively impact the overall financial resources of the City which are needed to provide services throughout the City.

2. PROJECT PLAN

This Project Plan and Reinvestment Zone Financing Plan (“The Plan”) has been prepared in accordance with the requirements of Chapter 311.011 of the Texas Tax Code and outlines the improvements to be funded and implemented by the Tax Increment Reinvestment Zone Number 2, La Marque, Texas.

The TIRZ will allow the City and other participating entities, if any, to partner with each other to fund the necessary road improvements. It is anticipated that the natural appreciation of property values will provide the primary source of tax increment to fund the improvements. In the long run, improving the condition of the roadways will also tend to improve and stabilize property values. The road improvement projects are expected to be funded directly by the TIRZ as funds accrue and become available. TIRZ funds will not be expended on physical improvements until the road rights-of-way are made public.

2.1 Existing Uses and Conditions, Proposed Use (311.011(b)(1))

Existing uses within the TIRZ are residential and it is expected that future uses will continue to be residential. The properties are predominantly built out with the homes generally being in good condition. The roadways, and some associated bulkheads, are in poor condition and in need of complete reconstruction.

2.2 Changes to Municipal Ordinances Required (311.011(b)(2))

There are no contemplated changes to the City’s Code of Ordinances, zoning ordinances, master plan, building codes, or subdivision rules and regulations necessary to implement the Plan.

2.3 Non-Project Costs (311.011(b)(3))

There are no contemplated non-project costs associated with implementation of the TIRZ. However, Galveston County MUD 12 is responsible for maintenance and operation of the water, sanitary sewer, and drainage facilities within the proposed TIRZ. If it becomes necessary to modify any MUD facilities during reconstruction of the roadways, the MUD will be asked to fund such work.

2.4 Method of Relocation (311.011(b)(4))

There will be no relocations required to implement the TIRZ.

3. REINVESTMENT ZONE FINANCING PLAN

The TIRZ will provide a funding mechanism for complete reconstruction of the roadways within the Zone. The TIRZ may fund all or a portion of the eligible projects.

3.1 Estimated Project Cost Description (311.011(c)(1))

The project costs in Table 1 below comply with the categories established in Section 311.02 of the Texas Tax Code. The project cost estimates are approximate based on preliminary engineer's estimates of probable costs and are expressed in year 2025 dollars. Project Costs may be adjusted to actual development plans, bid costs and/or for inflation. Projects will be undertaken and paid for as funds are available from increment or other sources. The intent is to complete roadway reconstruction projects in logical discrete packages, such as a on a block by block basis or other method of prioritization, as can be funded from tax increment revenues notwithstanding whether the costs or tax increment exceed the estimates herein and costs may be moved among line items. The expenditure of all TIRZ funds will conform to City of La Marque expenditure policies.

Table 1

Project Description	Project Cost Estimate
Street Reconstruction - Complete Concrete Reconstruction	\$5,500,000
Professional Services Engineering, Surveying, Geotechnical (20% of construction)	\$1,100,000
Creation Costs and Zone Administration	\$200,000
Total Estimated Project Costs	\$6,800,000

In conjunction with the projects described above, the following categories established in Section 311.002 (1) of the Texas Tax Code as eligible project costs are considered eligible project costs. The TIRZ will fund project costs consistent with this Plan at the earliest feasible and practicable date(s), upon approval of the Board of Directors of the TIRZ.

- *Capital Projects* related to demolition, environmental abatement, and remediation including site work and fill, necessary to prepare sites and existing structures for roadway reconstruction, including adjoining bulkheads that have direct support for the road support structure; i.e., where bulkhead function is supporting road shoulder or road base and is not owned by individual property resident. This would include the dead-end roads terminating at a canal.
- *Land Costs* associated with property formally conveyed to the public in conjunction with the implementation of projects otherwise eligible for reimbursement may also be eligible for reimbursement.
- *Matching Funds* may be contributed in support of local, state, federal or other capital improvements programs that benefit the project and the region.
- *Professional Services* incurred for architectural, planning, engineering, legal, landscape architecture, financial, marketing, public relations, management, leasing, bookkeeping,

tax role verification, environmental, archaeological, and other services and advice necessary to a project.

- *Financing Costs* related to city interest, other financing interest, legal fees, underwriter's fees, brokerage charges, transfer or placement charges, premium and fees paid for loans, credit enhancement fees, notes, bonds or other instruments of credit issued to pay for project costs.
- *Operational Expenses* as may be necessary to provide for the proper administration of the Zone, operation of Zone facilities and services provided therein, over the life of the TIRZ.

3.2 Kind, Number and Location of Proposed Public Improvements (311.011(c)(2))

The proposed public improvements include the complete concrete reconstruction of all streets within the Zone. The reconstruction may be completed in phases commensurate with available funds and based on the most advantageous sequencing.

3.3 Economic Feasibility (311.011(c)(3))

An analysis of the property value growth within Omega Bay for the five years since the creation of the Zone is shown in Table 2.

Table 2

	2020	2021	2022	2023	2024	Average
Total Taxable Value	\$ 70,654,176	\$ 79,627,335	\$ 89,358,333	\$ 100,650,341	\$ 107,473,261	NA
Change from Prior	NA	\$ 8,973,159	\$ 9,730,998	\$ 11,292,008	\$ 6,822,920	\$ 9,204,771
% Change from Prior	NA	12.7%	12.2%	12.6%	6.8%	11%

The average annual property value increase during this period was 11.0%. Recognizing that growth of that magnitude is not likely to be sustained for a 30-year period, an annual taxable value growth rate of 4% is projected. A 4% annual growth rate will yield approximately \$11.6 million in City incremental revenue during the 30-year life of the proposed Zone.

3.4 Estimate of Bonded Indebtedness To Be Incurred (311.011(c)(4))

It is not anticipated that bonds, notes or other obligations will be issued. However, the City, at its sole discretion, may issue or cause to be issued bonds, notes, or other obligations secured by tax increment revenues up to the maximum amount that may be financed by available increment. The use of the proceeds of such bonds would be limited to the eligible project costs defined in this Plan.

3.5 Estimated Time When Monetary Obligations Are To Be Incurred (311.011(c)(5))

Obligations will be incurred as increment is available to fund design and/or construction of the eligible street reconstruction projects or a subset of the eligible street reconstruction.

3.6 Methods and Sources of Financing (311.011(c)(6))

The primary source of revenue will be the ad valorem property taxes generated on the annual increment value above the base year value. Table 3 below shows the maximum participation rate of the City. This Plan does not preclude the lawful participation by any other taxing entity which may choose to participate in the Zone at any time.

Table 3

Jurisdiction	% Participation	Duration
City of La Marque	100%	30 Years

To ensure timely construction of public improvements, both pay-as-you-go and various methods of financing may be utilized. These include:

- *Tax Increment Bonds or Notes.* As allowed by annual incremental increases in Zone assessed value, tax-exempt tax increment bonds or notes may be issued to fund improvements.
- *Other private financing.* Some projects may be financed on a short-term basis through private financial institutions.
- *Grants/Other Public Funds.* To the extent permitted by law, efforts will be made to leverage TIRZ funds with other public funds and economic development tools.

3.7 Current Appraised Value of Taxable Real Property (311.011(c)(7))

Based upon the 2019 Galveston Central Appraisal District certified tax roll, the total taxable value of all real property in the TIRZ is \$67,979,945. The Zone was created in 2019 so base year value is \$67,979,945.

3.8 Estimated Captured Appraised Value By Year (311.011(c)(8))

Table 4, on the following page, shows the Captured Appraised Value and the resulting revenue from the City for the duration of the Zone.

3.9 Duration of Zone (311.011(c)(9))

The Zone was created for a 30-year period in 2019, with the final payment of increment being payable on values and at rates for tax year 2049, which revenue will be paid in budget year 2050, which ends September 30, 2050.

Table 4

TIRZ Year	Tax Year	Incremental Value Projection		Increment Revenue Projection		
		Taxable Value	Incremental Value	Tax Rate	Annual Incremental Revenue	Cumulative Revenue
1	2020	\$70,654,176	\$2,674,231	\$0.5507	\$7,168	\$7,168
2	2021	\$79,627,335	\$11,647,390	\$0.5508	\$63,674	\$70,842
3	2022	\$89,358,333	\$21,378,388	\$0.4616	\$97,075	\$167,917
4	2023	\$100,650,341	\$32,670,396	\$0.4180	\$133,973	\$301,890
5	2024	\$107,473,261	\$39,493,316	\$0.4180	\$143,617	\$445,507
6	2025	\$111,772,000	\$43,792,055	\$0.4180	\$176,644	\$622,151
7	2026	\$116,243,000	\$48,263,055	\$0.4180	\$194,679	\$816,830
8	2027	\$120,893,000	\$52,913,055	\$0.4180	\$213,435	\$1,030,265
9	2028	\$125,729,000	\$57,749,055	\$0.4000	\$222,911	\$1,253,177
10	2029	\$130,758,000	\$62,778,055	\$0.4000	\$242,323	\$1,495,500
11	2030	\$135,988,000	\$68,008,055	\$0.4000	\$262,511	\$1,758,011
12	2031	\$141,428,000	\$73,448,055	\$0.3900	\$276,422	\$2,034,433
13	2032	\$147,085,000	\$79,105,055	\$0.3900	\$297,712	\$2,332,145
14	2033	\$152,968,000	\$84,988,055	\$0.3900	\$319,853	\$2,651,997
15	2034	\$159,087,000	\$91,107,055	\$0.3900	\$342,881	\$2,994,879
16	2035	\$165,450,000	\$97,470,055	\$0.3900	\$366,829	\$3,361,707
17	2036	\$172,068,000	\$104,088,055	\$0.3900	\$391,735	\$3,753,443
18	2037	\$178,951,000	\$110,971,055	\$0.3900	\$417,640	\$4,171,082
19	2038	\$186,109,000	\$118,129,055	\$0.3900	\$444,579	\$4,615,661
20	2039	\$193,553,000	\$125,573,055	\$0.3900	\$472,594	\$5,088,255
21	2040	\$201,295,000	\$133,315,055	\$0.3900	\$501,731	\$5,589,986
22	2041	\$209,347,000	\$141,367,055	\$0.3900	\$532,035	\$6,122,021
23	2042	\$217,721,000	\$149,741,055	\$0.3900	\$563,550	\$6,685,572
24	2043	\$226,430,000	\$158,450,055	\$0.3900	\$596,327	\$7,281,898
25	2044	\$235,487,000	\$167,507,055	\$0.3900	\$630,413	\$7,912,311
26	2045	\$244,906,000	\$176,926,055	\$0.3900	\$665,861	\$8,578,172
27	2046	\$254,702,000	\$186,722,055	\$0.3900	\$702,728	\$9,280,901
28	2047	\$264,890,000	\$196,910,055	\$0.3900	\$741,071	\$10,021,972
29	2048	\$275,486,000	\$207,506,055	\$0.3900	\$780,949	\$10,802,921
30	2049	\$286,505,000	\$218,525,055	\$0.3900	\$822,419	\$11,625,340
				Totals	\$11,625,340	

Notes:

Years 2020-2024 taxable value, incremental value, and TIRZ revenue per actual Galveston County Tax Office reports (4/10/25).

Base Year Value (2019): \$67,979,945

Assumed Property Tax Rate: Per Stifel Public Finance Projection 10/22/24

City TIRZ Participation Rate: 100%

Property Tax Collection Rate: 96.5%

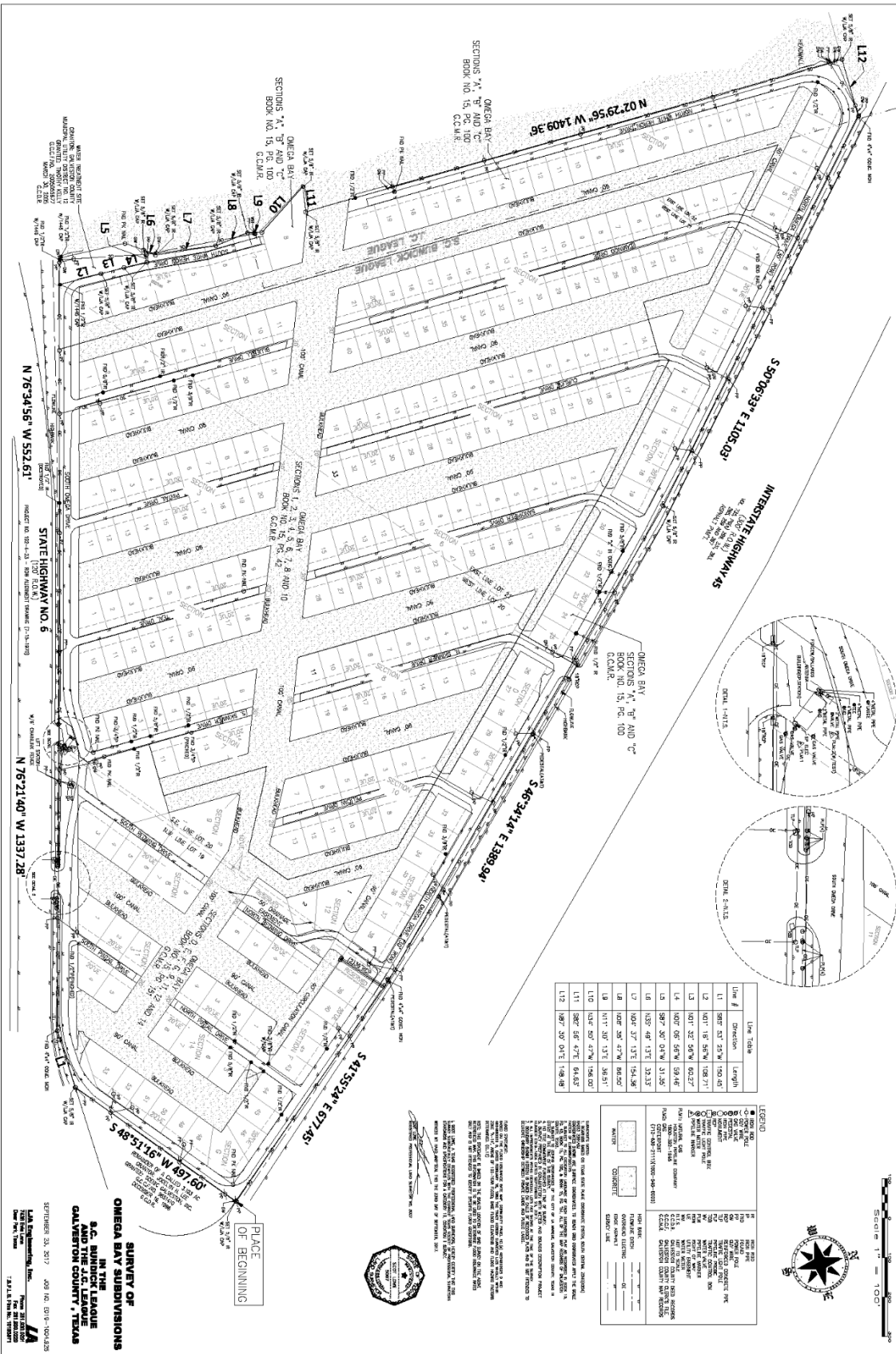
Annual Taxable Value Growth Rate: 4%

APPENDIX A

TIRZ Boundary Legal Description

Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, A, B, C, D, E, F, and, G of the Omega Bay Subdivision in the S.C. Bundick League and the J.C. League, Galveston county, Texas.

10/27/2017 1:03:33 - OMEGA BAY (2018-0004-0018)-OMEGA BAY SUBDIVISION 2017-2-14-9 9/27/2017





CITY COUNCIL AGENDA FORM

Meeting Date: July 14, 2025

Prepared by: Shannon Breaux

Department: Public Works

Agenda Item: 8.III.

Reviewed by: _____

AGENDA ITEM DESCRIPTION:

Approving authorization to staff to publicly advertise and solicit competitive bids for the rehabilitation of the Wastewater Treatment Plant, including improvements to the headworks and disinfection system - *Public Works*

STAFF BRIEFING:

The City of La Marque Wastewater Treatment Plant (WWTP) requires critical rehabilitation work to address longstanding operational deficiencies and meet Texas Commission on Environmental Quality (TCEQ) compliance requirements. As part of an Agreed Order and Supplemental Environmental Project (SEP), the City has committed to taking corrective action.

This next phase of rehabilitation will focus on:

- **Headworks Improvements** – to ensure effective screening and flow management.
- **Disinfection System Upgrades** – to enhance the reliability and effectiveness of effluent disinfection and meet permit limits for bacteria.

Authorization to solicit bids is the next step in advancing the project toward construction.

This work is being conducted in part to fulfill the City's obligations under a Supplemental Environmental Project (SEP), which is an agreement with the Texas Commission on Environmental Quality (TCEQ) that allows a portion of an administrative penalty to be offset by completing an environmental improvement project. The City of La Marque's SEP involves critical upgrades to the wastewater treatment system to correct permit violations and reduce environmental risk.

HISTORY:

The WWTP has been subject to multiple TCEQ enforcement actions (Docket Nos. 2021-0952-MWD-E and 2023-1311-MWD-E) due to violations of permitted effluent limits.

The SEP scope includes blower, headworks and chlorination system work. However, additional improvements are required to bring the plant into full and sustained compliance.

TCEQ has granted an extension on the SEP to November 21, 2025.

FISCAL IMPACT:

Estimated Project Cost: \$1,900,000

Funding Source: 2020 Certificate of Obligation Bond

- Available bond funds- \$2,325,978.48

CONSTRUCTION PLANS FOR WWTP REHABILITATION HEADWORKS AND CHEMICAL STORAGE

TO SERVE
CITY OF LA MARQUE
ADICO JOB No.: 23014-01 DATE: JULY 2025



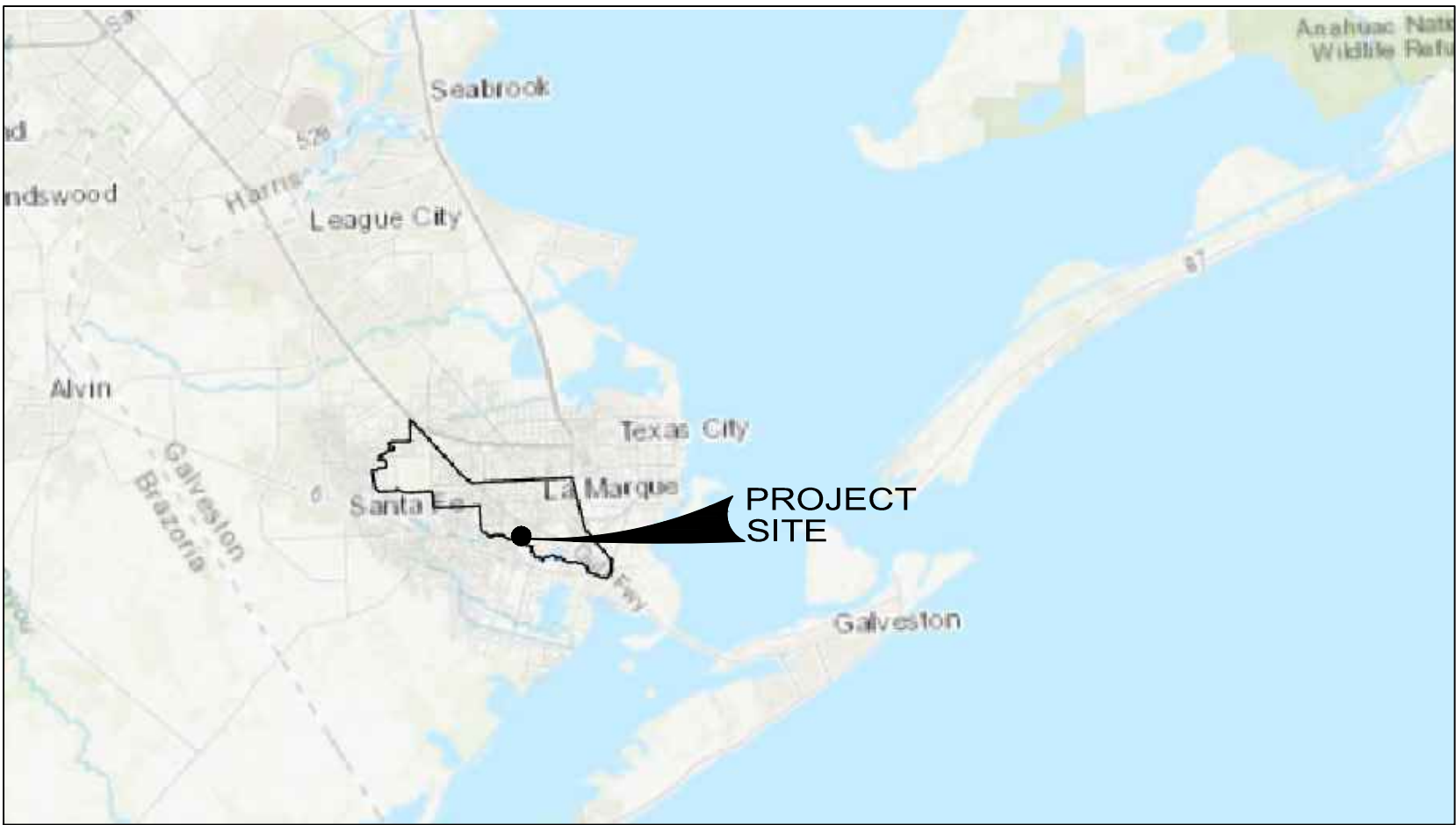
MAYOR KEITH BELL
COUNCILMAN, DISTRICT A KIMBERLEY YANCY
COUNCILMAN, DISTRICT B JOE COMPIAN
COUNCILMAN, DISTRICT C JOSEPH LOWRY
COUNCILMAN, DISTRICT D TONIA GRIFFIN
PUBLIC WORKS DIRECTOR SHANNON BREAU

48 HOUR NOTICE:
CONTRACTOR SHALL NOTIFY THE CITY OF LA MARQUE PERMITS DIVISION AT (409) 938-9219 FOR INSPECTION AT LEAST 48 HOURS PRIOR TO COMMENCING THE CONSTRUCTION

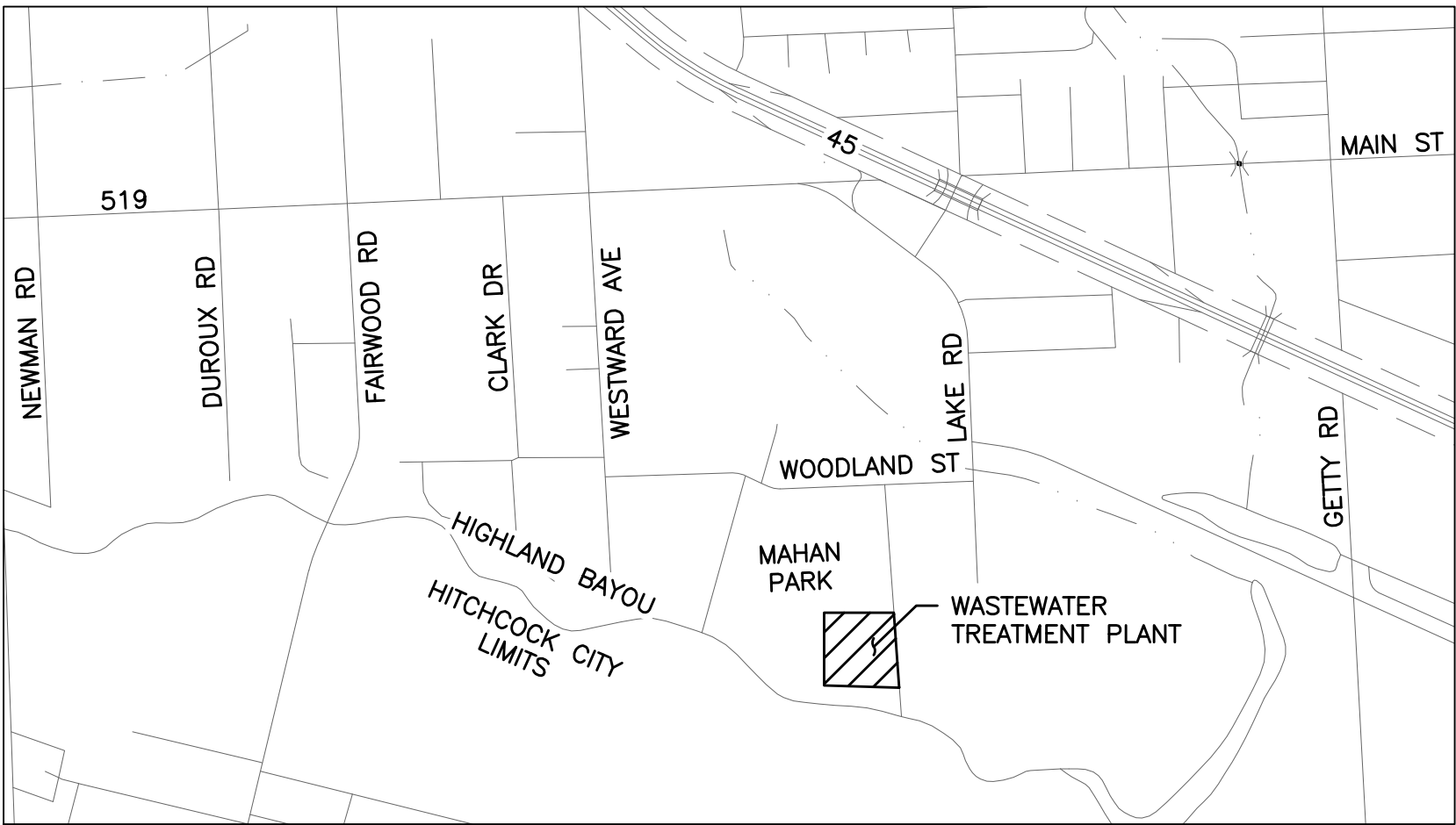


WARNING:
CONTRACTOR SHALL VERIFY LOCATION OF UNDERGROUND UTILITY LINES BY CONTACTING "TEXAS 811" AT 811 OR 713-223-4567 AT LEAST 48 HOURS BEFORE YOU DIG, DRILL OR BLAST.

EXISTING, WATER, SANITARY, GAS, ELECTRICAL, TELECOMMUNICATIONS AND ALL OTHER UTILITY LINES ARE SHOWN PER RECORD DRAWINGS. CONTRACTOR SHALL VERIFY LOCATION AT THE SITE PRIOR TO CONSTRUCTION.



LOCATION MAP
NOT TO SCALE



VICINITY MAP
NOT TO SCALE

ADICO
CONSULTING ENGINEERS

2114 EL DORADO BLVD, STE. 400, FRIENDSWOOD, TX 77546
PHONE: 832-895-1093 WWW.ADICO-LLC.COM
TBPE FIRM NO. 16423

Sheet Index		
Sheet No.	Drawing No.	Sheet Title
GENERAL		
1	G1	COVER SHEET
2	G2	GENERAL NOTES
3	G3	PROCESS FLOW DIAGRAM
4	G4	HYDRAULIC PROFILE
CIVIL		
5	C1	OVERALL SITE PLAN
6	C2	HEADWORKS DEMOLITION PLAN & SECTIONS
7	C3	PROPOSED PLAN & SECTIONS
8	C4	CIVIL DETAILS
MECHANICAL		
9	M1	CHEMICAL BUILDING EXISTING AND DEMOLITION PLAN
10	M2	CHEMICAL BUILDING PROPOSED PLAN
11	M3	MECHANICAL DETAILS
STRUCTURAL		
12	S1	HEADWORKS GRATING PLAN AND DETAILS
ELECTRICAL		
13	E1	ELECTRICAL SITE PLAN
14	E2	HEADWORKS ELECTRICAL PLAN
15	E3	TREATMENT MODULE NO. 1 CHEMICAL BUILDING ELECTRICAL PLAN
16	E4	TREATMENT MODULE NO. 2 CHEMICAL BUILDING ELECTRICAL PLAN
17	E5	TREATMENT MODULE NO. 1 ONE-LINE DIAGRAM
18	E6	TREATMENT MODULE NO. 2 ONE-LINE DIAGRAM
19	E7	TREATMENT MODULE NOS. 1 & 2 MCC ELEVATIONS

INTERIM REVIEW
Not to be used for construction, bidding or permit purposes.
Engineer: BRENT BERTHIER, P.E.
PE License No.: 108493
Date: 12-01-2023

SHEET NO. G1

C:\Users\Modajyn\ADICO Dropbox\ADICO\ALLC\PROJECTS\23014-01 COLM WWTP Headworks Rehabilitation\6 - Drawings\G2 GENERAL NOTES.dwg Mar 28,2025--12:41pm Modajyn

GENERAL NOTES:

- THESE PLANS WERE PREPARED TO MEET OR EXCEED CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, GALVESTON COUNTY AND CITY OF LA MARQUE RULES AND REGULATIONS AS AMENDED.
- WATER LINES, WASTEWATER COLLECTION SYSTEMS, STORM DRAINAGE SYSTEMS AND STREET PAVING ARE DESIGNED IN ACCORDANCE WITH THE LATEST EDITION OF THE DOCUMENTS – "CITY OF LA MARQUE, TEXAS ENGINEERING DESIGN CRITERIA MANUAL"
- ALL UTILITIES PRESENTED ON THESE DRAWINGS ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL VERIFY IN THE FIELD THE EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR SHALL NOTIFY TEXAS ONE CALL AT 713-223-4567 AT LEAST 48 HOURS BEFORE PROCEEDING WITH ANY EXCAVATION.
- THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY DAMAGES TO EXISTING WATER, WASTEWATER, STORM WATER LINES AND TRAFFIC CONTROL DEVICES. CONTRACTOR SHALL MAKE ALL REPAIRS TO EXISTING UTILITIES WITH THE CITY OF LA MARQUE, TEXAS ENGINEERING DESIGN CRITERIA MANUAL "STANDARD CONSTRUCTION SPECIFICATIONS" AT NO COST TO THE CITY OF LA MARQUE.
- CONTRACTOR TO OBTAIN ALL CONSTRUCTION PERMITS REQUIRED BY THE REGULATIONS OF GALVESTON COUNTY, TEXAS AT HIS EXPENSE PRIOR TO COMMENCEMENT OF WORK WITHIN GALVESTON COUNTY ROAD RIGHT-OF-WAY.
- CONTRACTOR TO OBTAIN ALL CONSTRUCTION PERMITS REQUIRED BY THE "REGULATIONS OF GALVESTON COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT" PRIOR TO COMMENCING CONSTRUCTION.
- CONTRACTOR SHALL NOTIFY CITY OF LA MARQUE, CITY ENGINEER DINH V. HO, P.E. AT (832) 895-1093 AT LEAST 48 HOURS PRIOR TO COMMENCING THE CONSTRUCTION.
- ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING THE CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE OWNING AUTHORITY.
- CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT ROOT SYSTEMS OF SHRUBS, PLANTS AND TREES ALONG THE AREA OF EXCAVATION.
- AUTHORIZATION NOTICE ISSUED BY THE GALVESTON COUNTY ENGINEERING & RIGHT OF WAY DEPARTMENT, REQUIRED PRIOR TO CONSTRUCTION OF UTILITIES OR LEFT HAND TURN LANES WITHIN GALVESTON COUNTY RIGHT-OF-WAY. CONTACT GALVESTON COUNTY PERMIT OFFICE AT (409) 770-5552.
- CONTRACTOR SHALL COMPLY WITH THE LATEST EDITION OF OSHA REGULATIONS AND THE STATE OF TEXAS LAWS CONCERNING EXCAVATION, TRENCHING AND SHORING.
- IF THE CONSTRUCTION DOES NOT BEGIN WITHIN A YEAR AFTER THE PLANS HAVE BEEN SIGNED, NEW SIGNATURES MUST BE OBTAINED AND LETTERS OF AVAILABILITY MUST BE UPDATED.
- CONTRACTOR SHALL PREPARE A SET OF "AS-BUILT" DRAWINGS SHOWING ANY FIELD CHANGES MADE TO THE APPROVED ENGINEER PLANS AND SUBMIT TO THE DESIGN CONSULTANT.
- MAINTAIN A MINIMUM OF 12-INCHES (12") CLEARANCE BETWEEN ALL UTILITIES, UNLESS OTHERWISE NOTED ON THE PLANS.
- ALL UTILITIES WITHIN EASEMENTS SHALL BE LOCATED IN ACCORDANCE WITH STANDARDS OUTLINED BY THE MOST CURRENT UTILITY COORDINATING COMMITTEE DRAWINGS.
- CONTRACTOR SHALL GIVE NOTICE TO ALL AUTHORIZED INSPECTORS, SUPERINTENDENTS, OR PERSONS. IN CHARGE OF PRIVATE AND PUBLIC UTILITIES OR RAILROADS AFFECTED BY HIS OPERATIONS PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR SHALL ASSURE HIMSELF THAT ALL CONSTRUCTION PERMITS HAVE BEEN OBTAINED PRIOR TO COMMENCEMENT OF WORK.
- SEWER MATERIALS, CONSTRUCTION, AND TESTING TO BE IN ACCORDANCE WITH THE CITY OF LA MARQUE SPECIFICATIONS STANDARDS, LATEST PRINTING OF AMENDMENTS THERETO.
- ALL UNSATISFACTORY AND/OR WASTE MATERIALS INCLUDING VEGETATION, ROOTS, CONCRETE, AND DEBRIS SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR. NO DIRECT PAYMENT WILL BE MADE, BUT SHALL BE CONSIDERED AS INCIDENTAL TO THE VARIOUS BID ITEMS.
- CONTRACTOR IS RESPONSIBLE FOR CLEANING MUD AND/OR DIRT TRACKED ONTO EXISTING STREETS BY HIS WORKMEN'S, SUPPLIER'S, OR SUBCONTRACTOR'S VEHICLES. STREETS MUST BE CLEANED WITHIN 2 HOURS OF WHEN THE TRACKING OCCURS. NO SEPARATE PAY.
- RETESTING OF ALL UTILITIES AND ACCEPTANCE BY CITY OF LA MARQUE SUBSEQUENT TO THE PAVEMENT CONSTRUCTION WILL BE THE UTILITY CONTRACTOR'S RESPONSIBILITY. NO SEPARATE PAY.
- TRAFFIC CONTROL CONSTRUCTION WARNING SIGNALS AND FLAGMEN, WHEN NECESSARY, SHALL BE PROVIDED BY THE CONTRACTOR AT NO SEPARATE PAY. OPERATION ON ROADS SHALL BE PERFORMED IN SUCH A MANNER THAT OPERATING EQUIPMENT AND EXCAVATED MATERIAL ARE KEPT OFF THE PAVEMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY TRAFFIC CONTROL DEVICES AS PER THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- BORE PITS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL CITY OF HOUSTON RULES AND REGULATIONS REGARDING SIZE, LOCATION, DEPTH, BACKFILL AND SHEETING REQUIREMENTS.
- ANY SOIL BORINGS REQUIRED BY THE CONTRACTOR SHALL BE DONE AT HIS EXPENSE.
- ALL DISTURBED AREAS WITHIN THE RIGHT-OF-WAY SHALL BE RESTORED TO ITS EXISTING CONDITION BY HYDROMULCH SEEDING AS PER THE CITY OF LA MARQUE STANDARDS AND SPECIFICATIONS.
- OVERHEAD LINES MAY EXIST ON THE PROPERTY. WE HAVE NOT MARKED THOSE LINES SINCE THEY ARE CLEARLY VISIBLE, BUT CONTRACTOR SHOULD LOCATE THEM PRIOR TO CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH & SAFETY CODE, FORBIDS ALL ACTIVITIES IN WHICH PERSONS OR THINGS MAY COME WITHIN SIX FEET (6') OF LIVE OVERHEAD HIGH VOLTAGE LINES. CONTRACTORS AND OWNERS ARE LEGALLY RESPONSIBLE FOR SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY.

AT&T TEXAS/SWB T FACILITIES NOTES:

- THE LOCATIONS OF AT&T TEXAS/SWB T FACILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.
- THE CONTRACTOR SHALL CALL 1-800-344-8377 (TEXAS 811) A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUND LINES FIELD LOCATED.
- WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF AT&T TEXAS/SWB T FACILITIES, ALL EXCAVATIONS MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES. WHEN BORING, THE CONTRACTOR SHALL EXPOSE THE AT&T TEXAS/SWB T FACILITIES.
- WHEN AT&T TEXAS/SWB T FACILITIES ARE EXPOSED, THE CONTRACTOR WILL PROVIDE SUPPORT TO PREVENT DAMAGE TO THE CONDUIT DUCTS OR CABLES. WHEN EXCAVATING NEAR TELEPHONE POLES, THE CONTRACTOR SHALL BRACE THE POLE FOR SUPPORT.
- THE PRESENCE OR ABSENCE OF AT&T TEXAS/SWB T UNDERGROUND CONDUIT FACILITIES OR BURIED CABLE FACILITIES SHOWN ON THESE PLANS DOES NOT MEAN THAT THERE ARE NO DIRECT BURIED CABLES OR OTHER CABLES IN CONDUIT IN THE AREA.
- PLEASE CONTACT THE AT&T TEXAS DAMAGE PREVENTION MANAGER ROOSEVELT LEE JR. AT (713) 567-4552 OR EMAIL HIM AT RL7259@ATT.COM, IF THERE ARE QUESTIONS ABOUT BORING OR EXCAVATING NEAR AT&T TEXAS/SWB T FACILITIES

DIRECT BURIED CABLE PROCEDURE
DIRECT BURIED CABLE RECORDS ARE NOT AVAILABLE. TO DETERMINE THE LOCATION OF DIRECT BURIED CABLE PLANT DURING THE DESIGN PHASE OF YOUR PROJECT, FOLLOW THE PROCEDURE OUTLINED BELOW:

- CALL 1-800-344-8377 (TEXAS 811) AND ADVISE YOU NEED THE EXISTING AT&T TEXAS TEXAS/SWB T FACILITIES LOCATED FOR THE DESIGN PHASE OF YOUR PROJECT PLEASE ALLOW AT LEAST 72 HOURS FOR THE CABLES TO GET MARKED BEFORE SENDING YOUR FIELD CREW FOR BASE LINE SURVEY FOR LOCATES OF. BE SPECIFIC ON THE PROJECT LOCATIONS.
- THE LOCATOR WILL FIELD LOCATE THE EXISTING AT&T TEXAS/SWB T FACILITIES WITH ORANGE PAINT AND/OR FLAGS.
- YOUR FIELD PARTY CAN SURVEY THE BURIED CABLE LOCATION USING THE ORANGE MARKS ON THE GROUND. IF THE CABLE ARE NOT MARKED, PLEASE CONTACT THE AT&T TEXAS DAMAGE PREVENTION MANAGER ROOSEVELT LEE JR. AT (713) 567-4552 OR E-MAIL HIM AT RL7259@ATT.COM.
- PLOT THE EXACT LOCATION OF THE AT&T TEXAS/SWB T DIRECT BURIED CABLE FACILITIES ON THE PLAN AND PROFILE SHEETS.

CENTERPOINT ENERGY UTILITY NOTES:

CAUTION: UNDERGROUND GAS FACILITIES

THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT 1-800-545-6005 OR 811 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.

- WHEN CENTERPOINT ENERGY PIPE LINE MARKINGS ARE NOT VISIBLE, CALL (713) 207-5467 OR (713- 945-8037 (7:00 A.M. TO 4:30 P.M.) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.
- WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF CENTERPOINT ENERGY FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES.
- WHEN CENTERPOINT ENERGY FACILITIES ARE EXPOSED, SUFFICIENT SUPPORT MUST BE PROVIDED TO THE FACILITIES TO PREVENT EXCESSIVE STRESS ON THE PIPING.
- FOR EMERGENCIES REGARDING GAS LINES CALL (713) 659-3552 OR (713) 207-4200.

THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.

WARNING: OVERHEAD ELECTRICAL LINES

OVERHEAD LINES MAY EXIST ON THE PROPERTY. THE LOCATION OF OVERHEAD LINES HAS NOT BEEN SHOWN ON THESE DRAWINGS AS THE LINES ARE CLEARLY VISIBLE, BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH & SAFETY CODE FORBIDS ACTIVITIES THAT OCCUR IN CLOSE PROXIMITY TO HIGH VOLTAGE LINES, SPECIFICALLY:

- ANY ACTIVITY WHERE PERSON OR THINGS MAY COME WITHIN SIX(6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES; AND
- OPERATING A CRANE, DERRICK, POWER SHOVEL, DRILLING RIG, PILE DRIVER, HOISTING EQUIPMENT, OR SIMILAR APPARATUS WITHIN 10 FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES.

PARTIES RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS, ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED CALL CENTERPOINT ENERGY AT (713) 207-2222.

ACTIVITIES ON/OR ACROSS CENTERPOINT ENERGY FEE OR EASEMENT PROPERTY

NO APPROVAL TO USE, CROSS OR OCCUPY CENTERPOINT FEE OR EASEMENT PROPERTY IS GIVEN. IF YOU NEED TO USE CENTERPOINT PROPERTY, PLEASE CONTACT OUR SURVEYING & RIGHT OF WAY DIVISION AT (713) 207-6348 OR (713) 207-5769.

ABBREVIATIONS

ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	NA	NOT APPLICABLE
AWWA	AMERICAN WATER WORKS ASSOCIATION	No.	NUMBER
ASPH	ASPHALT	NIC	NOT IN CONTRACT
AVE	AVENUE	NFV	NOT FIELD VERIFIED
BC	BACK OF CURB	OHE	OVERHEAD ELECTRIC
BL , t	BASELINE	PROP	PROPOSED
CL , t	CENTERLINE	PVC	POLYVINYL CHLORIDE
CIR	CIRCLE	PVMT	PAVEMENT
CO	CLEAN OUT	RD	ROAD
CONC	CONCRETE	RT	RIGHT
CP	CONTROL POINT	RCP	REINFORCED CONCRETE PIPE
DE	DRAINAGE EASEMENT	REINF	REINFORCED
DR	DRIVE	ROW	RIGHT OF WAY
E	EAST	S	SOUTH
EAS	EASEMENT	SAN	SANITARY
EG	EXISTING GRADE ELEVATION	SET	SAFETY END TREATMENT
EL , ELEV	ELEVATION	SHLDR	SHOULDER
EP	EDGE OF PAVEMENT	SWR	SEWER
EX , EXIST	EXISTING	ST	STREET
FF	FINISHED FLOOR ELEVATION	STA	STATION
FG	FINISHED GRADE ELEVATION	STL	STEEL
FH	FIRE HYDRANT	STM	STORM
FL , t	FLOWLINE ELEVATION	TAC	TEXAS ADMINISTRATIVE CODE
FM	FORCE MAIN	TBM	TEMPORARY BENCHMARK
GV	GATE VALVE	TBR	TO BE REMOVED
HDPE	HIGH DENSITY POLYETHYLENE	TC	TOP OF CURB ELEVATION
HP	HIGH PRESSURE	TFL	THROAT FLOWLINE ELEVATION
JB	JUNCTION BOX	TG	TOP OF GRATE ELEVATION
LT	LEFT	TP	TOP OF PAVEMENT ELEVATION
LF	LINEAR FEET	TR	TOP OF RIM ELEVATION
MAX	MAXIMUM	TS&V	TAPPING SLEEVE AND VALVE
MC	MATCH CURB ELEVATION	TYP	TYPICAL
ME	MATCH EXISTING ELEVATION	UE	UTILITY EASEMENT
MH	MANHOLE	W	WEST
MIN	MINIMUM	W/	WITH
MOD	MODIFIED	WL	WATER LINE
MP	MATCH PAVEMENT ELEVATION	WM	WATER METER
N	NORTH	WV	WATER VALVE

CIVIL ENGINEER:

ADICO

CONSULTING ENGINEERS

2114 EL DORADO BLVD, STE. 400, FRIENDSWOOD, TX 77546
PHONE: 832-895-1093 WWW.ADICO-LLC.COM
TBPE FIRM NO. 16423

BENCHMARK:

FLOODPLAIN:

CITY OF LA MARQUE
WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE

2701 B WOODLAND STREET
LA MARQUE, TEXAS 77568

ADICO, LLC
TBPE FIRM NO. F-16423

INTERIM REVIEW
Not to be used for construction,
bidding or permit purposes.

Engineer: BRENT BERTHIER, P.E.

PE License No.: 108493

Date: 12-01-2023

NO.	DATE	REVISION

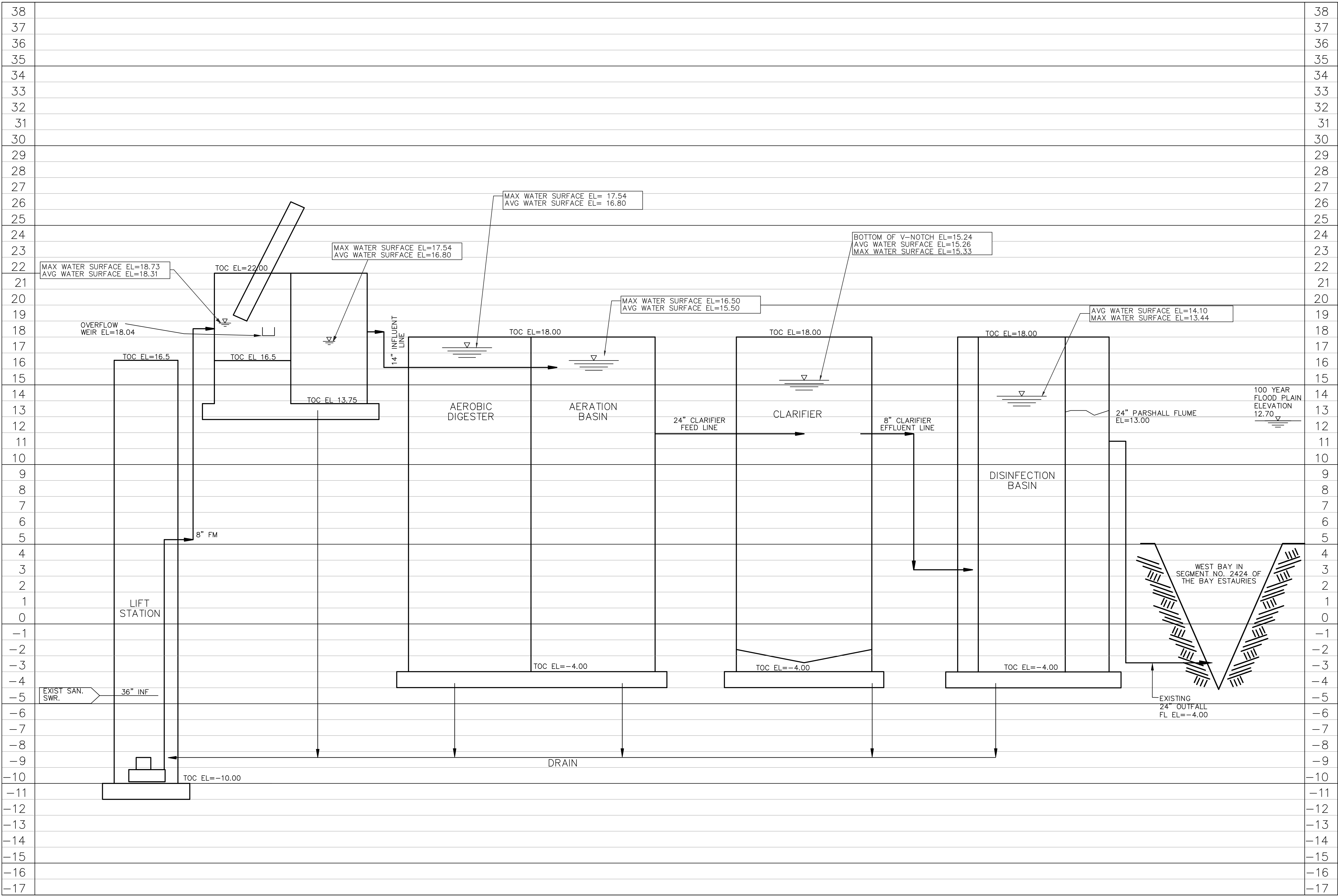
PROJECT OWNER:
CITY OF LA MARQUE

PROJECT LOCATION:
WASTEWATER TREATMENT PLANT
2701 B WOODLAND ST
LA MARQUE, TX 77568

GENERAL NOTES

ALLC PROJECT NO. 23014-01	SHEET NO.
DRAWN BY: MG	G2
CHECKED BY: BB	
DRAWING SCALE: HORZ: N/A VERT: N/A	
DATE PLOTTED: Mar 28, 2025 - 12:41pm	

C:\Users\Modajyn\ADICO Dropbox\ADICO\ALLC\PROJECTS\23014-01 COLM WWTP Headworks Rehabilitation\6 - Drawings\G4 HYDRAULIC PROFILE.dwg Jul 08,2025-5:48pm Modajyn



CIVIL ENGINEER:
ADICO
CONSULTING ENGINEERS
2114 EL DORADO BLVD, STE. 400, FRIENDSWOOD, TX 77546
PHONE: 832-895-1093 WWW.ADICO-LLC.COM
TBPE FIRM NO. 16423

BENCHMARK:

FLOODPLAIN:

CITY OF LA MARQUE
WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE

2701 B WOODLAND STREET
LA MARQUE, TEXAS 77568

ADICO, LLC
TBPE FIRM NO. F-16423

INTERIM REVIEW
Not to be used for construction,
bidding or permit purposes.

Engineer: BRENT BERTHIER, P.E.

PE License No.: 108493

Date: 12-01-2023

NO.	DATE	REVISION

PROJECT OWNER:
CITY OF LA MARQUE

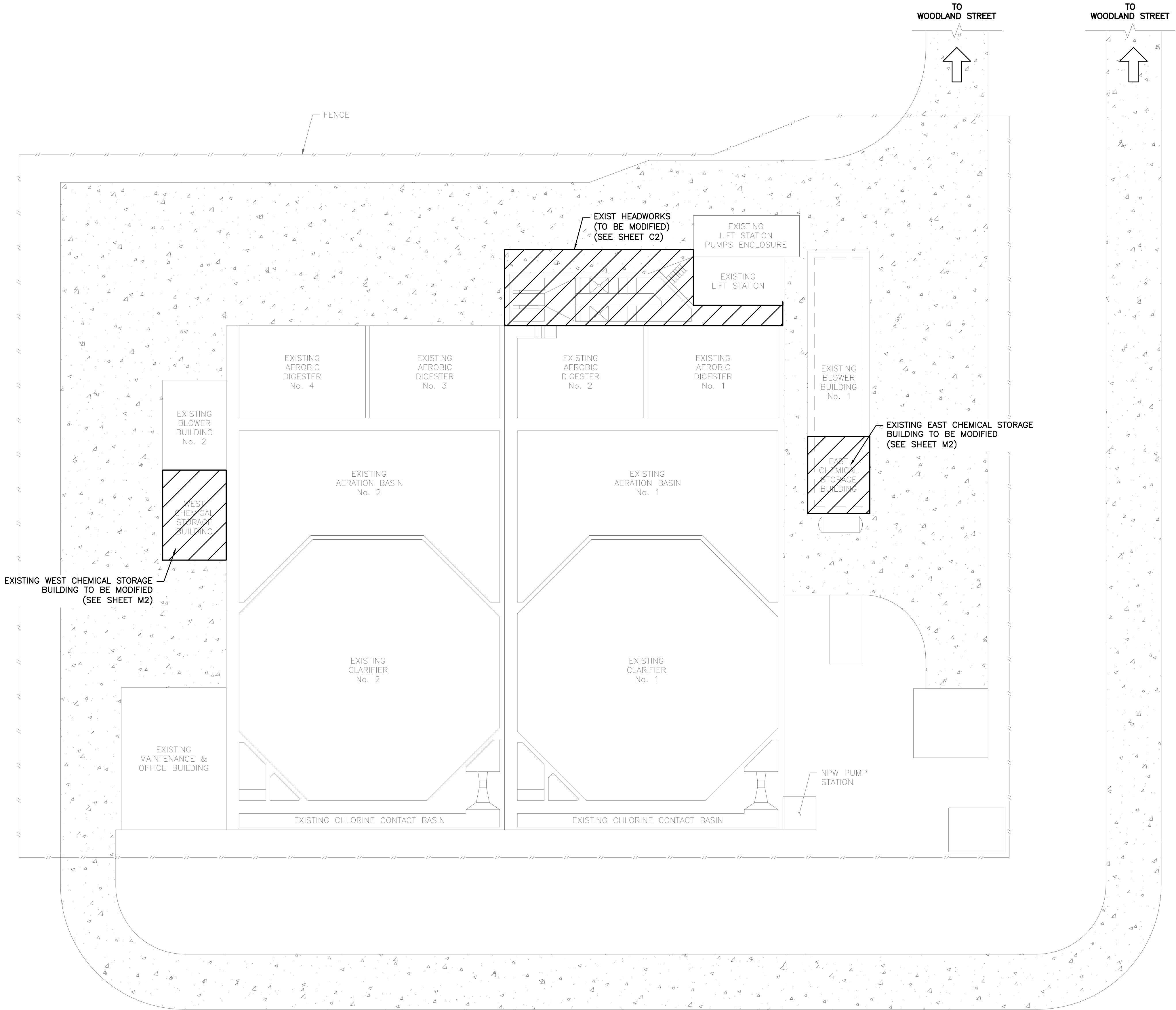
PROJECT LOCATION:
WASTEWATER TREATMENT PLANT
2701 B WOODLAND ST
LA MARQUE, TX 77568

HYDRAULIC
PROFILE

ALLC PROJECT NO. 23014-01
DRAWN BY: MG
CHECKED BY: BB
DRAWING SCALE: N/A
HORIZ: N/A
VERT: N/A
DATE PLOTTED:
Jul 08,2025 - 5:48pm

SHEET NO.
G4

C:\Users\Maddyln\ADICO Dropbox\ADICO\ALLC\PROJECTS\23014-01 COLM WWTP Headworks Rehabilitation\6 - Drawings\01 OVERALL SITE PLAN.dwg Jul 08,2025-5:47pm Maddyln



PLANT

N

LEGEND



— WORK AREA

CIVIL ENGINEER:

ADICO

CONSULTING ENGINEERS

2114 EL DORADO BLVD, STE. 400, FRIENDSWOOD, TX 77546
PHONE: 832-895-1093 WWW.ADICO-LLC.COM
TBPE FIRM NO. 16423

BENCHMARK:

FLOODPLAIN:

CITY OF LA MARQUE
WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE

2701 B WOODLAND STREET
LA MARQUE, TEXAS 77568

ADICO, LLC
TBPE FIRM NO. F-16423

INTERIM REVIEW
Not to be used for construction,
bidding or permit purposes.

Engineer: BRENT BERTHIER, P.E.

PE License No.: 108493

Date: 12-01-2023

NO.	DATE	REVISION

PROJECT OWNER:
CITY OF LA MARQUE

PROJECT LOCATION:
WASTEWATER TREATMENT PLANT
2701 B WOODLAND ST
LA MARQUE, TX 77568

OVERALL SITE PLAN

ALLC PROJECT NO. 23014-01

DRAWN BY: MG

CHECKED BY: BB

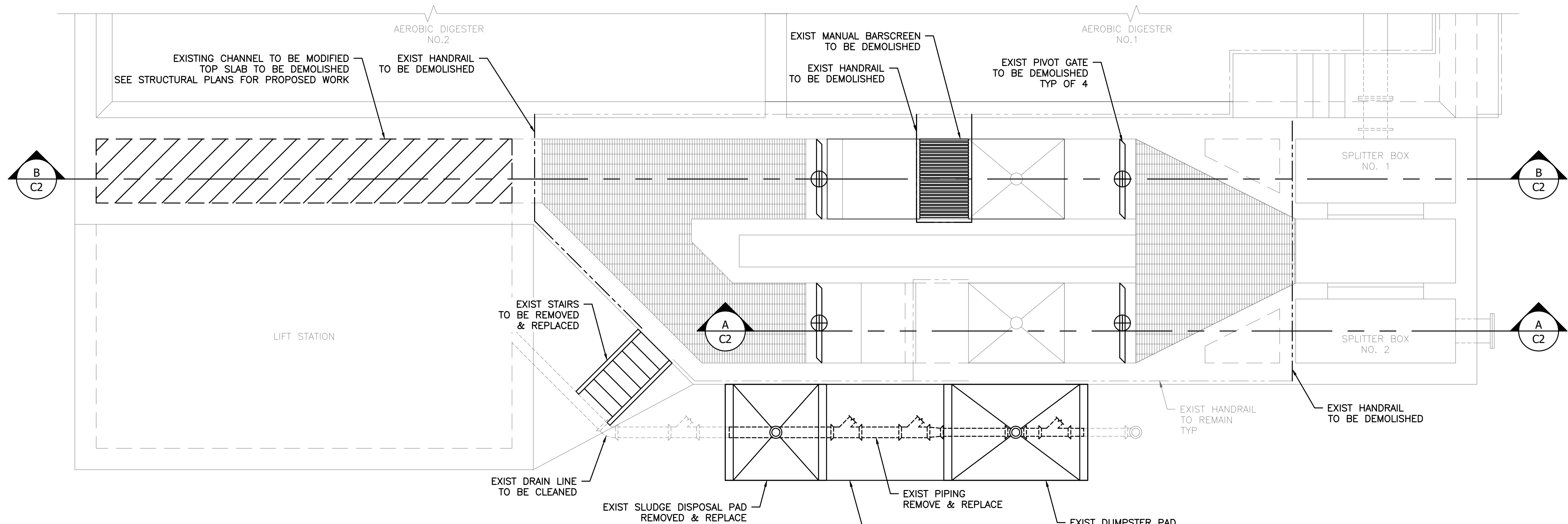
DRAWING SCALE:
HORZ: NTS
VERT: N/A

DATE PLOTTED:
Jul 08,2025 - 5:47pm

SHEET NO.

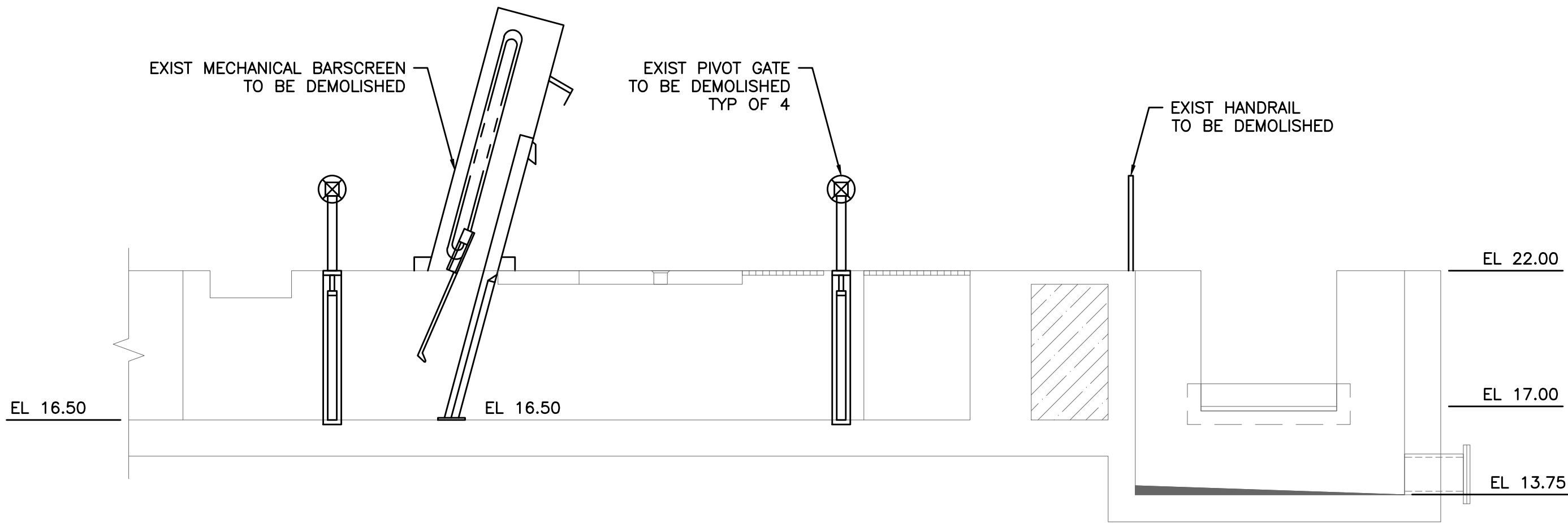
C1

C:\Users\Madalyn\ADICO Dropbox\ADICO\ALLC\PROJECTS\23014-01 COLM WWTP Headworks Rehabilitation\6 - Drawings\C2 HEADWORKS EXISTING DEMOLITION PLAN & SECTIONS modified.dwg Jun 12,2025 - 1:33pm Madalyn



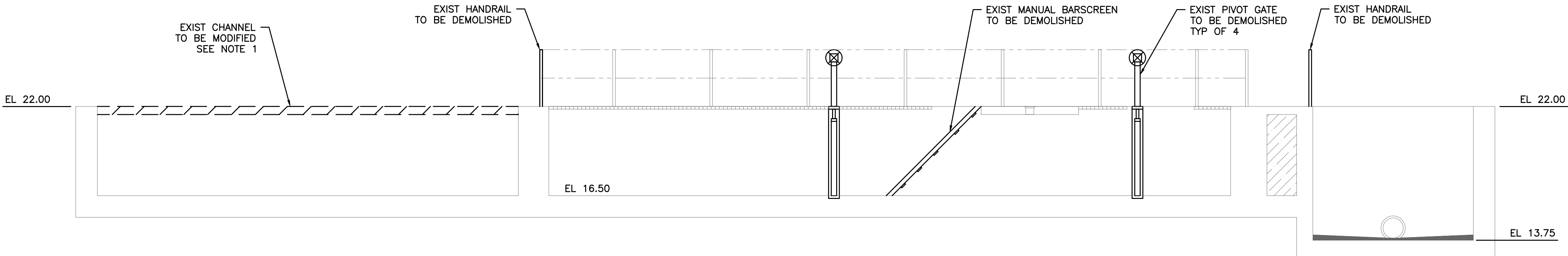
PLAN

Scale: 1/4" = 1'



A SECTION

Scale: 1/4" = 1'



B SECTION

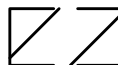
Scale: 1/4" = 1'



NOTES:

- EXISTING SLAB OVER CHANNEL TO BE DEMOLISHED. DOWEL INTO EXISTING SIDE WALLS AND EXTEND TO TOP OF WALKWAY ELEVATIONS.

LEGEND

 - DEMOLISH

CIVIL ENGINEER:
ADICO
CONSULTING ENGINEERS
2114 EL DORADO BLVD, STE. 400, FRIENDSWOOD, TX 77546
PHONE: 832-895-1093 WWW.ADICO-LLC.COM
TBPE FIRM NO. 16423

BENCHMARK:

FLOODPLAIN:

CITY OF LA MARQUE
WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE

2701 B WOODLAND STREET
LA MARQUE, TEXAS 77568

ADICO, LLC
TBPE FIRM NO. F-16423

INTERIM REVIEW
Not to be used for construction,
bidding or permit purposes.

Engineer: BRENT BERTHIER, P.E.

PE License No.: 108493

Date: 12-01-2023

NO.	DATE	REVISION

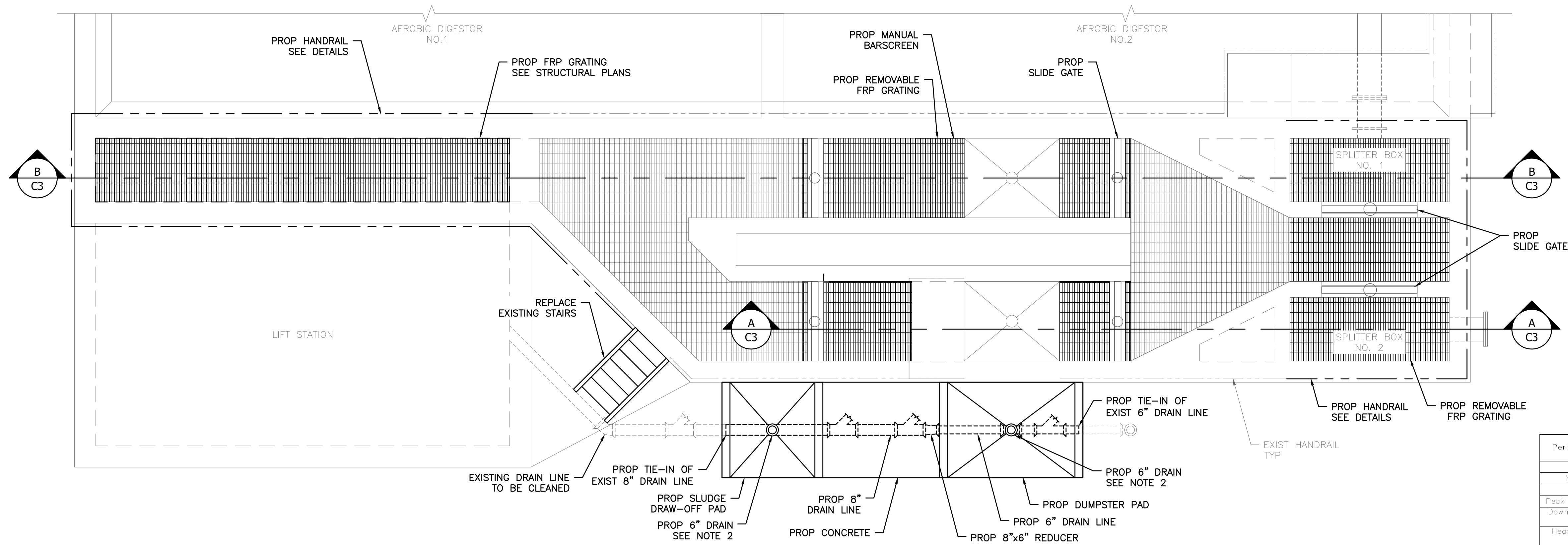
PROJECT OWNER:
CITY OF LA MARQUE

PROJECT LOCATION:
WASTEWATER TREATMENT PLANT
2701 B WOODLAND ST
LA MARQUE, TX 77568

HEADWORKS
EXISTING DEMOLITION
PLAN & SECTIONS

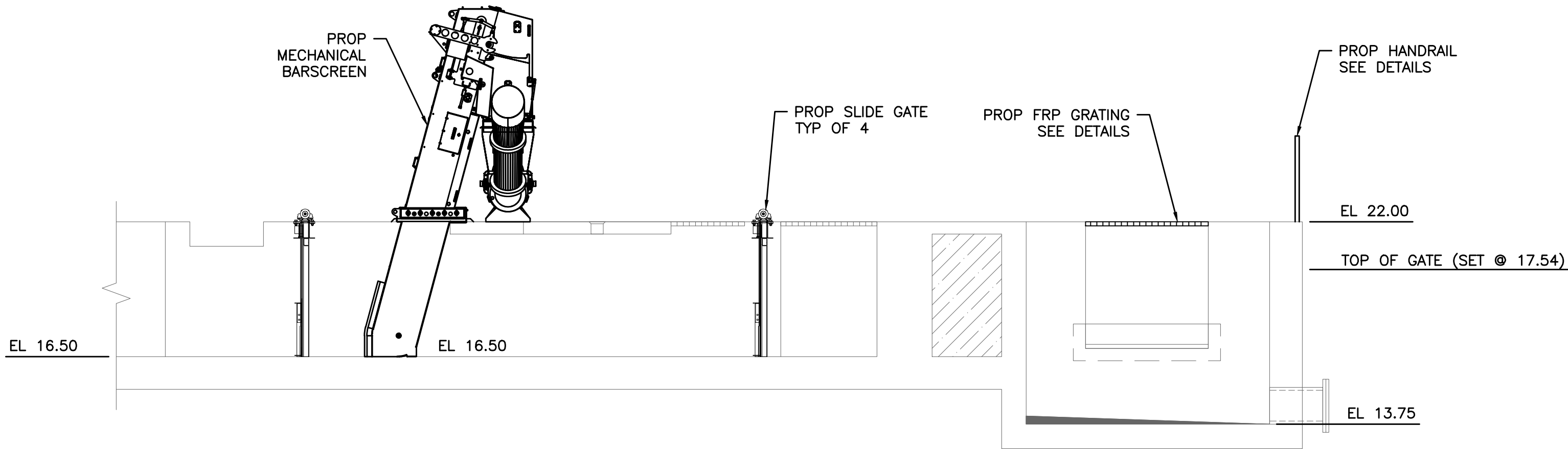
ALLC PROJECT NO. 23014-01	SHEET NO.
DRAWN BY: MG	C2
CHECKED BY: BB	
DRAWING SCALE: HORZ: 1/4" = 1' VERT: 1/4" = 1'	
DATE PLOTTED: Jun 12,2025 - 1:33pm	

C:\Users\Modajyn\ADICO Dropbox\ADICO\ALLC\PROJECTS\23014-01 COLM WWTP Headworks Rehabilitation\6 - Drawings\C3 HEADWORKS PROPOSED PLAN & SECTIONS.dwg Jun 12,2025-9:58am Modajyn



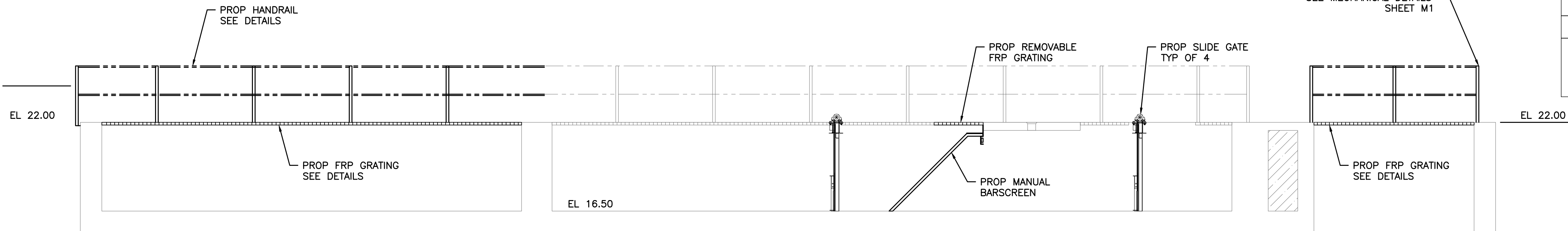
PROPOSED SITE PLAN

Scale: 1/4" = 1'



A SECTION

Scale: 1/4" = 1'



B SECTION

Scale: 1/4" = 1'

NOTES

1. VERIFY ALL DIMINSIONS WITH CERTIFIED DRAWINGS OF EQUIPMENT FURNISHED.
2. PROVIDE 6" DRAIN ZURN MODEL Z520 OR APPROVED EQUAL.
3. SEE STRUCTURAL DRAWINGS AND DETAILS FOR GRATING SUPPORTS.

LEGEND

- EXISTING GRATING
- PROPOSED GRATING

Perforated Plate Filter Screen Performance Requirements	
Conditions	Unit
Number of screens	One (1)
Influent Type	Municipal Wastewater
Peak flow per screen (MGD)	12
Downstream Liquid Level at Peak Flow (in)	24
Headloss at Peak Flow @ 30% Blinding (in)	12.3
Screen Panel Perforation Diameter (mm)	6
Channel Width (in)	60
Channel Depth (in)	66
Screen Inclination	75 degrees
Screenings discharge height from top of channel (ft)	4
Minimum Screenings Capture Ratio (SCR)	85%
Spray water flow and pressure	52 gpm at 45 psi
Power Supply (V/P/Hz)	480/3/60
Screen Installation Location (indoor/outdoor)	TBD
Screen NFPA Classification Requirement	Non-hazardous
Control Panel Location (indoor/outdoor)	TBD
Control Panel NFPA Classification Requirement	Non-hazardous

Wash Press Performance Requirements	
Conditions	Unit
Number of Wash Presses	One (1)
Influent Type	Municipal Screenings
Inlet Solids Capacity (CFH)	70
Inlet Length	1300 mm (51.2 inches)
Volume Reduction	60 - 85%
Weight Reduction	60 - 85%
Discharged Material Dry Solids	>40%
Washed Screenings Fecal Reduction	90% (<20 mg/g B005)
Requirements/Locations	Unit
Spray Wash Water	16 gpm @ 20-40 psi
Motor HP	5
Power Supply (V/P/Hz)	480/3/60
Wash Press Installation Location (Indoor/Outdoor)	TBD
Wash Press NFPA Classification Requirement	Non-hazardous
Control Panel Location (Indoor/Outdoor)	TBD
Control Panel NFPA Classification Requirement	Non-hazardous

CIVIL ENGINEER:
ADICO
CONSULTING ENGINEERS
2114 EL DORADO BLVD, STE. 400, FRIENDSWOOD, TX 77546
PHONE: 832-895-1093 WWW.ADICO-LLC.COM
TBPE FIRM NO. 16423

BENCHMARK:

FLOODPLAIN:

CITY OF LA MARQUE
WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE

2701 B WOODLAND STREET
LA MARQUE, TEXAS 77568

ADICO, LLC
TBPE FIRM NO. F-16423

INTERIM REVIEW
Not to be used for construction,
bidding or permit purposes.

Engineer: BRENT BERTHIER, P.E.

PE License No.: 108493

Date: 12-01-2023

NO.	DATE	REVISION

PROJECT OWNER:
CITY OF LA MARQUE

PROJECT LOCATION:
WASTEWATER TREATMENT PLANT
2701 B WOODLAND ST
LA MARQUE, TX 77568

HEADWORKS
PROPOSED PLAN
& SECTIONS

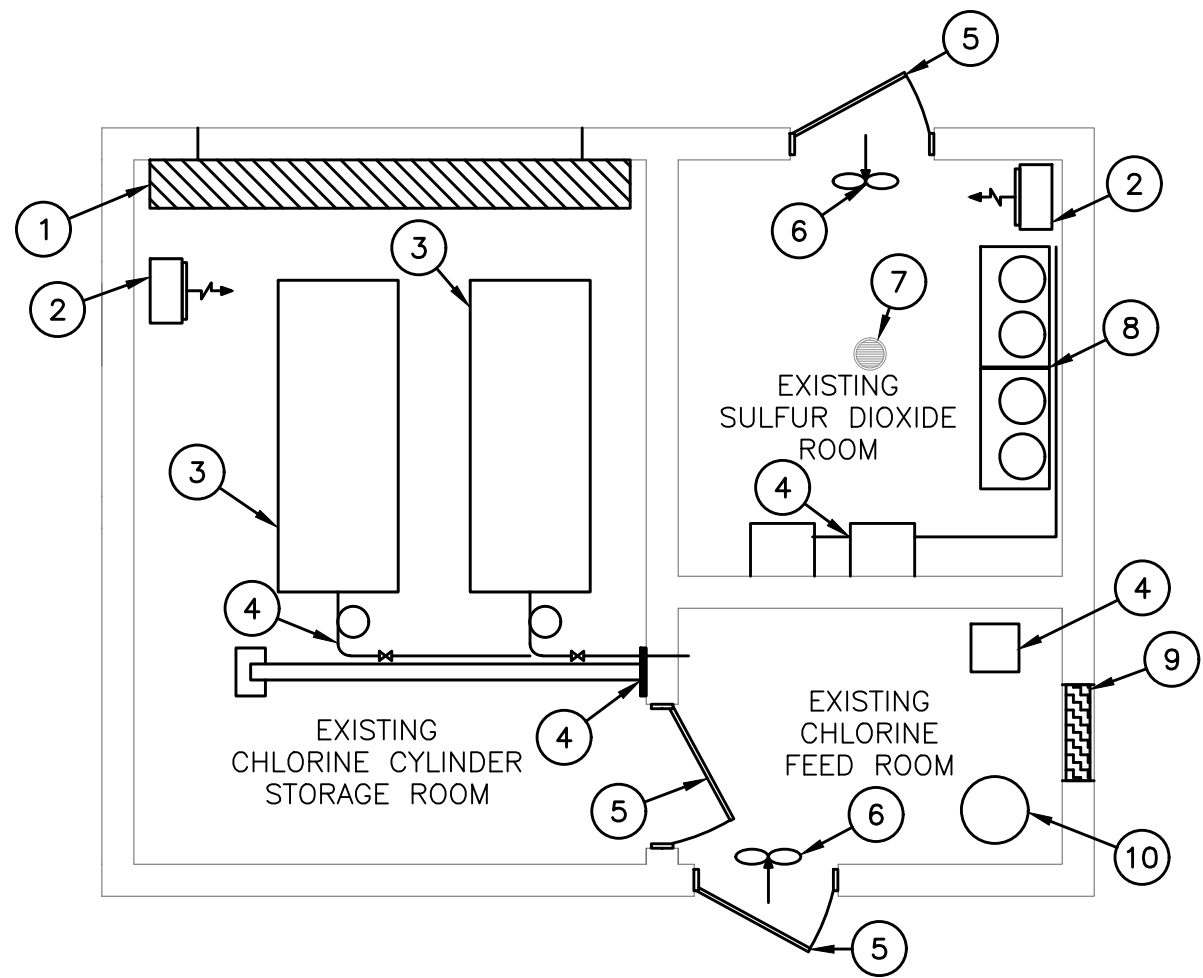
ALLC PROJECT NO. 23014-01
DRAWN BY: MG
CHECKED BY: BB
DRAWING SCALE:
HORZ: 1/4" = 1'
VERT: 1/4" = 1'
DATE PLOTTED:
Jun 12,2025 - 9:58am

SHEET NO.
C3



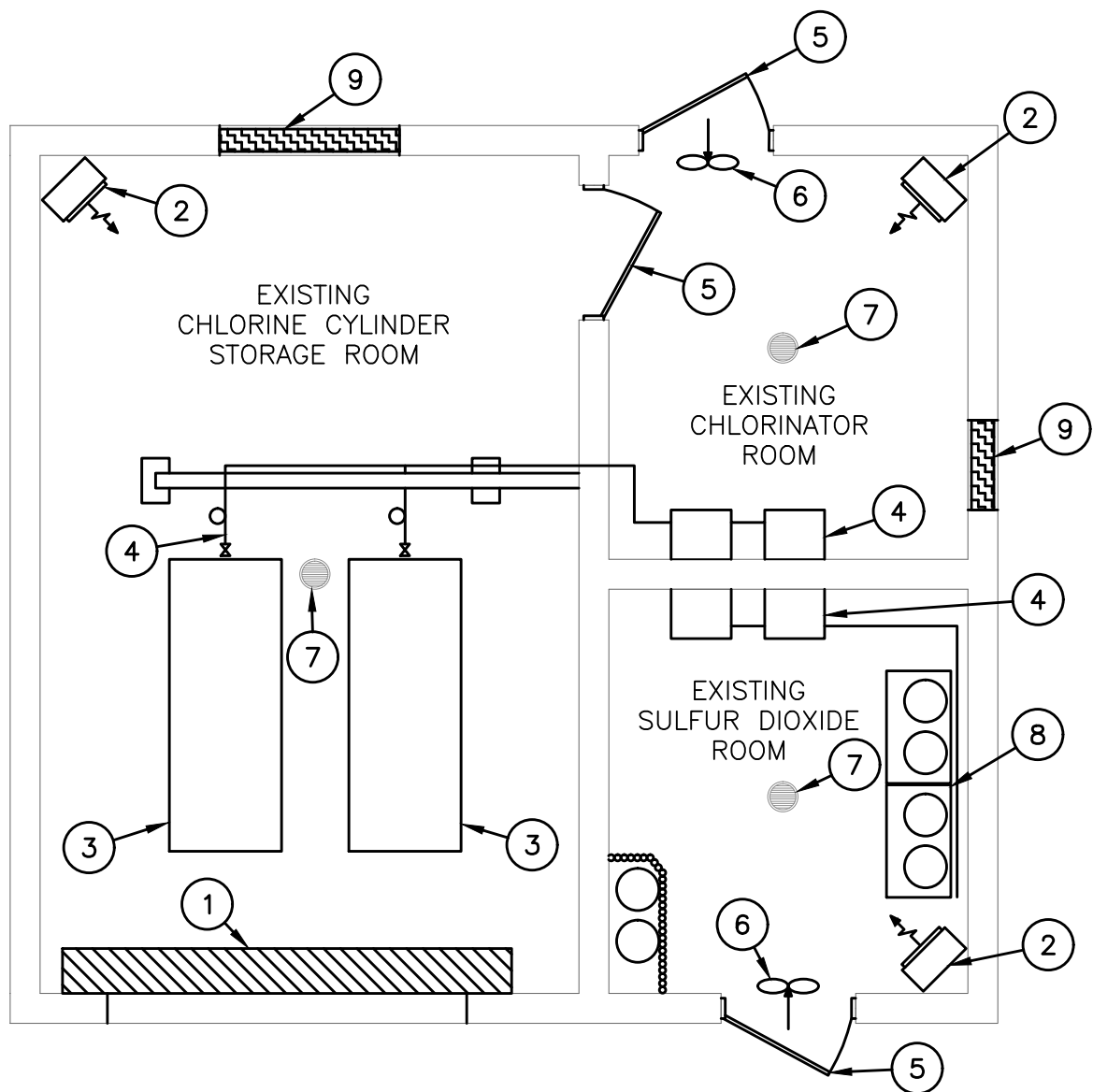
C4

C:\Users\Medajyn\ADICO Dropbox\ADICO\ALLC\PROJECTS\23014-01 COLM WWTP Headworks Rehabilitation\6 - Drawings\M1 DEMOLITION PLAN.dwg Jun 12,2025 - 9:34am Medajyn



EAST CHEMICAL BUILDING

N.T.S.



WEST CHEMICAL BUILDING

N.T.S.

FITTING SCHEDULE	
MARK	DESCRIPTION
1	EXISTING METAL ROLL-UP DOOR TO BE DEMOLISHED
2	EXISTING GAS HEATER TO BE DEMOLISHED
3	EXISTING ONE-TON CHLORINE CYLINDER TO BE DEMOLISHED
4	EXISTING CHEMICAL FIXTURES AND VALVES TO BE DEMOLISHED
5	EXISTING DOOR AND FRAME TO BE DEMOLISHED
6	EXISTING INTAKE FAN TO BE DEMOLISHED
7	EXISTING DRAIN TO BE DEMOLISHED
8	EXISTING 150 LB CYLINDER SCALES. 2-DUAL CYLINDER SCALES TO BE DEMOLISHED
9	EXISTING LOUVERS TO BE DEMOLISHED
10	EXISTING COMPRESSOR TO BE DEMOLISHED

CIVIL ENGINEER:

ADICO

CONSULTING ENGINEERS

2114 EL DORADO BLVD, STE. 400, FRIENDSWOOD, TX 77546
PHONE: 832-895-1093 WWW.ADICO-LLC.COM
TBPE FIRM NO. 16423

BENCHMARK:

FLOODPLAIN:

CITY OF LA MARQUE

WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE

2701 B WOODLAND STREET
LA MARQUE, TEXAS 77568

ADICO, LLC
TBPE FIRM NO. F-16423

INTERIM REVIEW
Not to be used for construction,
bidding or permit purposes.

Engineer: BRENT BERTHIER, P.E.

PE License No.: 108493

Date: 12-01-2023

NO.	DATE	REVISION

PROJECT OWNER:
CITY OF LA MARQUE

PROJECT LOCATION:
WASTEWATER TREATMENT PLANT
2701 B WOODLAND ST
LA MARQUE, TX 77568

CHEMICAL BUILDING
EXISTING AND
DEMOLITION PLAN

ALLC PROJECT NO. 23014-01

SHEET NO.

DRAWN BY: MG

CHECKED BY: BB

DRAWING SCALE: NTS

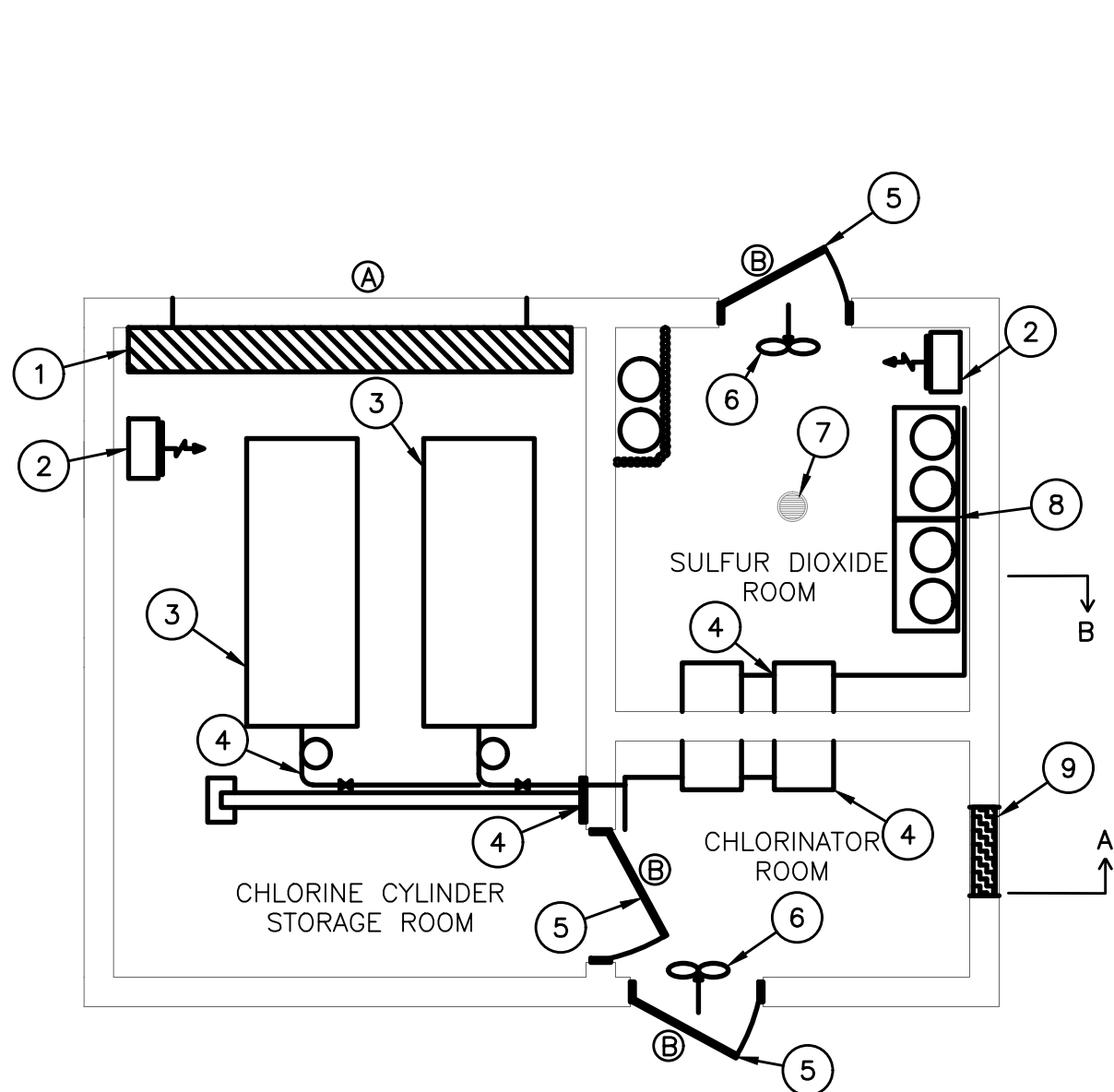
HORZ: NTS

VERT: NTS

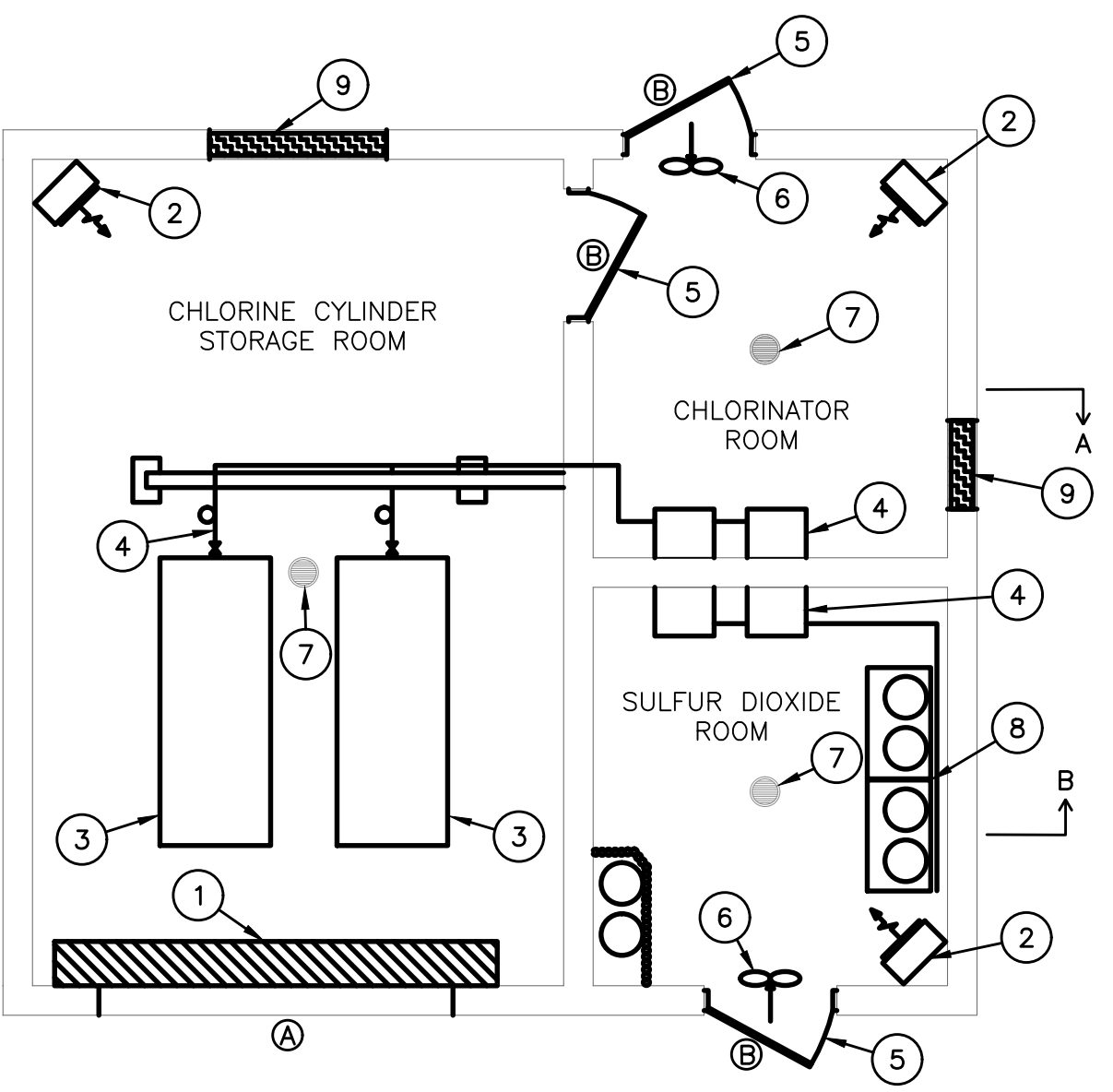
DATE PLOTTED: Jun 12,2025 - 9:34am

M1

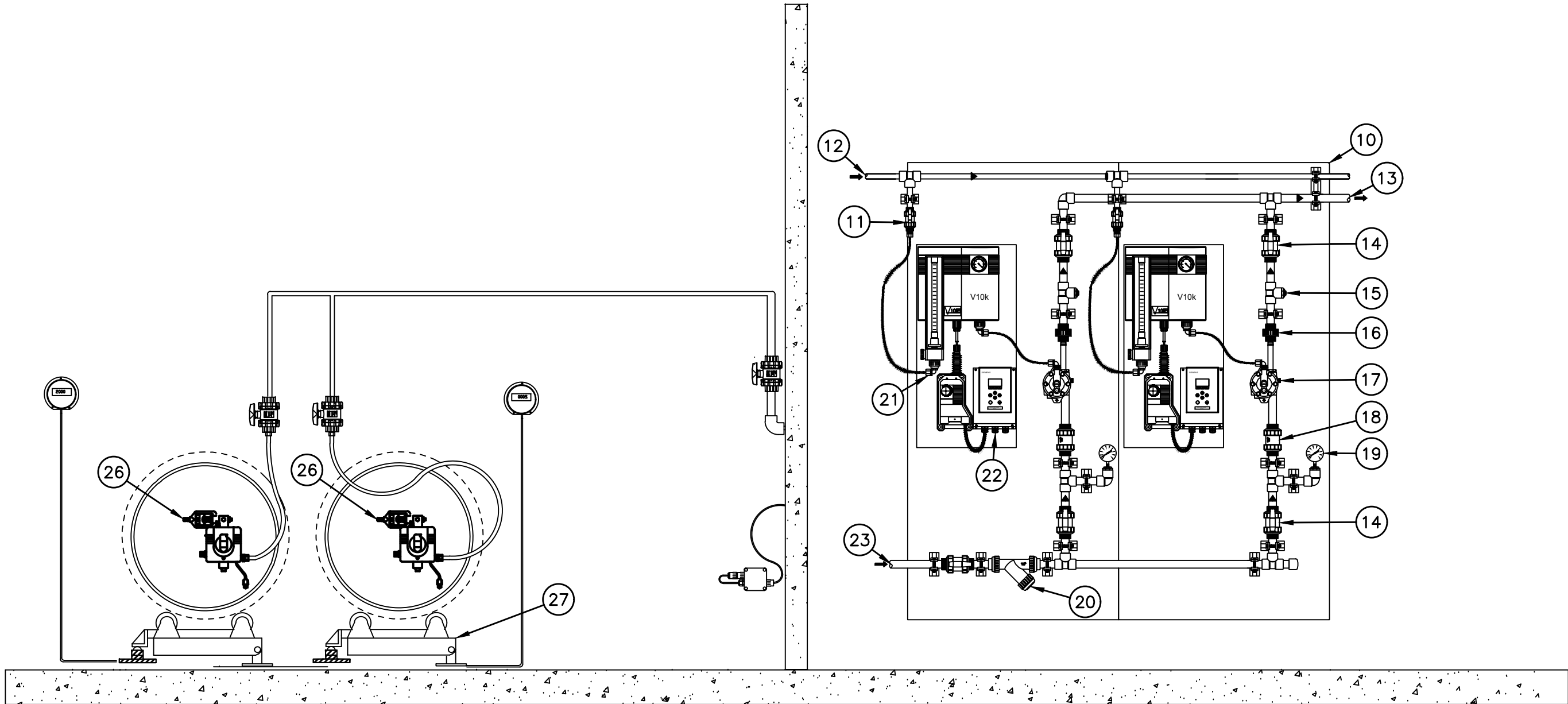
C:\Users\Modelyn\ADICO Dropbox\ADICO\ALLC\PROJECTS\23014-01 COLM WWTP Headworks Rehabilitation\6 - Drawings\M2 PROPOSED SITE PLAN.dwg Jun 12,2025-9:48am Modelyn



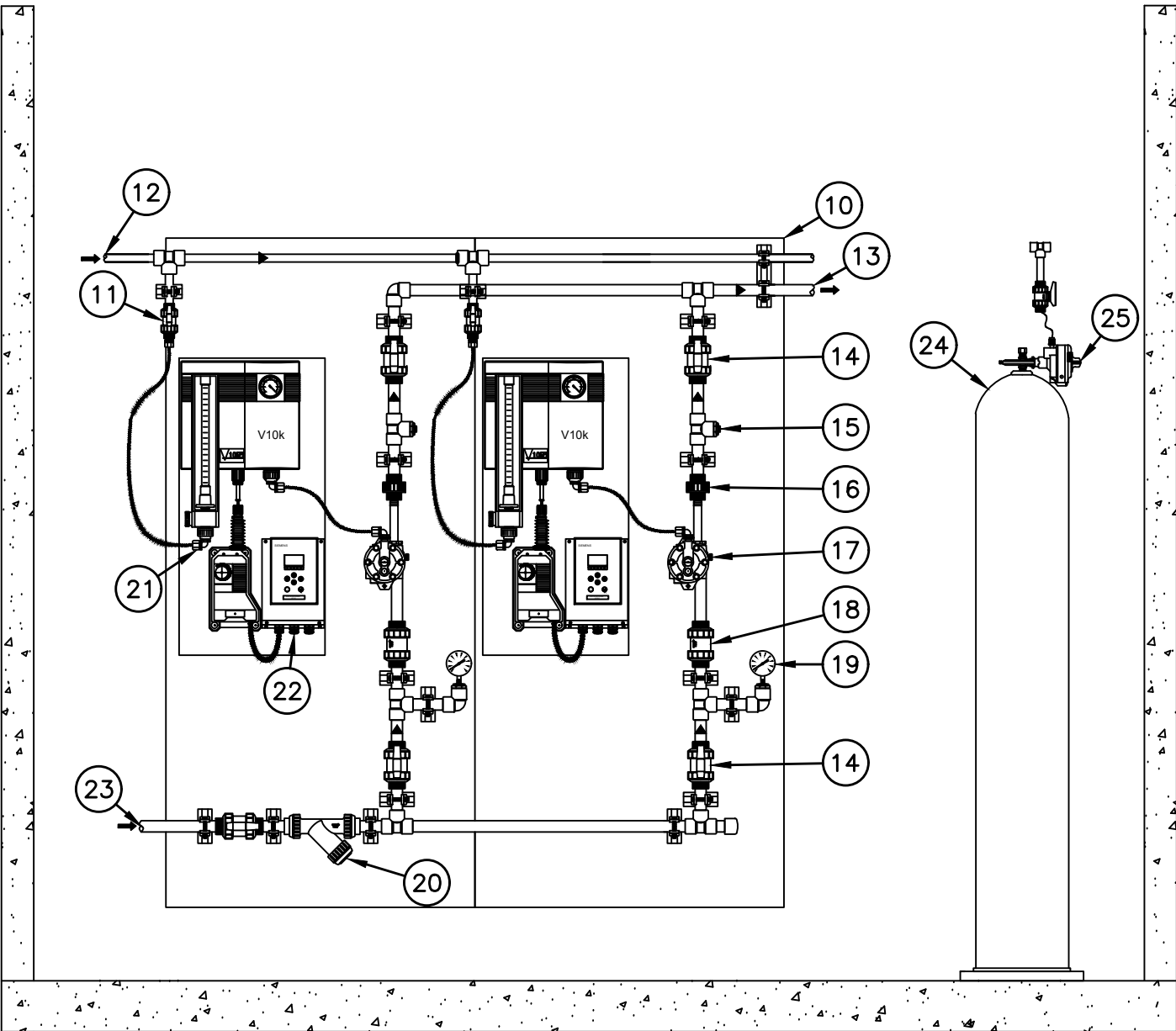
EAST CHEMICAL BUILDING PLAN
N.T.S.



WEST CHEMICAL BUILDING PLAN
N.T.S.



CHLORINE SYSTEM SECTION A
N.T.S.



SULFUR DIOXIDE SYTEM SECTION B
N.T.S.

DOOR SCHEDULE		
MARK	SIZE	DESCRIPTION
A	8'-0"Wx10'-0"H	METAL FRAME STEEL THRESHOLD METALS, ROLLER, LOCK SET, BARS, BOLTS, HOOKS, RIVETS.
B	3'-0"Wx6'-8" 3/4"	H.D. 16 GA. STEEL DOOR; 5 3/4" FRAME; THRESHOLD WITH WEATHER STRIPPING; GALVANEALD AND PAINTED; CLOSURE HARDWARE W/ STOP; H.D. MOUNTING HARDWARE; KEYED TO DISTRICT STANDARDS.

FITTING SCHEDULE	
MARK	DESCRIPTION
1	PROPOSED METAL ROLL-UP DOOR
2	PROPOSED GAS HEATER
3	PROPOSED ONE-TON CHLORINE CYLINDER
4	PROPOSED CHEMICAL FIXTURES AND VALVES
5	PROPOSED DOOR AND FRAME
6	PROPOSED INTAKE FAN
7	PROPOSED DRAIN
8	PROPOSED 150 LB CYLINDER SCALES. 2-DUAL CYLINDER SCALES.
9	PROPOSED LOUVERS
10	6'6"x3' HDPE 1/2" BLACK PANEL
11	1/2" PVC BALL VALVE
12	GAS INLET
13	CL ₂ SOLUTION LINE TO POINT OF APPLICATION
14	1" PVC BALL VALVE
15	TEST PORT
16	1" UNION
17	1" W&T INJECTOR
18	1" PVC CHECK VALVE
19	PRESSURE GAUGE
20	1" Y-STRAINER
21	W&T V10K AUTOMATIC FEEDER
22	W&T SFC SC FLOW PROPORTIONAL CONTROLLER
23	SUPPLY WATER LINE
24	150 LB CYLINDER (TYP.)
25	VACUUM REGULATORS
26	WALLACE & TIERNAN VACUUM REGULATOR (AUTOMATIC SWITCHOVER TYPE)
27	TON CONTAINER SCALE (TYP 2)

CIVIL ENGINEER:
ADICO
CONSULTING ENGINEERS
2114 EL DORADO BLVD, STE. 400, FRIENDSWOOD, TX 77546
PHONE: 832-895-1093 WWW.ADICO-LLC.COM
TBPE FIRM NO. 16423

BENCHMARK:

FLOODPLAIN:

CITY OF LA MARQUE
WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE

2701 B WOODLAND STREET
LA MARQUE, TEXAS 77568

ADICO, LLC
TBPE FIRM NO. F-16423

INTERIM REVIEW
Not to be used for construction,
bidding or permit purposes.

Engineer: BRENT BERTHIER, P.E.

PE License No.: 108493

Date: 12-01-2023

NO.	DATE	REVISION

PROJECT OWNER:
CITY OF LA MARQUE

PROJECT LOCATION:
WASTEWATER TREATMENT PLANT
2701 B WOODLAND ST
LA MARQUE, TX 77568

CHEMICAL BUILDING
PROPOSED PLAN

ALLC PROJECT NO. 23014-01 SHEET NO.

DRAWN BY: MG

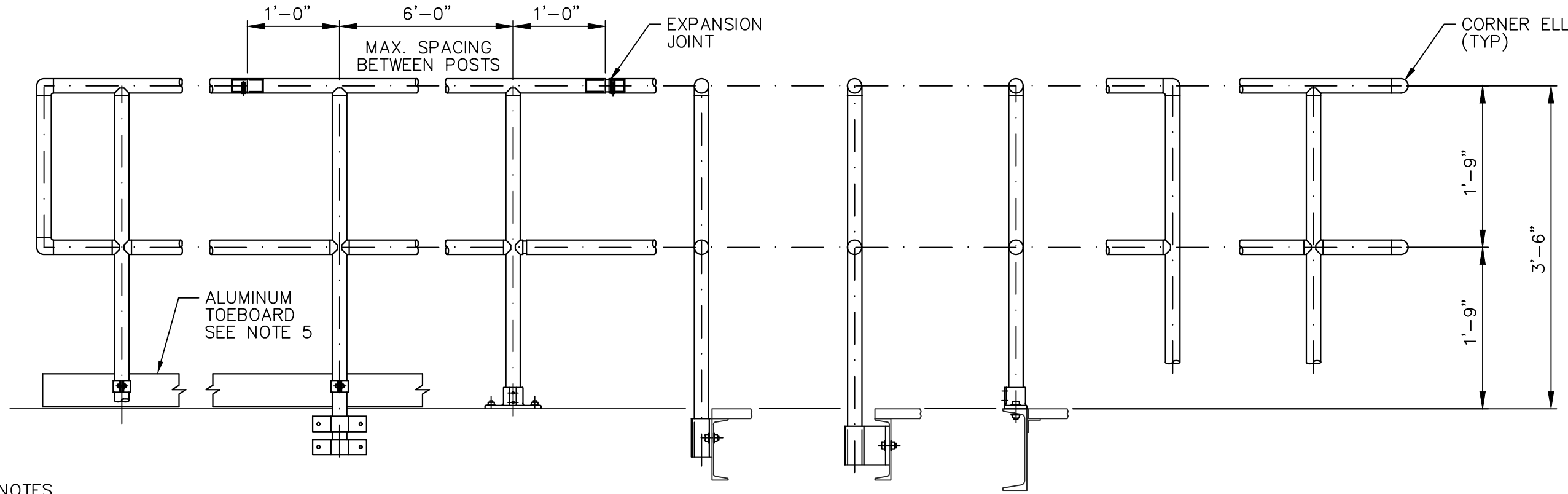
CHECKED BY: BB

DRAWING SCALE:
HORZ: NTS
VERT: NTS

DATE PLOTTED:
Jun 12,2025 - 9:48am

M2

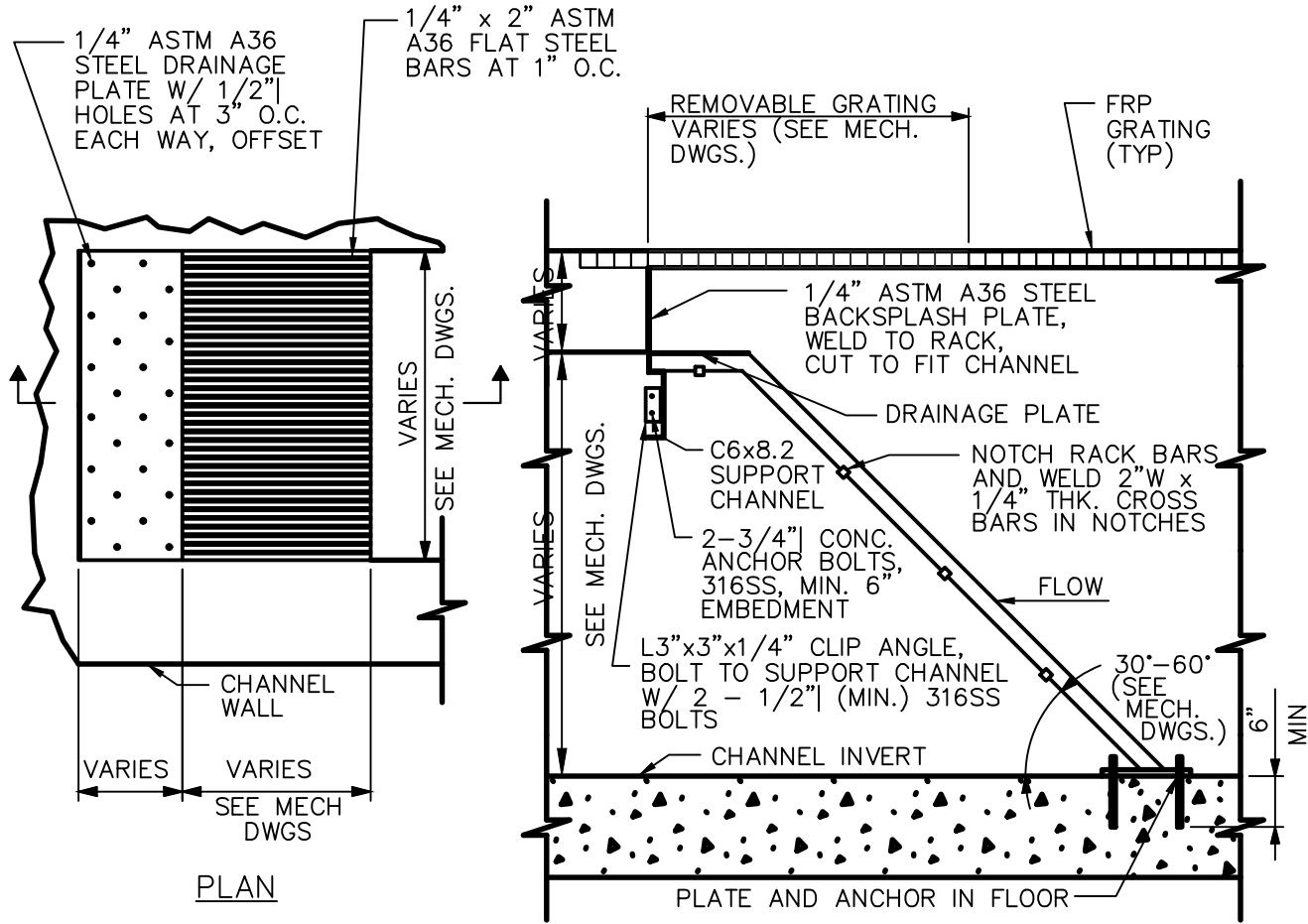
C:\Users\Modajlyn\ADICO Dropbox\ADICO\ALLC\PROJECTS\23014-01 COLM WWTP Headworks Rehabilitation\6 - Drawings\M3 MECHANICAL DETAILS.dwg Mar 28,2025 - 12:49pm Modajlyn



- NOTES**
- HANDRAIL SHALL BE THE PRODUCT OF A COMPANY NORMALLY ENGAGED IN THE MANUFACTURE OF PIPE RAILING.
 - HANDRAILS SHALL BE DESIGNED TO WITHSTAND 200# CONCENTRATED LOAD APPLIED IN ANY DIRECTION TO THE TOP RAIL.
 - POSTS AND RAILINGS SHALL BE A MINIMUM OF 1 1/2" SCHEDULE 40 ALUMINUM PIPE ALLOY.
 - POSTS SHALL NOT INTERRUPT THE CONTINUATION OF THE TOP RAIL AT ANY POINT ALONG THE RAILING, INCLUDING CORNERS AND END TERMINATIONS (OSHA 1910.23). THE TOP SURFACE OF THE TOP RAILING SHALL BE SMOOTH AND SHALL NOT BE INTERRUPTED BY PROJECTED FITTINGS.
 - TOE PLATE SHALL CONFORM TO OSHA STANDARDS. TOE PLATE SHALL BE A MINIMUM OF 4" HIGH AND SHALL BE AN EXTRUSION THAT ATTACHES TO THE POSTS WITH CLAMPS WHICH WILL ALLOW FOR EXPANSION AND CONTRACTION BETWEEN POSTS. TOE PLATES SHALL BE SET 1/4" ABOVE THE WALKING SURFACE.
 - ALUMINUM SURFACES IN CONTACT WITH CONCRETE, GROUT, OR DISSIMILAR METALS WILL BE PROTECTED WITH A COAT OF BILUMINOUS PAINT, MYLAR ISOLATORS, OR OTHER APPROVED MATERIAL.
 - PROVIDE MOUNTING BRACKETS OR FLANGES AS REQUIRED TO INSTALL HANDRAIL AT LOCATIONS SHOWN ON THE DRAWINGS. CONTRACTOR TO EVALUATE FIELD CONDITIONS AND DETERMINE TYPE OF MOUNTING HARDWARE REQUIRED. AT NO ADDITIONAL COST TO OWNER.

HANDRAIL
SCALE: N.T.S.

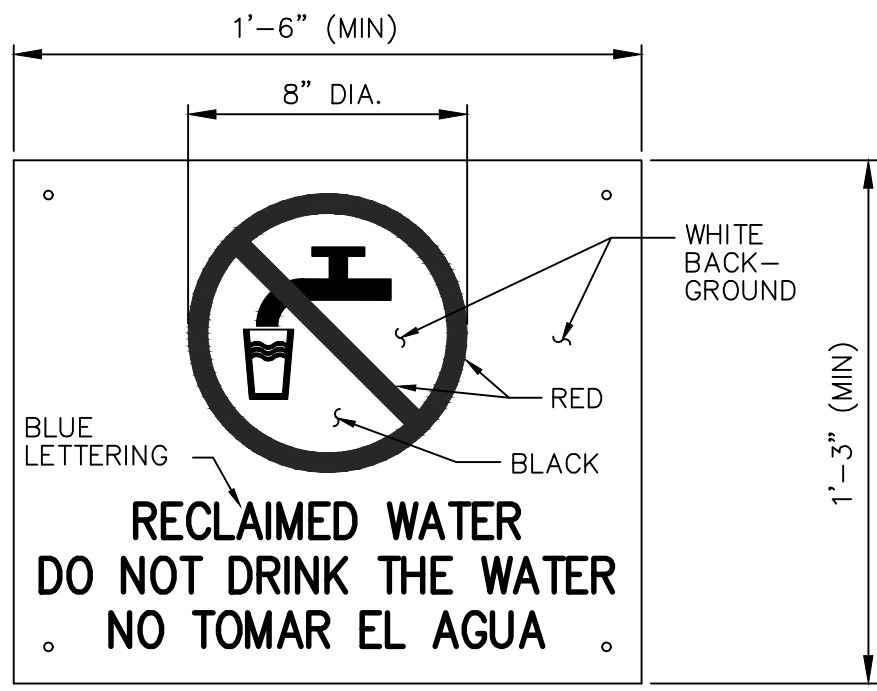
M24A
—



- NOTES**
- MANUAL BAR SCREEN TO BE HOT DIP GALVANIZED AFTER FABRICATION.
 - SEE MECH. DWGS. FOR DIMENSIONS AND INFORMATION NOT SHOWN.
 - ANCHOR BAR SCREEN TO SIDE WALLS AND CHANNEL FLOOR WITH STAINLESS STEEL HARDWARE, MIN 6" EMBEDMENT

MANUAL BAR SCREEN
SCALE: N.T.S.

M5C
—



- NOTES**
- UNLESS OTHERWISE DIRECTED BY THE ENGINEER, INSTALL NON-POTABLE WATER WARNING SIGN AT ALL EXISTING AND PROPOSED HOSE BIBBS.
 - NON-POTABLE WATER WARNING SIGN SHALL COMPLY WITH APPLICABLE PROVISIONS OF 30 TAC 210.25.
 - SIGN SHALL BE 0.080" THICK ALUMINUM IN ACCORDANCE WITH TXDOT SPECIFICATION D9-7110. SIGN SHALL BE A PLANE SURFACE WITHOUT FABRICATION DEFECTS. SIGN SHALL HAVE REFLECTORIZED VINYL BACKING AND PRE-PUNCHED MOUNTING HOLES.
 - LETTERS SHALL BE 1" (MIN.) HIGH, ARIAL OR OTHER APPROVED FONT. SUBMIT PROPOSED SIGNAGE FOR APPROVAL.
 - AT TYPE I HOSE BIBBS, SECURELY FASTEN SIGN TO HANDRAIL USING SS HARDWARE.
 - AT TYPE II HOSE BIBBS, FASTEN SIGN TO UNISTRUT OR EQUAL VERTICAL POST WITH 18" (MIN.) CONCRETE EMBEDMENT AND SS FASTENERS. MOUNT SIGN 3'-0" (MIN.) ABOVE FINISHED GRADE.
 - CONTRACTOR SHALL FURNISH ALL HARDWARE FOR A COMPLETE INSTALLATION INCLUDING ALL ANCLLARY ITEMS NOT SPECIFIED OR SHOWN ON THE DRAWINGS.

NON-POTABLE WATER WARNING SIGN
SCALE: N.T.S.

M18D
—

CIVIL ENGINEER:

ADICO
CONSULTING ENGINEERS

2114 EL DORADO BLVD, STE. 400, FRIENDSWOOD, TX 77546
PHONE: 832-895-1093 WWW.ADICO-LLC.COM
TBPE FIRM NO. 16423

BENCHMARK:

FLOODPLAIN:

CITY OF LA MARQUE
WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE

2701 B WOODLAND STREET
LA MARQUE, TEXAS 77568

ADICO, LLC
TBPE FIRM NO. F-16423

INTERIM REVIEW
Not to be used for construction,
bidding or permit purposes.

Engineer: BRENT BERTHIER, P.E.

PE License No.: 108493

Date: 12-01-2023

NO.	DATE	REVISION

PROJECT OWNER:
CITY OF LA MARQUE

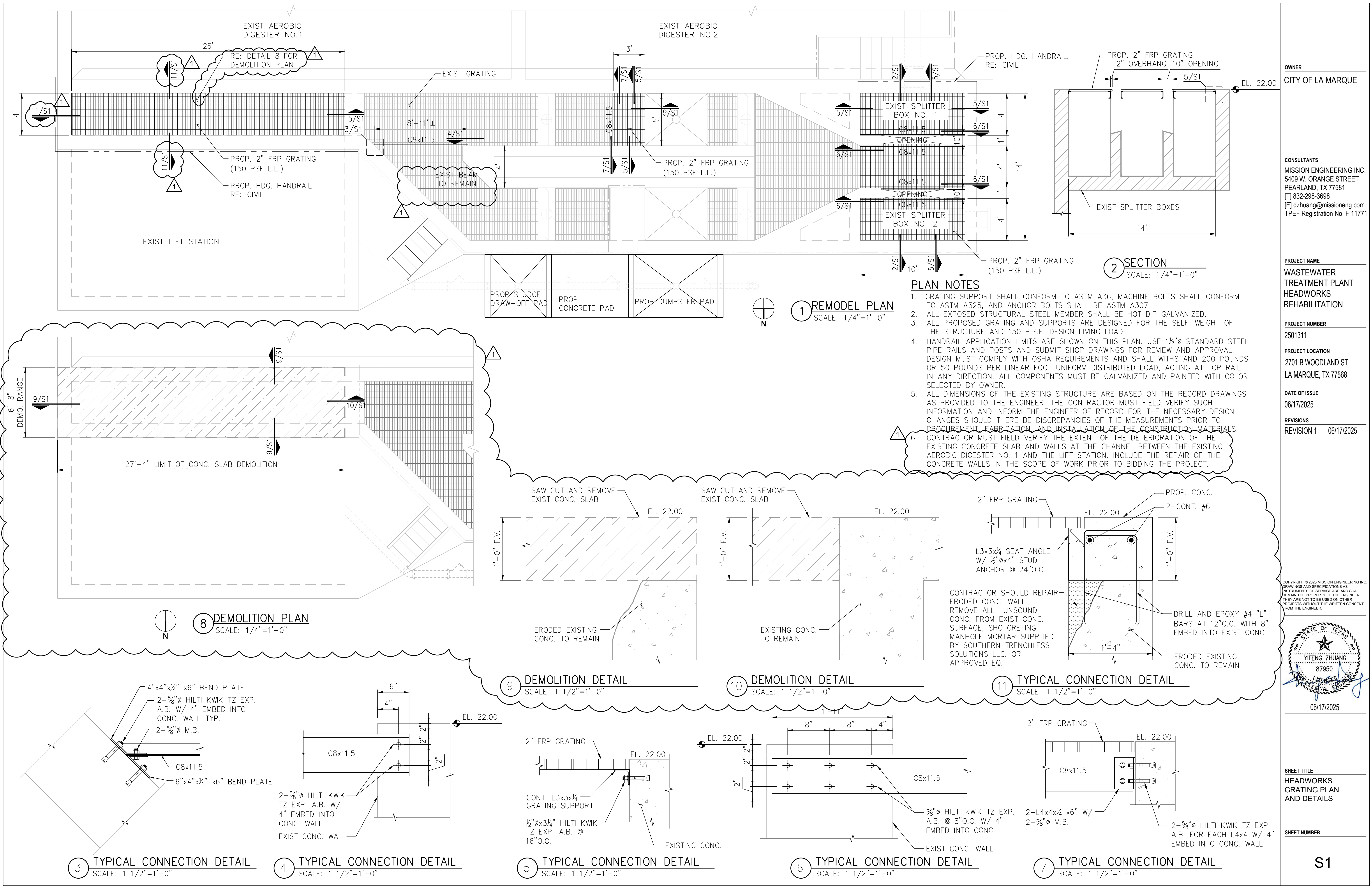
PROJECT LOCATION:
WASTEWATER TREATMENT PLANT
2701 B WOODLAND ST
LA MARQUE, TX 77568

MECHANICAL
DETAILS

ALLC PROJECT NO. 23014-01
DRAWN BY: MG
CHECKED BY: BB
DRAWING SCALE:
HORZ: NTS
VERT: NTS
DATE PLOTTED:
Mar 28, 2025 - 12:49pm

SHEET NO.

M3



OWNER
CITY OF LA MARQUE

CONSULTANTS
MISSION ENGINEERING INC.
5409 W. ORANGE STREET
PEARLAND, TX 77581
[T] 832-298-3698
[E] dzhuang@missioneng.com
TPEF Registration No. F-11771

PROJECT NAME
WASTEWATER
TREATMENT PLANT
HEADWORKS
REHABILITATION

PROJECT NUMBER
2501311

PROJECT LOCATION
2701 B WOODLAND ST
LA MARQUE, TX 77568

DATE OF ISSUE
06/17/2025

REVISIONS
REVISION 1 06/17/2025

COPYRIGHT © 2025 MISSION ENGINEERING INC.
DRAWINGS AND SPECIFICATIONS AS
INSTRUMENTS OF SERVICE ARE AND SHALL
REMAIN THE PROPERTY OF THE ENGINEER.
THEY ARE NOT TO BE USED ON OTHER
PROJECTS WITHOUT THE WRITTEN CONSENT
FROM THE ENGINEER.

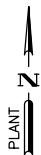


06/17/2025

SHEET TITLE
HEADWORKS
GRATING PLAN
AND DETAILS

SHEET NUMBER

S1



LEGEND

-  - PROPOSED WORK AREA
-  - EXISTING DUCTBANK

CONTRACTOR TO LOCATE EXISTING 1" CONDUIT ROUTED FROM EXISTING OPERATIONS BUILDING TO EXISTING BARSCREEN CONTROL PANEL THAT SHALL BE DEMO'ED. CONTRACTOR SHALL REMOVE EXISTING CONDUCTORS AND UTILIZE EXISTING CONDUIT FOR THE NEW POWER & CONTROL CONDUCTORS FOR THE PROP. VENDOR SUPPLIED MECHANICAL BARSCREEN & COMPACTOR PANEL (SEE NOTES 8 & 9).

EXIST HEADWORKS TO BE MODIFIED (SEE SHEET E2)

EXISTING LIFT STATION PUMPS ENCLOSURE

EXISTING LIFT STATION

EXISTING BLOWER BUILDING No. 1

EXISTING WEST CHEMICAL STORAGE BUILDING

EXISTING EAST CHEMICAL STORAGE BUILDING TO BE MODIFIED (SEE SHEET E3)

EXISTING BLOWER BUILDING No. 2

EXISTING AEROBIC DIGESTER No. 4

EXISTING AEROBIC DIGESTER No. 3

EXISTING AEROBIC DIGESTER No. 2

EXISTING AEROBIC DIGESTER No. 1

EXISTING AERATION BASIN No. 2

EXISTING AERATION BASIN No. 1

EXISTING CLARIFIER No. 2

EXISTING CLARIFIER No. 1

EXISTING MAINTENANCE & OFFICE BUILDING

EXISTING CHLORINE CONTACT BASIN

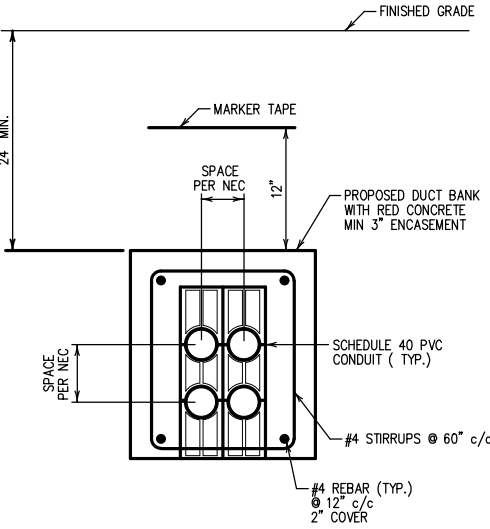
EXISTING CHLORINE CONTACT BASIN

EXISTING NPW PUMP STATION

TO WOODLAND STREET

ELECTRICAL NOTES:

- ALL CONSTRUCTION SHALL COMPLY WITH LOCAL AND NATIONAL CODES AND REQUIREMENTS.
- CONDUITS SHALL NOT BE ROUTED ACROSS WALKWAYS OR PATHS OF TRAVEL. ROUTE AROUND OR BENEATH EQUIPMENT. DO NOT ROUTE IN CONFLICT WITH OTHER PIPING, CONDUITS, EQUIPMENT OR STRUCTURES.
- PLAN VIEW CONDUIT ROUTING IS DIAGRAMMATIC ONLY. ROUTE BEST WAY MINIMIZING BENDS.
- FIELD VERIFY EXACT LOCATION OF ALL UNDERGROUND PIPES, CONDUIT, AND STRUCTURES BEFORE DIGGING. REPAIR ANY DAMAGE DONE TO ORIGINAL CONDITION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY AND ALL PERMITS ASSOCIATED WITH THE WORK. THE COSTS OF THE PERMITS SHALL BE BORNE BY THE CONTRACTOR.
- ALL ABOVE GRADE CONDUIT SHALL BE PVC COATED RIGID GALVANIZED STEEL CONDUIT. CONDUITS WITHIN THE CHEMICAL ROOMS AND DUCT BANKS (IF ANY) ARE TO BE SCHEDULE 40 PVC. ALL MOUNTING HARDWARE, SUPPORTS, CLAMPS, BRACKETS & ANCHORS TO BE STAINLESS STEEL.
- WHERE EXISTING EARTHWORK OR ASPHALT/CONCRETE IS DISTURBED BY CONSTRUCTION ACTIVITIES, PROVIDE BASE COURSE AND PATCH AREA TO MATCH EXISTING.
- IF EXISTING 1" CONDUIT FROM EXISTING BARSCREEN PANEL TO OPERATIONS BUILDING IS NOT IN GOOD CONDITION TO BE RE-USED, CONTRACTOR SHALL INSTALL NEW DUCTBANK WITH (2) 1" CONDUITS FROM THE EXISTING HEADWORKS AREA TO THE EXISTING OPERATIONS BUILDING (1 SHALL BE SPARE). CONTRACTOR SHALL STUB-UP CONDUITS AT THE EDGE OF THE EXISTING CONCRETE AT EXISTING HEADWORKS, THEN CONTINUE CONDUITS UP CONCRETE TO THE PROP. MECHANICAL BARSCREEN & COMPACTOR PANEL. CONTRACTOR SHALL PROVIDE AND INSTALL ALL REQUIRED CONDUITS, CONDUIT BODIES, FITTINGS, AND CONDUCTORS TO PROVIDE A COMPLETE AND WORKING SYSTEM.
- SEAL ALL CONDUITS GOING TO AND/OR FROM THE HEADWORKS WITH PVC COATED RGS EYD SEALS W/ CHICO OR EQUAL SEALANT.
- CONTRACTOR SHALL INCORPORATE THE ALARMS FOR THE NEW MECHANICAL BARSCREEN & COMPACTOR PANEL INTO THE EXISTING WTP ALARM CIRCUITS. CONTRACTOR SHALL PROVIDE ALL CONDUIT, WIRING, AND PROGRAMMING (IF ANY) REQUIRED FOR A COMPLETE AND WORKING SYSTEM.
- LOCATION OF THE NEW VENDOR SUPPLIED MECHANICAL BARSCREEN & COMPACTOR PANEL IS APPROXIMATE. COORDINATE EXACT PLACEMENT WITH THE OWNER/OPERATOR ENSURING THAT THERE IS 36 INCHES MINIMUM WORKSPACE IN FRONT OF IT.



TYPICAL DUCT BANK CONSTRUCTION (IF REQUIRED)

N.T.S.

CONDUIT & CABLE SCHEDULE

NO.	SIZE & CONDUCTORS	DESCRIPTION
001	1" C, W/3-#8 + 6-#14 + #8 GND	PROP. MECH. BARSCREEN PANEL FEEDER & ALARMS
002	1" C, W/3-#12 + #12 GND	PROP. SCREEN DRIVE MOTOR POWER
003	1" C, W/3-#12 + #12 GND	PROP. BRUSH DRIVE MOTOR POWER
004	1" C, W/3-#12 + #12 GND	PROP. COMPACTOR DRIVE MOTOR POWER
005	1" C, W/3-#12 + #12 GND	PROP. CHLORINE STORAGE ROOM HEATER (TREATMENT MODULE #1)
006	1" C, W/3-#12 + #12 GND	PROP. CHLORINATOR ROOM HEATER (TREATMENT MODULE #1)
007	1" C, W/3-#12 + #12 GND	PROP. SO2 ROOM HEATER (TREATMENT MODULE #1)
008	1.5" C, W/3-#2 + #2 GND	PROP. 480V POWER PANEL "PP1" FEED (TREATMENT MODULE #2)
009	1" C, W/3-#12 + #12 GND	PROP. CHLORINE STORAGE ROOM HEATER (TREATMENT MODULE #2)
010	1" C, W/3-#12 + #12 GND	PROP. CHLORINATOR ROOM HEATER (TREATMENT MODULE #2)
011	1" C, W/3-#12 + #12 GND	PROP. SO2 ROOM HEATER (TREATMENT MODULE #2)

ELECTRICAL SITE PLAN

N.T.S.

CIVIL ENGINEER:

ADICO
CONSULTING ENGINEERS
2114 EL DORADO BLVD, STE. 400,
FRIENDSWOOD, TX 77546
PHONE: 832-885-1093
WWW.ADICO-LLC.COM
TBPE FIRM NO. 16423

BENCHMARK:

FLOODPLAIN:

CITY OF LA MARQUE
WTP REHABILITATION
HEADWORKS AND CHEMICAL
STORAGE

2701 B WOODLAND STREET
LA MARQUE, TEXAS 77568

ARCHER ENGINEERING, LLC
TBPE FIRM NO. F-12831

INTERIM REVIEW
Not to be used for construction,
bidding or permit purposes.

Engineer: THOMAS ARCHER, P.E.

PE License No.: 104886

Date: 07-07-2025

NO.	DATE	REVISION

PROJECT OWNER:
CITY OF LA MARQUE

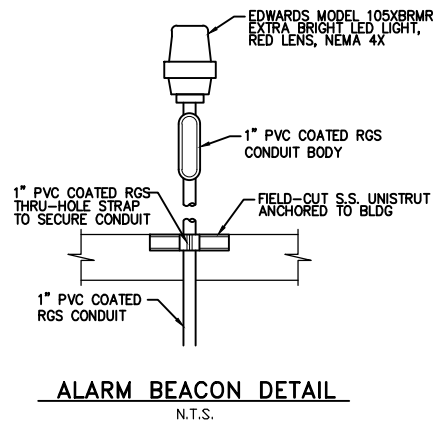
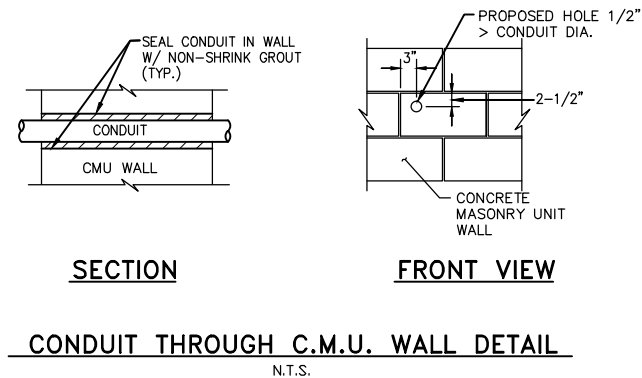
PROJECT LOCATION:
WASTEWATER TREATMENT PLANT
2701 B WOODLAND ST
LA MARQUE, TX 77568

ELECTRICAL SITE
PLAN

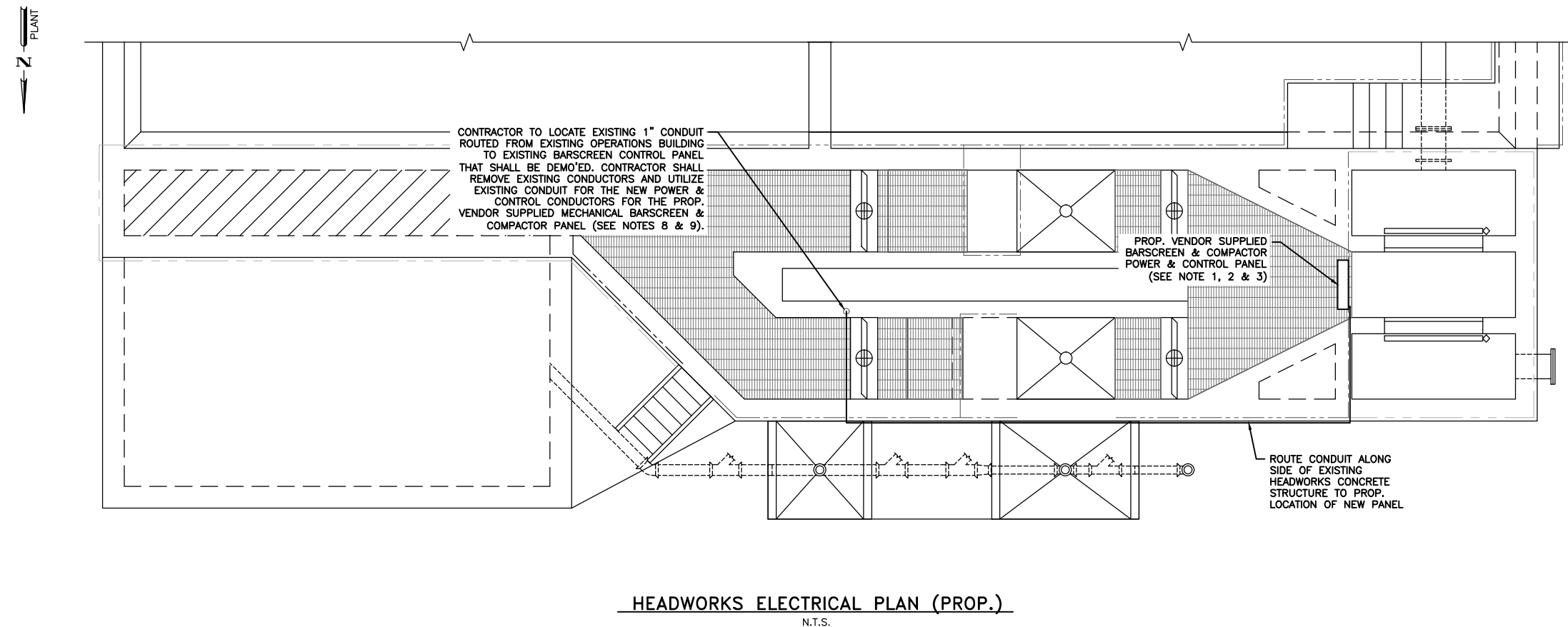
ALIC PROJECT NO.: 23014-01
DRAWN BY: TA
CHECKED BY: -
DRAWING SCALE:
HORIZ: AS SHOWN
VERT: AS SHOWN
DATE PLOTTED:

SHEET NO.
E1

ARCHER ENGINEERING, LLC
(713) 305-1129
P.O. BOX 219224
HOUSTON, TX 77218
TBPE No. F-12831



- NOTES:**
1. CONTRACTOR TO PROVIDE AND INSTALL ALL VENDOR COMPONENTS NOT SHOWN, ALL REQUIRED CONDUIT, AND ALL WIRING NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM FOR THE MECHANICAL BARSCREEN SYSTEM. THIS INCLUDES, BUT NOT LIMITED TO, THE SCREEN DRIVE MOTOR, THE BRUSH DRIVE MOTOR, FLOAT SWITCH(ES), UPSTREAM ULTRASONIC LEVEL TRANSDUCER, DOWNSTREAM ULTRASONIC LEVEL TRANSDUCER, EMERGENCY STOP SWITCH(ES), AND LOCAL CONTROL STATIONS.
 2. CONTRACTOR TO PROVIDE AND INSTALL ALL VENDOR COMPONENTS NOT SHOWN, ALL REQUIRED CONDUIT, AND ALL WIRING NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM FOR THE SCREENINGS COMPACTOR SYSTEM. THIS INCLUDES, BUT NOT LIMITED TO, THE COMPACTOR DRIVE MOTOR, INFRARED LEVEL SENSORS, SOLENOID VALVES, EMERGENCY STOP SWITCH(ES), AND LOCAL CONTROL STATION(S).
 3. LOCATION OF THE NEW VENDOR SUPPLIED MECHANICAL BARSCREEN & COMPACTOR PANEL IS APPROXIMATE. COORDINATE EXACT PLACEMENT WITH THE OWNER/OPERATOR ENSURING THAT THERE IS 36 INCHES MINIMUM WORKSPACE IN FRONT OF IT.
 4. CONDUITS SHALL NOT BE ROUTED ACROSS WALKWAYS OR PATHS OF TRAVEL. ROUTE AROUND OR BENEATH EQUIPMENT. DO NOT ROUTE IN CONFLICT WITH OTHER PIPING, CONDUITS, EQUIPMENT OR STRUCTURES.
 5. PLAN VIEW CONDUIT ROUTING IS DIAGRAMMATIC ONLY. ROUTE BEST WAY MINIMIZING BENDS.
 6. ALL ABOVE GRADE CONDUIT SHALL BE PVC COATED RIGID GALVANIZED STEEL CONDUIT. CONDUITS WITHIN THE CHEMICAL ROOMS AND DUCT BANKS (IF ANY) ARE TO BE SCHEDULE 40 PVC. ALL MOUNTING HARDWARE, SUPPORTS, CLAMPS, BRACKETS & ANCHORS TO BE STAINLESS STEEL.
 7. WHERE EXISTING EARTHWORK OR ASPHALT/CONCRETE IS DISTURBED BY CONSTRUCTION ACTIVITIES, PROVIDE BASE COURSE AND PATCH AREA TO MATCH EXISTING.
 8. IF EXISTING 1" CONDUIT FROM EXISTING BARSCREEN PANEL TO OPERATIONS BUILDING IS NOT IN GOOD CONDITION TO BE RE-USED, CONTRACTOR SHALL INSTALL NEW DUCTBANK WITH (2) 1" CONDUITS FROM THE EXISTING HEADWORKS AREA TO THE EXISTING OPERATIONS BUILDING (1 SHALL BE SPARE). CONTRACTOR SHALL STUB-UP CONDUITS AT THE EDGE OF THE EXISTING CONCRETE AT EXISTING HEADWORKS, THEN CONTINUE CONDUITS UP CONCRETE TO THE PROP. MECHANICAL BARSCREEN & COMPACTOR PANEL. CONTRACTOR SHALL PROVIDE AND INSTALL ALL REQUIRED CONDUITS, CONDUIT BODIES, FITTINGS, AND CONDUCTORS TO PROVIDE A COMPLETE AND WORKING SYSTEM.
 9. SEAL ALL CONDUITS GOING TO AND/OR FROM THE HEADWORKS WITH PVC COATED RGS EYD SEALS W/ CHICO OR EQUAL SEALANT.
 10. CONTRACTOR SHALL INCORPORATE THE ALARMS FOR THE NEW MECHANICAL BARSCREEN & COMPACTOR PANEL INTO THE EXISTING WWTP ALARM CIRCUITS. CONTRACTOR SHALL PROVIDE ALL CONDUIT, WIRING, AND PROGRAMMING (IF ANY) REQUIRED FOR A COMPLETE AND WORKING SYSTEM.



CIVIL ENGINEER:

ADICO
CONSULTING ENGINEERS
2114 EL DORADO BLVD, STE. 400,
FRIENDSWOOD, TX 77546
PHONE: 832-885-1093
WWW.ADICO-LLC.COM
TBPE FIRM NO. 16423

BENCHMARK:

FLOODPLAIN:

CITY OF LA MARQUE
WWTP REHABILITATION
HEADWORKS AND CHEMICAL
STORAGE

2701 B WOODLAND STREET
LA MARQUE, TEXAS 77568

ARCHER ENGINEERING, LLC
TBPE FIRM NO. F-12831

INTERIM REVIEW
Not to be used for construction,
bidding or permit purposes.

Engineer: THOMAS ARCHER, P.E.

PE License No.: 104886

Date: 07-07-2025

NO.	DATE	REVISION

PROJECT OWNER:
CITY OF LA MARQUE

PROJECT LOCATION:
WASTEWATER TREATMENT PLANT
2701 B WOODLAND ST
LA MARQUE, TX 77568

ARCHER ENGINEERING, LLC
P.O. BOX 219224
HOUSTON, TX 77218
(713) 305-1129
TBPE No. F-12831

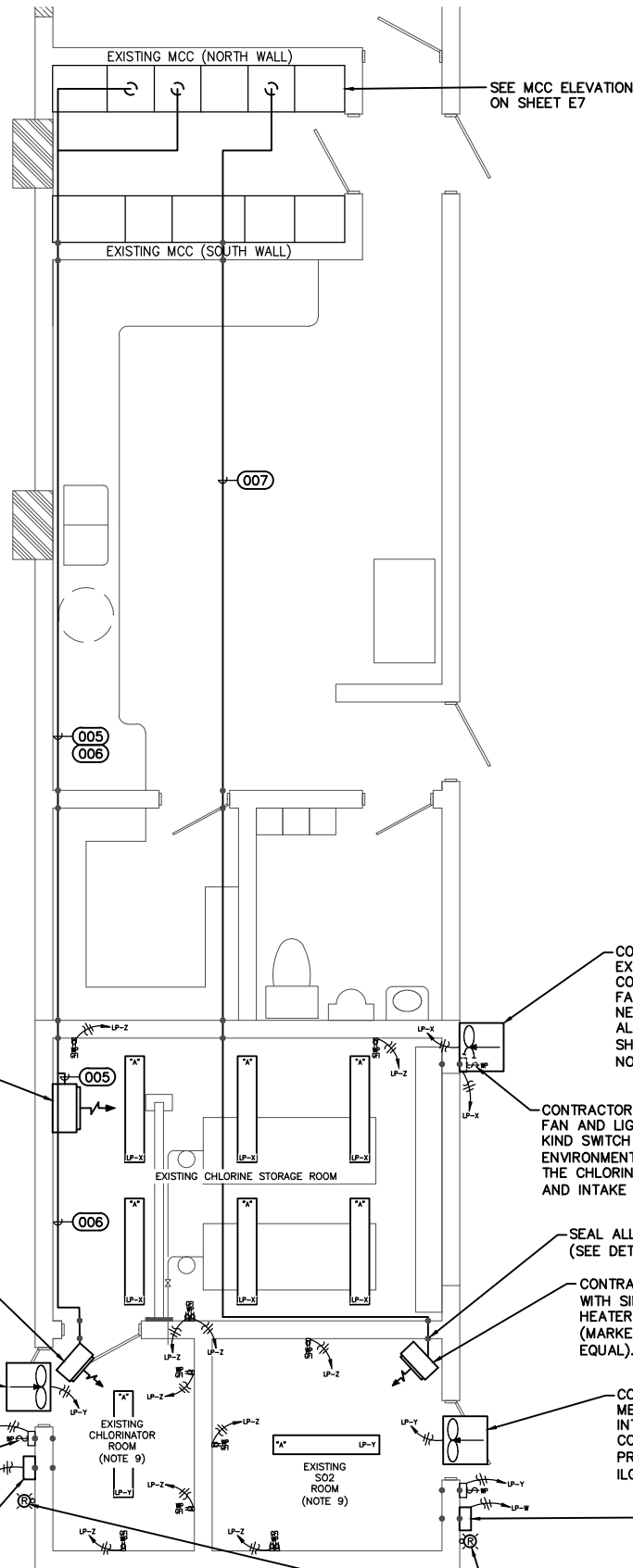
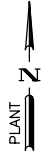
HEADWORKS
ELECTRICAL PLAN

ALLC PROJECT NO.: 23014-01
DRAWN BY: TA
CHECKED BY: -
DRAWING SCALE:
HORIZ: AS SHOWN
VERT: AS SHOWN
DATE PLOTTED:

SHEET NO.
E2

LEGEND:

- PROP. ABOVEGROUND CONDUIT
-  PROP. 120V INTAKE FAN
-  PROP. 120V WEATHERPROOF GFI RECEPTACLE
-  PROP. WEATHERPROOF SWITCH
-  PROP. LIGHT FIXTURE (COOPER LIGHTING No. 4VTZ-LD5-4- FR50-W-UNV-L850-CD1-WL-SSL)
-  PROP. 480V HEATER
- PROP. WALL PENETRATION SEAL (SEE DETAIL SHEET E2)
- (001) PROP. CABLE & CONDUIT CALL-OUT



CONTRACTOR SHALL REPLACE EXISTING GAS HEATER WITH SIMILAR BtuH RATED 480V/3-PHASE ELECTRIC HEATER WITH MOUNTING BRACKET AND THERMOSTAT (MARKEL PRODUCTS MODEL NO. 5107CA1NP3P OR EQUAL).

CONTRACTOR SHALL REPLACE EXISTING GAS HEATER WITH SIMILAR BtuH RATED 480V/3-PHASE ELECTRIC HEATER WITH MOUNTING BRACKET AND THERMOSTAT (MARKEL PRODUCTS MODEL NO. 5105CA1NP3P OR EQUAL).

CONTRACTOR SHALL REPLACE EXISTING METAL INTAKE FAN COVER AND EXISTING INTAKE FAN WITH SIMILAR IN KIND. NEW COVER SHALL BE ALUMINUM WITH A PROP. SHUTTER FAN (ILVING PART NO. ILG8SF12V OR EQUAL).

CONTRACTOR SHALL REPLACE EXISTING FAN AND LIGHTS SWITCH WITH SIMILAR IN KIND SWITCH SUITABLE FOR CORROSIVE ENVIRONMENT (SWITCH SHALL OPERATE THE CHLORINATION ROOM LIGHTS AND INTAKE FAN).

PROP. CL2 GAS LEAK DETECTOR. CONTRACTOR SHALL INTEGRATE NEW CL2 LEAK DETECTION ALARM INTO PROP. ALARM LIGHT AND EXISTING ANNUNCIATOR PANEL (NOTE 7).

CONTRACTOR SHALL REPLACE EXISTING METAL INTAKE FAN COVER AND EXISTING INTAKE FAN WITH SIMILAR IN KIND. NEW COVER SHALL BE ALUMINUM WITH A PROP. SHUTTER FAN (ILVING PART NO. ILG8SF18S OR EQUAL).

CONTRACTOR SHALL REPLACE EXISTING FAN AND LIGHTS SWITCH WITH SIMILAR IN KIND SWITCH SUITABLE FOR CORROSIVE ENVIRONMENT (SWITCH SHALL OPERATE THE CHLORINE STORAGE ROOM LIGHTS AND INTAKE FAN).

SEAL ALL WALL PENETRATIONS (SEE DETAIL SHEET E2, TYP.)

CONTRACTOR SHALL REPLACE EXISTING GAS HEATER WITH SIMILAR BtuH RATED 480V/3-PHASE ELECTRIC HEATER WITH MOUNTING BRACKET AND THERMOSTAT (MARKEL PRODUCTS MODEL NO. 5105CA1NP3P OR EQUAL).

CONTRACTOR SHALL REPLACE EXISTING METAL INTAKE FAN COVER AND EXISTING INTAKE FAN WITH SIMILAR IN KIND. NEW COVER SHALL BE ALUMINUM WITH A PROP. SHUTTER FAN (ILVING PART NO. ILG8SF12V OR EQUAL).

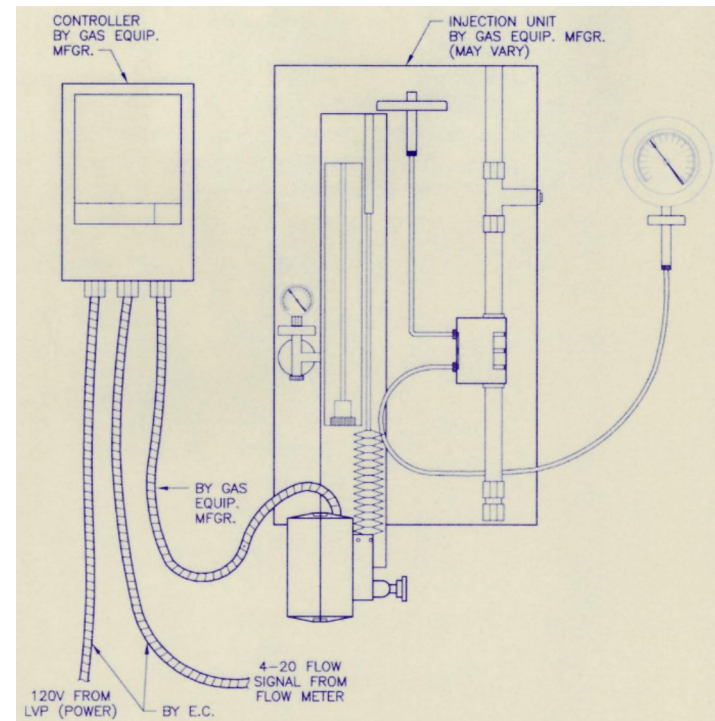
PROP. SO2 GAS LEAK DETECTOR. CONTRACTOR SHALL INTEGRATE NEW SO2 LEAK DETECTION ALARM INTO PROP. ALARM BEACON AND EXISTING ANNUNCIATOR PANEL (NOTE 8).

CONTRACTOR SHALL REPLACE EXISTING RED ALARM LIGHTS WITH PROP. RED ALARM BEACONS (SEE DETAIL SHEET E2)

NOTES:

1. CONDUITS SHALL NOT BE ROUTED ACROSS WALKWAYS OR PATHS OF TRAVEL. ROUTE AROUND OR BENEATH EQUIPMENT. DO NOT ROUTE IN CONFLICT WITH OTHER PIPING, CONDUITS, EQUIPMENT OR STRUCTURES.
2. PLAN VIEW CONDUIT ROUTING IS DIAGRAMMATIC ONLY. ROUTE BEST WAY MINIMIZING BENDS. NOT ALL REQUIRED CONDUITS ARE SHOWN ON THIS DRAWING FOR CLARITY.
3. ALL ABOVE GRADE CONDUIT SHALL BE PVC COATED RIGID GALVANIZED STEEL CONDUIT. CONDUITS WITHIN THE CHEMICAL ROOMS AND DUCT BANKS (IF ANY) ARE TO BE SCHEDULE 40 PVC. ALL MOUNTING HARDWARE, SUPPORTS, CLAMPS, BRACKETS & ANCHORS TO BE STAINLESS STEEL.
4. CONTRACTOR SHALL INCORPORATE THE ALARMS FOR THE NEW MECHANICAL BARSCREEN & COMPACTOR PANEL INTO THE EXISTING WWTP ALARM CIRCUITS. CONTRACTOR SHALL PROVIDE ALL CONDUIT, WIRING, AND PROGRAMMING (IF ANY) REQUIRED FOR A COMPLETE AND WORKING SYSTEM.
5. LAYOUT SHOWN ON THIS DRAWING IS BASED ON FIELD SURVEY. CONTRACTOR TO VERIFY EXISTING EQUIPMENT AND NOTIFY ENGINEER IF CHANGES TO THE DESIGN ARE REQUIRED.
6. SEE CABLE & CONDUIT SCHEDULE ON SHEET E1.
7. THE PROP. CHLORINE LEAK DETECTOR'S THREE DETECTORS NOT SHOWN ON THIS DRAWING FOR CLARITY. CONTRACTOR TO PROVIDE & INSTALL ALL COMPONENTS FOR A COMPLETE AND WORKING SYSTEM.
8. THE PROP. SO2 LEAK DETECTOR'S THREE DETECTORS NOT SHOWN ON THIS DRAWING FOR CLARITY. CONTRACTOR TO PROVIDE & INSTALL ALL COMPONENTS FOR A COMPLETE AND WORKING SYSTEM.
9. REFER TO THE CIVIL PLANS FOR THE CHLORINE AND SO2 CONTROLLERS & ASSOCIATED EQUIPMENT. CONTRACTOR SHALL PROVIDE AND INSTALL ARE REQUIRED CONDUIT AND WIRING TO PROVIDE A COMPLETE AND WORKING SYSTEM. SEE DETAIL ON THIS SHEET FOR TYPICAL CONTROLLER.
10. THE EXISTING LIGHTING PANEL "LP" DOES NOT HAVE A PANEL SCHEDULE. CONTRACTOR SHALL TRACE OUT EXISTING CIRCUITS THAT SERVICE THE EXISTING CHLORINE STORAGE ROOM, THE EXISTING CHLORINATOR ROOM, AND THE EXISTING SO2 ROOM. CONTRACTOR SHALL ADJUST LIGHTING PANEL CIRCUITS TO PROVIDE POWER BASED ON THE CIRCUITS DESCRIBED BELOW:

LP-V = PROP. CHLORINE LEAK DETECTOR
LP-W = PROP. SO2 LEAK DETECTOR
LP-X = PROP. INTAKE FAN & LIGHTS FOR CHLORINE STORAGE ROOM
LP-Y = PROP. INTAKE FAN & LIGHT FOR CHLORINATOR ROOM AND PROP. INTAKE FAN & LIGHT FOR SO2 ROOM
LP-Z = PROP. RECEPTACLES FOR CHLORINE STORAGE ROOM, CHLORINATOR ROOM, AND SO2 ROOM



TREATMENT MODULE NO. 1 CHEMICAL BLDG. ELECTRICAL PLAN (PROP.)

N.T.S.

TYPICAL CHLORINE OR SO2 CONTROLLER DETAIL

N.T.S.

CIVIL ENGINEER:

ADICO
CONSULTING ENGINEERS
2114 EL DORADO BLVD, STE. 400,
FRIENDSWOOD, TX 77546
PHONE: 832-885-1093
WWW.ADICO-LLC.COM
TBPE FIRM NO. 16423

BENCHMARK:

FLOODPLAIN:

CITY OF LA MARQUE
WWTP REHABILITATION
HEADWORKS AND CHEMICAL
STORAGE

2701 B WOODLAND STREET
LA MARQUE, TEXAS 77568

ARCHER ENGINEERING, LLC
TBPE FIRM NO. F-12831

INTERIM REVIEW

Not to be used for construction,
bidding or permit purposes.

Engineer: THOMAS ARCHER, P.E.

PE License No.: 104886

Date: 07-07-2025

NO.	DATE	REVISION

PROJECT OWNER:
CITY OF LA MARQUE

PROJECT LOCATION:
WASTEWATER TREATMENT PLANT
2701 B WOODLAND ST
LA MARQUE, TX 77568

TREATMENT MODULE
NO. 1 CHEMICAL
BUILDING
ELECTRICAL PLAN

ALIC PROJECT NO.: 23014-01
DRAWN BY: TA
CHECKED BY: TA
DRAWING SCALE:
HORIZ: N.T.S.
VERT: N.T.S.
DATE PLOTTED:

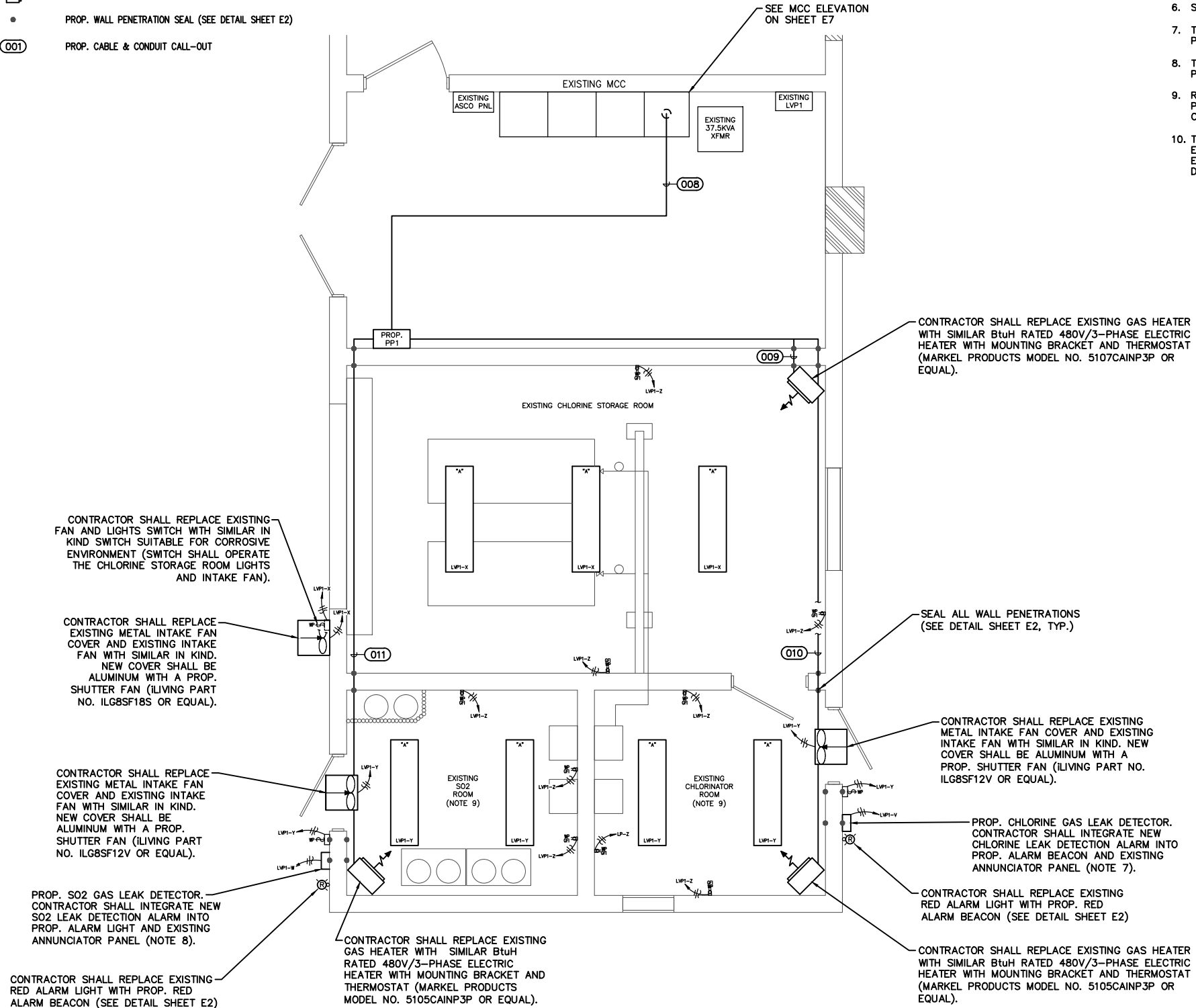
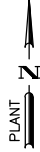
SHEET NO.

E3

ARCHER ENGINEERING, LLC
(713) 305-1129
P.O. BOX 219224
HOUSTON, TX 77218
TBPE No. F-12831

LEGEND:

- PROP. ABOVEGROUND CONDUIT
- PROP. 120V INTAKE FAN
- PROP. 120V WEATHERPROOF GFI RECEPTACLE
- PROP. WEATHERPROOF SWITCH
- PROP. LIGHT FIXTURE (COOPER LIGHTING No. 4VTZ-LD5-4- FR50-W-UNV-L850-CD1-WL-SSL)
- PROP. 480V HEATER
- PROP. WALL PENETRATION SEAL (SEE DETAIL SHEET E2)
- PROP. CABLE & CONDUIT CALL-OUT



TREATMENT MODULE NO. 2 CHEMICAL BLDG. ELECTRICAL PLAN (PROP.)

N.T.S.

NOTES:

- CONDUITS SHALL NOT BE ROUTED ACROSS WALKWAYS OR PATHS OF TRAVEL. ROUTE AROUND OR BENEATH EQUIPMENT. DO NOT ROUTE IN CONFLICT WITH OTHER PIPING, CONDUITS, EQUIPMENT OR STRUCTURES.
- PLAN VIEW CONDUIT ROUTING IS DIAGRAMMATIC ONLY. ROUTE BEST WAY MINIMIZING BENDS. NOT ALL REQUIRED CONDUITS ARE SHOWN ON THIS DRAWING FOR CLARITY.
- ALL ABOVE GRADE CONDUIT SHALL BE PVC COATED RIGID GALVANIZED STEEL CONDUIT. CONDUITS WITHIN THE CHEMICAL ROOMS AND DUCT BANKS (IF ANY) ARE TO BE SCHEDULE 40 PVC. ALL MOUNTING HARDWARE, SUPPORTS, CLAMPS, BRACKETS & ANCHORS TO BE STAINLESS STEEL.
- CONTRACTOR SHALL INCORPORATE THE ALARMS FOR THE NEW MECHANICAL BARSCREEN & COMPACTOR PANEL INTO THE EXISTING WWTP ALARM CIRCUITS. CONTRACTOR SHALL PROVIDE ALL CONDUIT, WIRING, AND PROGRAMMING (IF ANY) REQUIRED FOR A COMPLETE AND WORKING SYSTEM.
- LAYOUT SHOWN ON THIS DRAWING IS BASED ON FIELD SURVEY. CONTRACTOR TO VERIFY EXISTING EQUIPMENT AND NOTIFY ENGINEER IF CHANGES TO THE DESIGN ARE REQUIRED.
- SEE CABLE & CONDUIT SCHEDULE ON SHEET E1.
- THE PROP. CHLORINE LEAK DETECTOR'S THREE DETECTORS NOT SHOWN ON THIS DRAWING FOR CLARITY. CONTRACTOR TO PROVIDE & INSTALL ALL COMPONENTS FOR A COMPLETE AND WORKING SYSTEM.
- THE PROP. SO2 LEAK DETECTOR'S THREE DETECTORS NOT SHOWN ON THIS DRAWING FOR CLARITY. CONTRACTOR TO PROVIDE & INSTALL ALL COMPONENTS FOR A COMPLETE AND WORKING SYSTEM.
- REFER TO THE CIVIL PLANS FOR THE CHLORINE AND SO2 CONTROLLERS & ASSOCIATED EQUIPMENT. CONTRACTOR SHALL PROVIDE AND INSTALL ARE REQUIRED CONDUIT AND WIRING TO PROVIDE A COMPLETE AND WORKING SYSTEM. SEE DETAIL ON THIS SHEET FOR TYPICAL CONTROLLER.
- THE PANEL SCHEDULE FOR EXISTING LIGHTING PANEL "LVP1" HAS NOT BEEN VERIFIED. CONTRACTOR SHALL TRACE OUT EXISTING CIRCUITS THAT SERVICE THE EXISTING CHLORINE STORAGE ROOM, THE EXISTING CHLORINATOR ROOM, AND THE EXISTING SO2 ROOM. CONTRACTOR SHALL ADJUST LIGHTING PANEL CIRCUITS TO PROVIDE POWER BASED ON THE CIRCUITS DESCRIBED BELOW:

LVP1-V = PROP. CHLORINE LEAK DETECTOR
LVP1-W = PROP. SO2 LEAK DETECTOR
LVP1-X = PROP. INTAKE FAN & LIGHTS FOR CHLORINE STORAGE ROOM
LVP1-Y = PROP. INTAKE FAN & LIGHT FOR CHLORINATOR ROOM AND PROP. INTAKE FAN & LIGHT FOR SO2 ROOM
LVP1-Z = PROP. RECEPTACLES FOR CHLORINE STORAGE ROOM, CHLORINATOR ROOM, AND SO2 ROOM

CONTRACTOR SHALL REPLACE EXISTING GAS HEATER WITH SIMILAR BtuH RATED 480V/3-PHASE ELECTRIC HEATER WITH MOUNTING BRACKET AND THERMOSTAT (MARKEL PRODUCTS MODEL NO. 5107CAINP3P OR EQUAL).

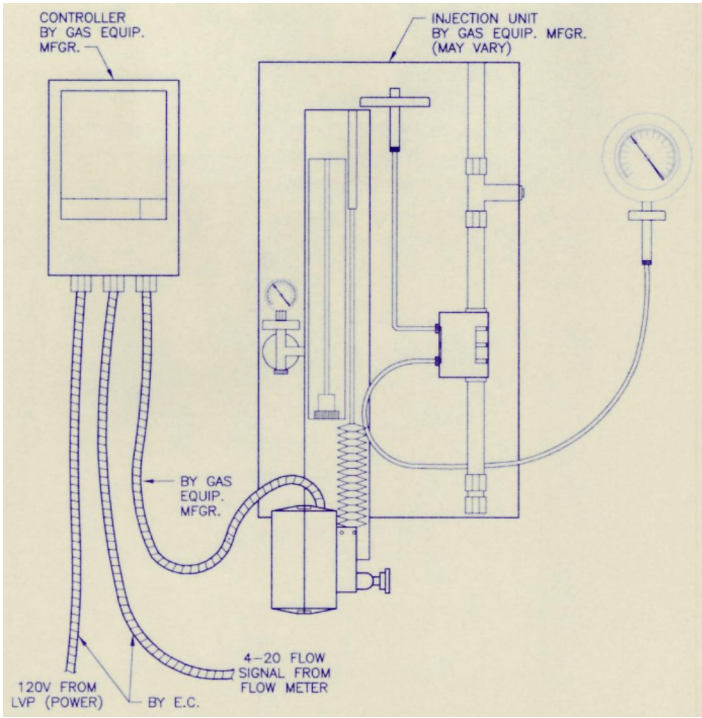
SEAL ALL WALL PENETRATIONS (SEE DETAIL SHEET E2, TYP.)

CONTRACTOR SHALL REPLACE EXISTING METAL INTAKE FAN COVER AND EXISTING INTAKE FAN WITH SIMILAR IN KIND. NEW COVER SHALL BE ALUMINUM WITH A PROP. SHUTTER FAN (ILIVING PART NO. ILG8SF12V OR EQUAL).

PROP. CHLORINE GAS LEAK DETECTOR. CONTRACTOR SHALL INTEGRATE NEW CHLORINE LEAK DETECTION ALARM INTO PROP. ALARM BEACON AND EXISTING ANNUNCIATOR PANEL (NOTE 7).

CONTRACTOR SHALL REPLACE EXISTING RED ALARM LIGHT WITH PROP. RED ALARM BEACON (SEE DETAIL SHEET E2)

CONTRACTOR SHALL REPLACE EXISTING GAS HEATER WITH SIMILAR BtuH RATED 480V/3-PHASE ELECTRIC HEATER WITH MOUNTING BRACKET AND THERMOSTAT (MARKEL PRODUCTS MODEL NO. 5105CAINP3P OR EQUAL).



TYPICAL CHLORINE OR SO2 CONTROLLER DETAIL

N.T.S.

CIVIL ENGINEER:

ADICO
CONSULTING ENGINEERS
2114 EL DORADO BLVD, STE. 400,
FRIENDSWOOD, TX 77546
PHONE: 832-895-1093
WWW.ADICO-LLC.COM
TBPE FIRM NO. 16423

BENCHMARK:

FLOODPLAIN:

CITY OF LA MARQUE
WWTP REHABILITATION
HEADWORKS AND CHEMICAL
STORAGE

2701 B WOODLAND STREET
LA MARQUE, TEXAS 77568

ARCHER ENGINEERING, LLC
TBPE FIRM NO. F-12831

INTERIM REVIEW
Not to be used for construction,
bidding or permit purposes.

Engineer: THOMAS ARCHER, P.E.

PE License No.: 104886

Date: 07-07-2025

NO.	DATE	REVISION

PROJECT OWNER:
CITY OF LA MARQUE

PROJECT LOCATION:
WASTEWATER TREATMENT PLANT
2701 B WOODLAND ST
LA MARQUE, TX 77568

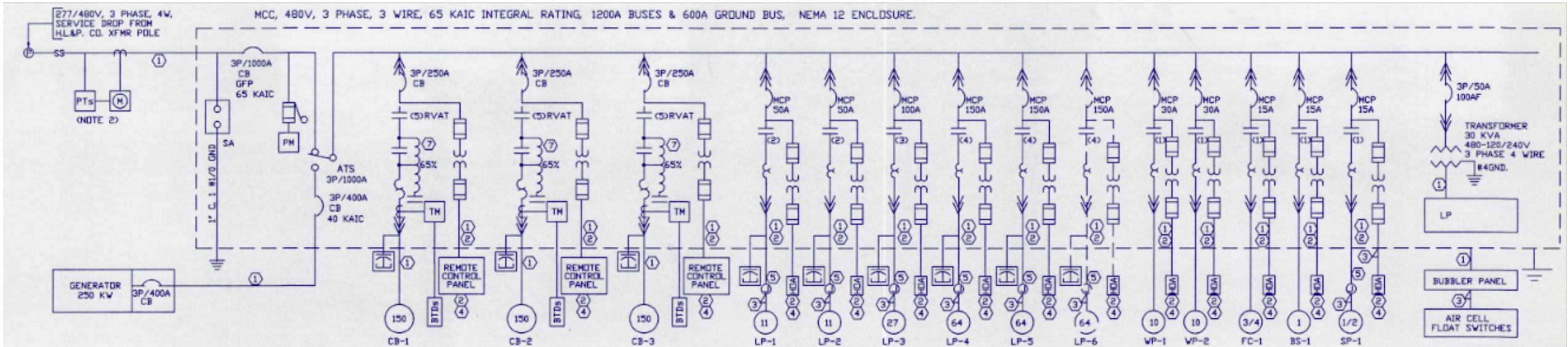
TREATMENT
MODULE NO. 2
CHEMICAL BUILDING
ELECTRICAL PLAN

ALLC PROJECT NO.: 23014-01	SHEET NO.
DRAWN BY: TA	
CHECKED BY:	
DRAWING SCALE:	
HORIZ: AS SHOWN	
VERT: AS SHOWN	
DATE PLOTTED:	

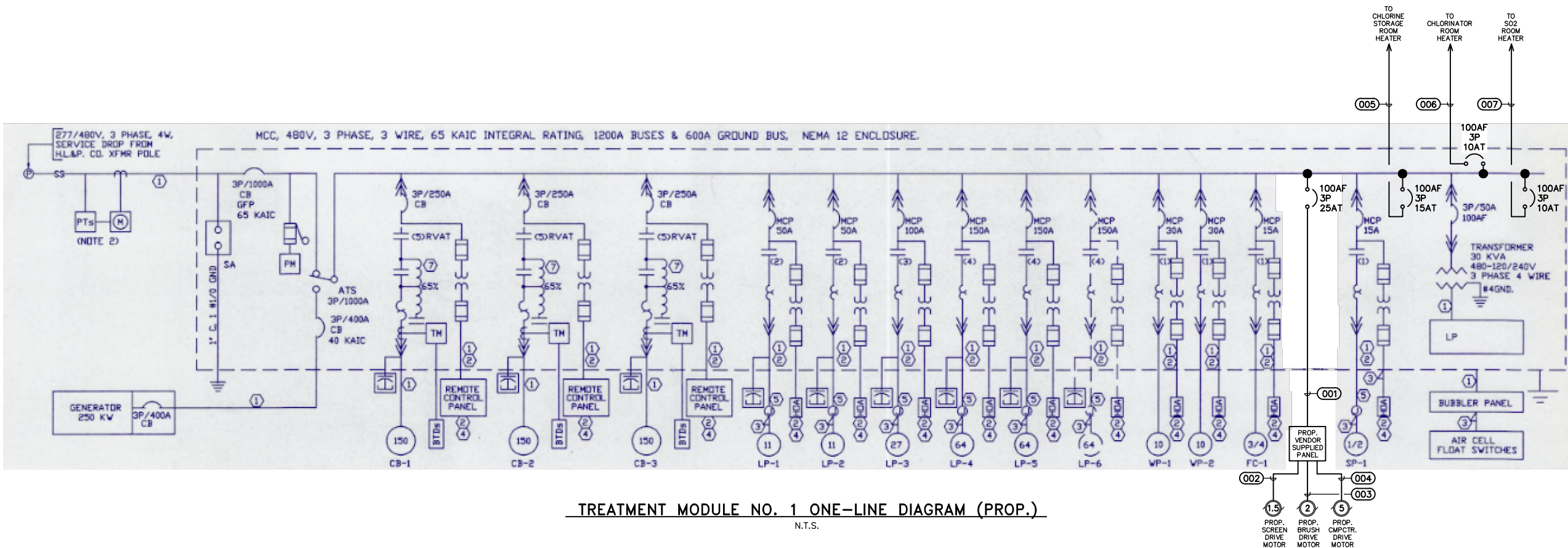
E4

NOTES:

- ONE-LINE DIAGRAM SHOWN ON THIS DRAWING IS BASED ON FIELD SURVEY. CONTRACTOR TO VERIFY EXISTING ARRANGEMENT AND NOTIFY ENGINEER IF CHANGES TO THE DESIGN ARE REQUIRED.
- CONTRACTOR SHALL INCORPORATE THE ALARMS FOR THE NEW MECHANICAL BARSCREEN & COMPACTOR PANEL INTO THE EXISTING WWTP ALARM CIRCUITS. CONTRACTOR SHALL PROVIDE ALL CONDUIT, WIRING, AND PROGRAMMING (IF ANY) REQUIRED FOR A COMPLETE AND WORKING SYSTEM.
- SEE SHEET E7 FOR MODIFICATIONS TO EXISTING MCC ELEVATION.
- SEE CABLE & CONDUIT SCHEDULE ON SHEET E1.



TREATMENT MODULE NO. 1 ONE-LINE DIAGRAM (DEMO)
N.T.S.



TREATMENT MODULE NO. 1 ONE-LINE DIAGRAM (PROP.)
N.T.S.

CIVIL ENGINEER:
ADICO
CONSULTING ENGINEERS
2114 EL DORADO BLVD, STE. 400,
FRIENDSWOOD, TX 77546
PHONE: 832-895-1093
WWW.ADICO-LLC.COM
TBPE FIRM NO. 16423

BENCHMARK:

FLOODPLAIN:

CITY OF LA MARQUE
WWTP REHABILITATION
HEADWORKS AND CHEMICAL
STORAGE
2701 B WOODLAND STREET
LA MARQUE, TEXAS 77568

ARCHER ENGINEERING, LLC
TBPE FIRM NO. F-12831

INTERIM REVIEW
Not to be used for construction,
bidding or permit purposes.
Engineer: THOMAS ARCHER, P.E.
PE License No.: 104886
Date: 07-07-2025

NO.	DATE	REVISION

PROJECT OWNER:
CITY OF LA MARQUE

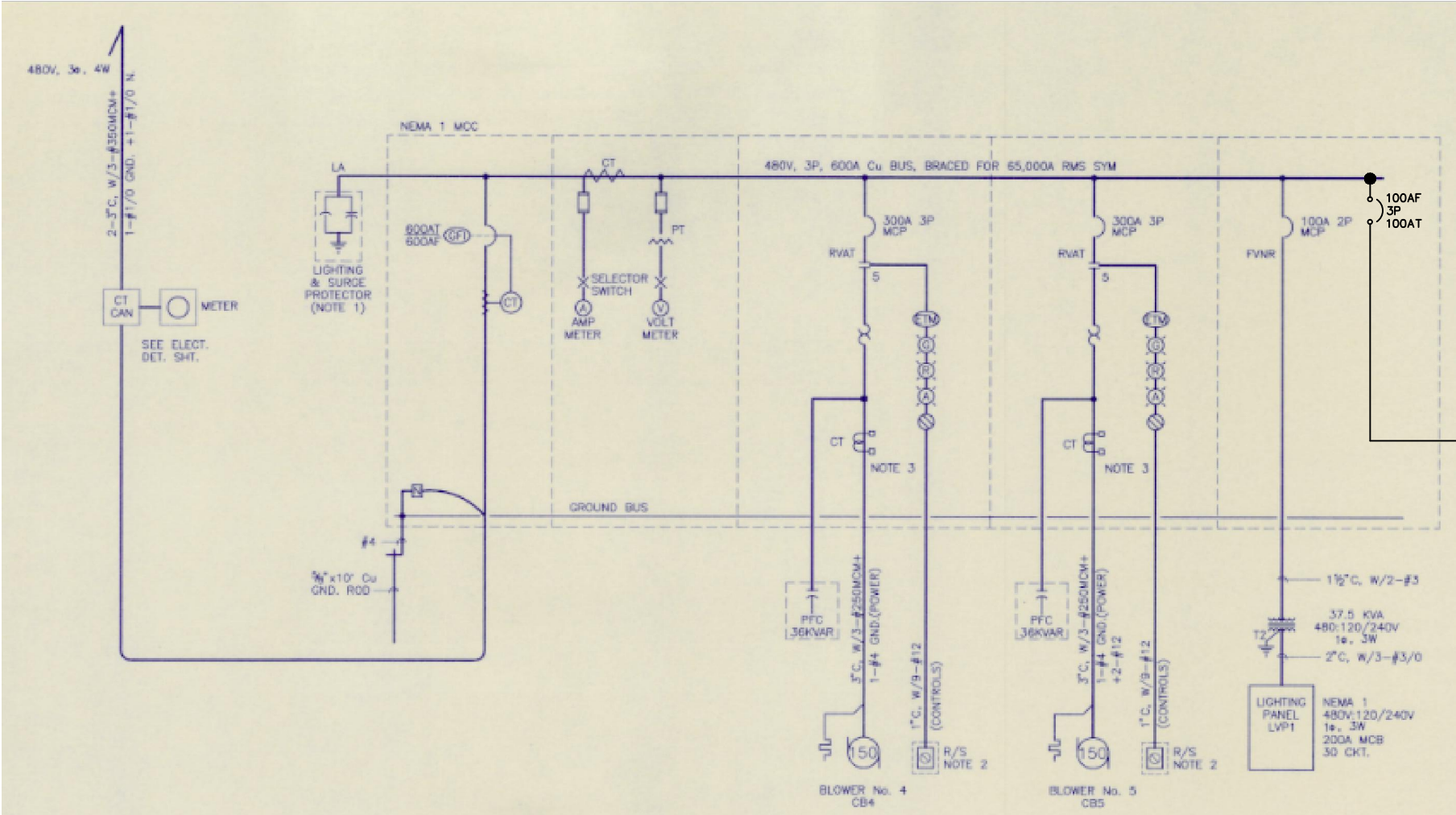
PROJECT LOCATION:
WASTEWATER TREATMENT PLANT
2701 B WOODLAND ST
LA MARQUE, TX 77568

TREATMENT
MODULE NO. 1
ONE-LINE
DIAGRAM

ALIC PROJECT NO.: 23014-01
SHEET NO.:
DRAWN BY: TA
CHECKED BY:
DRAWING SCALE: AS SHOWN
HORIZ: AS SHOWN
VERT: AS SHOWN
DATE PLOTTED:

E5

ARCHER ENGINEERING, LLC
(713) 305-1129
P.O. BOX 219224
HOUSTON, TX 77218
TBPE No. F-12831



- NOTES:**
- ONE-LINE DIAGRAM SHOWN ON THIS DRAWING IS BASED ON FIELD SURVEY. CONTRACTOR TO VERIFY EXISTING ARRANGEMENT AND NOTIFY ENGINEER IF CHANGES TO THE DESIGN ARE REQUIRED.
 - SEE SHEET E7 FOR MODIFICATIONS TO EXISTING MCC ELEVATION.
 - CONTRACTOR SHALL MOUNT PROP. 480V POWER PANEL "PP1" TO THE WALL OPPOSITE OF THE EXISTING MCC.
 - SEE CABLE & CONDUIT SCHEDULE ON SHEET E1.

TREATMENT MODULE NO. 2 ONE-LINE DIAGRAM (PROP.)
N.T.S.

ONE-LINE DIAGRAM LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	MOLDED CASE CIRCUIT BREAKER		PHASE FAILURE RELAY
	COMBINATION "MCP" MOTOR STARTER		ELAPSED TIME METER
	RVAT MOTOR STARTER, CLOSED CIRCUIT TRANSITION		INDICATING LIGHT (COLOR AS NOTED) (L.E.D.)
	HAND-OFF-AUTO SWITCH		SPACE HEATER
	START/STOP HAND STATION		3 PHASE MOTOR (HORSEPOWER NOTED)
	NEUTRAL/GROUND PAD		TRANSFORMER
	GROUND BUS		NON-FUSED DISCONNECT, 3-PHASE
	SYSTEM GROUND		FUSE
			JUNCTION BOX
			CURRENT TRANSFORMER
			SERVICE HEAD

BUS AMPS 125A MLO 125A PANEL PP1											
MAIN BRKR. AMPS - WIRE SIZE #2											
VOLTS 480 A/C -											
PHASE 3 WIRE 3 SN -											
NOTES:											
1. ADJUST CIRCUITS TO BALANCE PANEL.											
2. PANEL SHALL BE LOCATED INSIDE EXISTING TREATMENT MODULE NO. 2 ELECTRICAL ROOM.											
CKT. DESCRIPTION	WIRE	LOAD	BKR.	A	B	C		BKR.	LOAD	WIRE	CKT. DESCRIPTION
CHLORINE STORAGE ROOM HEATER	12	7565	15	1	2	3	4	10	5071	12	CHLORINATOR ROOM HEATER
SPARE	-	-	5	5	6	7	8	10	5071	12	SO2 ROOM HEATER
SPARE	-	-	10	9	10	11	12	10	-	-	SPARE
SPARE	-	-	15	13	14	15	16	20	-	-	SPARE
				17	18	19	20				
				21	22	23	24				

CIVIL ENGINEER:
ADICO
CONSULTING ENGINEERS
2114 EL DORADO BLVD, STE. 400,
FRIENDSWOOD, TX 77546
PHONE: 832-885-1093
WWW.ADICO-LLC.COM
TBPE FIRM NO. 16423

BENCHMARK:

FLOODPLAIN:

CITY OF LA MARQUE
WWTP REHABILITATION
HEADWORKS AND CHEMICAL
STORAGE
2701 B WOODLAND STREET
LA MARQUE, TEXAS 77568

ARCHER ENGINEERING, LLC
TBPE FIRM NO. F-12831
INTERIM REVIEW
Not to be used for construction,
bidding or permit purposes.
Engineer: THOMAS ARCHER, P.E.
PE License No.: 104886
Date: 07-07-2025

NO.	DATE	REVISION

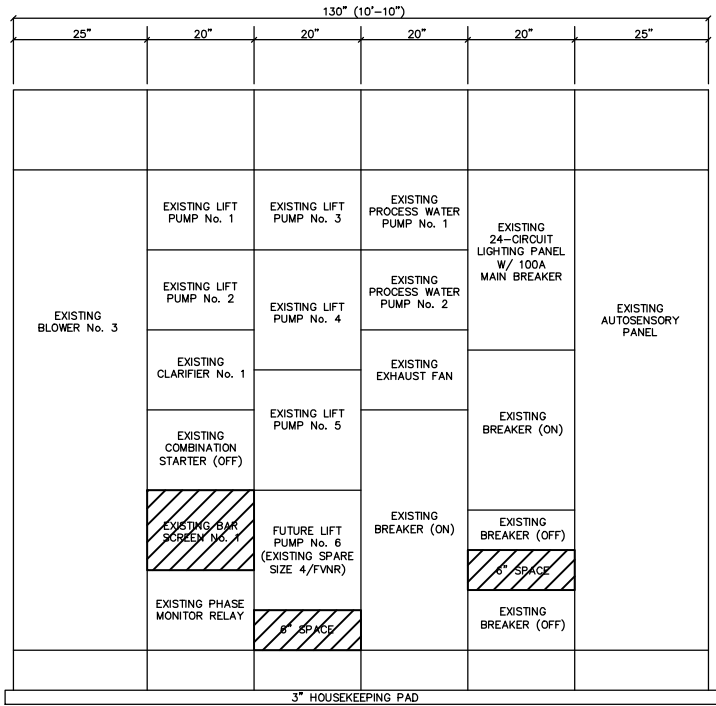
PROJECT OWNER:
CITY OF LA MARQUE

PROJECT LOCATION:
WASTEWATER TREATMENT PLANT
2701 B WOODLAND ST
LA MARQUE, TX 77568

TREATMENT MODULE
NO. 2 ONE-LINE
DIAGRAM

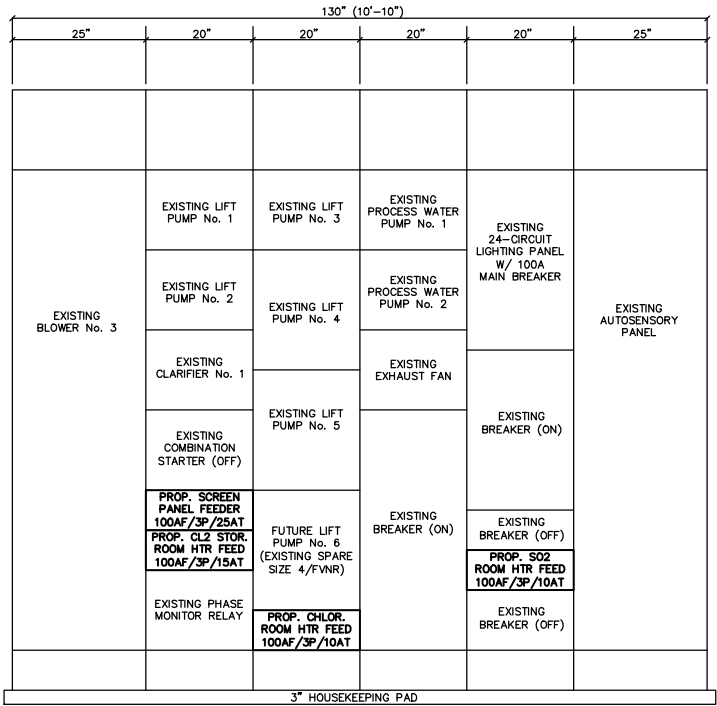
ALLC PROJECT NO.: 23014-01
P.O. BOX 219224
HOUSTON, TX 77218
DRAWN BY: TA
CHECKED BY: -
DRAWING SCALE:
HORIZ: AS SHOWN
VERT: AS SHOWN
DATE PLOTTED: -

SHEET NO.
E6



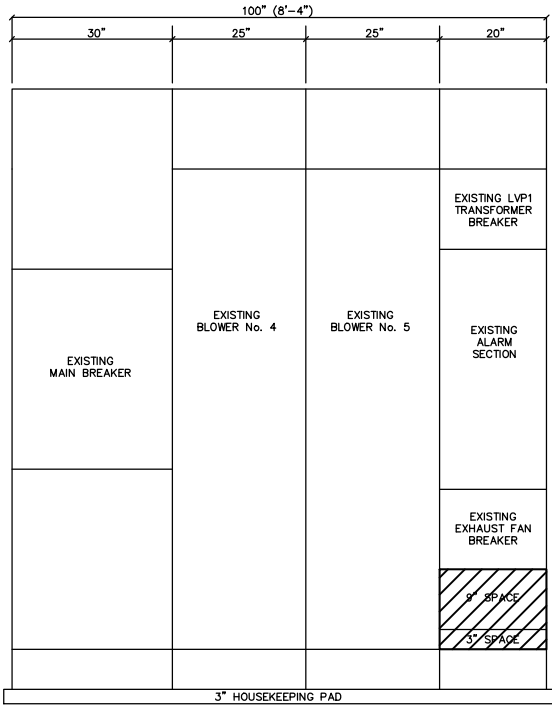
EXISTING TREATMENT MODULE NO. 1
MCC ELEVATION – NORTH WALL (DEMO)

N.T.S.



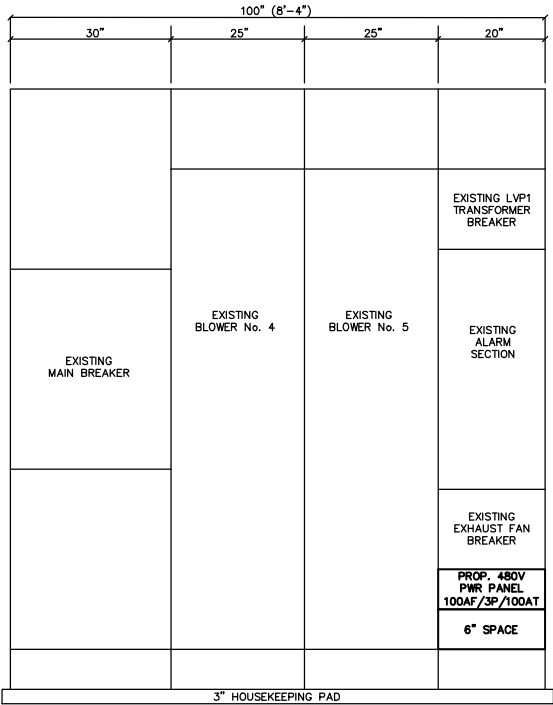
EXISTING TREATMENT MODULE NO. 1
MCC ELEVATION – NORTH WALL (PROP.)

N.T.S.



EXISTING TREATMENT MODULE
NO. 2 MCC ELEVATION (DEMO)

N.T.S.



EXISTING TREATMENT MODULE
NO. 2 MCC ELEVATION (PROP.)

N.T.S.

CIVIL ENGINEER:

ADICO

CONSULTING ENGINEERS

2114 EL DORADO BLVD, STE. 400,
FRIENDSWOOD, TX 77546
PHONE: 832-895-1093
WWW.ADICO-LLC.COM
TBPE FIRM NO. 16423

BENCHMARK:

FLOODPLAIN:

CITY OF LA MARQUE
WWTP REHABILITATION
HEADWORKS AND CHEMICAL
STORAGE

2701 B WOODLAND STREET
LA MARQUE, TEXAS 77568

ARCHER ENGINEERING, LLC
TBPE FIRM NO. F-12831

INTERIM REVIEW
Not to be used for construction,
bidding or permit purposes.

Engineer: THOMAS ARCHER, P.E.

PE License No.: 104886

Date: 07-07-2025

NO.	DATE	REVISION

PROJECT OWNER:
CITY OF LA MARQUE

PROJECT LOCATION:
WASTEWATER TREATMENT PLANT
2701 B WOODLAND ST
LA MARQUE, TX 77568

TREATMENT MODULE
NOS. 1 & 2
MCC ELEVATIONS

ALLC PROJECT NO. 23014-01
DRAWN BY: TA
CHECKED BY: -
DRAWING SCALE:
HORIZ: AS SHOWN
VERT: AS SHOWN
DATE PLOTTED: -

SHEET NO.
E7

ARCHER ENGINEERING, LLC

(713) 305-1129
P.O. BOX 219224
HOUSTON, TX 77218

TBPE No. F-12831

PROJECT MANUAL

FOR

WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE

TO SERVE

CITY OF LA MARQUE
LA MARQUE, TEXAS



ADICO, LLC
TBPE FIRM NO. F-16423

INTERIM REVIEW
Not to be used for construction,
bidding or permit purposes.

Engineer: BRENT BERTHIER, P.E.

PE License No.: 108493

Date: 05-01-25

ADICO PROJECT NO. 23014-01

JULY 2025



TBPE FIRM NO. 16423
205 E Edgewood Drive
Friendswood, TX 77546
(832) 895-1093

**WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE
TO SERVE CITY OF LA MARQUE**

CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS

TABLE OF CONTENTS

I.	INVITATION TO BIDDERS
II.	INSTRUCTIONS TO BIDDERS
III.	BID
IV.	STANDARD FORM OF AGREEMENT
V.	PERFORMANCE BOND
VI.	PAYMENT BOND
VII.	MAINTENANCE BOND
VIII.	CONTRACTOR AFFIDAVIT FOR PARTIAL PAYMENT
IX.	CONTRACTOR AFFIDAVIT FOR FINAL PAYMENT AND BILLS PAID
X.	CONTRACTOR CERTIFICATION OF COMPLETION
XI.	CERTIFICATE OF INSURANCE
XII.	STANDARD GENERAL CONDITIONS
XIII.	SUPPLEMENTARY CONDITIONS
XIV.	TECHNICAL SPECIFICATIONS

**TECHNICAL SPECIFICATIONS
WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE
TO SERVE CITY OF LA MARQUE
ADICO JOB NO. 23014-01**

TECHNICAL SPECIFICATIONS	<u>No. of Pages</u>
DIVISION 1 – GENERAL REQUIREMENTS	
01 010 Summary of Work	1
01 045 Cutting & Patching	3
01 090 Reference Specifications	1
01 100 Storm Water Management	2
01 300 Submittals	2
01 310 Construction Schedules	2
01 370 Schedule of Values	2
01 410 Testing Laboratory Services	3
01 420 Inspection Services	1
01 500 Temporary Facilities and Controls	2
01 570 Traffic Control	2
01 576 Waste Material Disposal	1
01 600 Materials and Equipment	4
01 700 Contract Closeout	3
01 710 Cleaning and Adjusting	2
01 720 Project Record Documents	2
01 782 Operation and Maintenance	1
DIVISION 2 – SITEWORK	
02 110 Demolition	3
DIVISION 5 – METALS	
05 521 Aluminum Handrails	2
DIVISION 9 - FINISHES	
09 878 Protective Coatings for Wastewater Systems	11

DIVISION 11 - EQUIPMENT

11 234	Chlorination/Sulfonation Equipment	7
11 328	Perforated Plate Filter Screen	11
11 329	Screw Wash Press	7

DIVISION 15 - PIPING

15 010	Mechanical General Provisions	2
15 051	Piping and Related Items	8
15 052	Valves and Related Items	8
15 140	Pipe Hangers, Supports, and Restraints	3
15 260	Piping Insulation	2

ELECTRICAL SPECIFICATIONS**DIVISION 16 – ELECTRICAL**

26 05 19	600-Volt Power Cable	7
26 05 25	Instrumentation Cable	5
26 05 26	Grounding and Bonding	6
26 05 27	Grounding	6
26 05 30	Basic Materials and Methods	22
26 05 33	Raceways	6
26 05 34	Device, Pull, and Junction Boxes	3
26 05 35	Conduit, Fittings, and Bodies	7
26 05 43	Underground Duct Banks	3
26 05 44	Underground Ducts and Pull Boxes	5
26 05 53	Electrical Identification	7
26 20 10	Electrical Work	4
26 20 15	Electrical Demolition	3
26 24 16	Panelboards	5
26 24 19	Motor Control Centers (600V or less)	7
26 27 16	Cabinets and Enclosures	3
26 27 26	Wiring Devices	3
26 28 00	Overcurrent Protection Devices	6

26 28 17	Disconnect Switches	3
26 28 20	Disconnect and Circuit Breakers	3

STRUCTURAL SPECIFICATIONS

DIVISION 3 – CONCRETE

03 100	Concrete Formwork	10
03 211	Reinforcing Steel	9
03 310	Structural Concrete	25
03 350	Concrete Finishing	11
03 390	Concrete Curing	4

DIVISION 5 – METALS

05 500	Metal Fabrications	6
--------	--------------------	---

DIVISION 6 – WOODS, PLASTICS, AND COMPOSITES

06 632	Fiberglass Reinforced Grating	4
--------	-------------------------------	---

CITY OF HOUSTON SPECIFICATIONS

02 502	Steel Pipe and Fittings	10
---------------	--------------------------------	-----------

Note: Bold specification sections are included in the “City of Houston Standard Specifications for Wastewater Collections Systems, Water Lines, Storm Drainage, and Street Paving” dated October 2002 and are incorporated herein by reference as if copied verbatim including any supplementary specification or amendments thereto and related specifications referenced therein unless indicated otherwise in the Drawings or Specifications.

Italicized specification sections are included in the “Harris County Public Infrastructure Specifications” and the “Harris County Flood Control Standard Specification Book” dated June 2020 and are incorporated herein by reference as if copied verbatim including any supplementary specification or amendments thereto and related specifications referenced therein unless indicated otherwise in the Drawings or Specifications.

I. INVITATION TO BIDDERS

INVITATION TO BIDDERS

The City of La Marque will receive sealed bids, in duplicate, addressed to City Clerk, City of La Marque, **City Hall, 1111 Bayou Road, La Marque, Texas 77568**, Galveston County, for the construction of **"WWTP REHABILITATION HEADWORKS AND CHEMICAL STORAGE TO SERVE CITY OF LA MARQUE"** until 10:00 A.M., **Wednesday, September 10, 2025**.

BIDS shall be submitted in sealed envelopes and marked in the upper left-hand corner **"WWTP REHABILITATION HEADWORKS AND CHEMICAL STORAGE TO SERVE CITY OF LA MARQUE"**. BIDS received after 10:00 A.M. will be returned unopened.

Bids will be publicly opened and read in person at City of La Marque, **1109-B Bayou Road, La Marque, TX 77568** on **Wednesday, September 10, at 10:15 A.M.**

All BIDS shall be accompanied by a cashier's or certified check upon a national or state bank in the amount of five percent (5%) of the total maximum bid price payable without recourse to the City of La Marque, Texas, or a bid bond in the same amount from a reliable surety company, as a guarantee that bidder will enter into a Contract. The notice of award of Contract shall be given by the Owner within sixty (60) days following the opening of bids. Bid security will be returned to the respective bidders within ten (10) days after bids are opened, except those checks or bonds which the Owner elects to hold until the successful bidder has executed the Contract. Thereafter, the remaining checks, including security of successful bidder, will be returned within five (5) days. Remaining bid bonds will not be returned unless requested by Bidder.

The successful bidder must furnish Performance Bond and Payment Bond upon the forms which are attached hereto in the amount of one hundred percent (100%) of the contract price within 15 days after receipt of the contract documents. Payment and performance bonds shall be issued from sureties with a minimum "A" or "A-" rating from Best's Key Rating Guide and who are licensed by the Texas Department of Insurance to do business in Texas and to issue said bonds. The bonds must be signed by an authorized representative of the surety and licensed by the State Board of Insurance.

Specifications and bidding documents may be secured from Civcast, www.civcastusa.com. Search City of La Marque.

Plans and/or Exhibits and Specifications may be examined at the following location:

City Hall
City of La Marque
1111 Bayou Rd.
La Marque, TX 77568

In conformance with all applicable statutes, the general prevailing wage rates in the locality in which the work is to be performed have been ascertained, and such rates shall be the minimum paid for labor employed upon this project.

The Owner reserves the right to reject any or all bids and to wave informalities in bidding. In case of ambiguity or lack of clearness in stating the prices in any bid, the Owner reserves the right to consider the most advantageous construction thereof, or to reject the bid. The award will be made to the responsible bidder submitting the lowest acceptable bid.

Contractors are urged to make a "good faith effort" to utilize local La Marque businesses for project participants through subcontracts and/or suppliers.

A Non-Mandatory Pre-Bid Conference for prospective bidders, suppliers, etc., will be **held 10:00 A.M. on Wednesday, August 27, 2025** in person at **The City of La Marque Wastewater Treatment Plant, 2701 Woodland Street, La Marque, TX 77568**, in accordance with the Instructions to Bidders.

By submitting a bid, Bidder agrees to promote and actively pursue diversity and inclusion. This may be accomplished by any or all of the following or similar actions: actively contacting historically underutilized businesses beyond what is required by law in order to encourage participation as a subcontractor, requiring subcontractors to agree to this provision or a similar requirement, and promoting diversity and inclusion through organizational values, inclusive hiring practices and employee training. A copy of the Bidder's diversity and including plan should be included in Bidder's proposal as an appendix.

II. INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

1. Defined Terms.

Terms used in these Instructions to Bidders which are defined in the EJCDC Standard General Conditions (1990 Edition) of these Contract Documents have the meanings assigned to them in the General Conditions.

Certain additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof.

1.1. Bidder - one who submits a Bid directly to Owner as distinct from a sub-bidder, who submits a bid to a Bidder.

1.2. Issuing Office - the office from which the Bidding Documents are prepared and where the bidding procedures are to be administered. For this project the issuing office is ADICO Consulting Engineers.

1.3. Successful Bidder - the most qualified, responsible and responsive Bidder to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award.

1.4. Owner - the Owner is understood to be **City of La Marque**. Funding for the project will be provided in accordance with the terms and conditions described in the Special Conditions of Agreement.

2. Copies of Bidding Documents.

2.1. Complete sets of the Bidding Documents, as stated in the Invitation to Bidders, may be obtained from www.civcastusa.com, search: City of La Marque.

2.2. Complete sets of Bidding Documents must be used in preparing Bids; neither Owner nor Engineer assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.3. Owner and Engineer in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

3. Qualifications of Bidders.

To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit within five days after Bid opening, upon Owner's request, detailed written evidence such as financial data, proposed sub-contractors, present commitments, previous experience, equipment lists, evidence of authority to conduct business in the State of Texas and other such data as required to evaluate the Bidder's capability to perform the Work described in the Bidding Documents.

4. Examination of Contract Documents and Site.

4.1. It is the responsibility of each Bidder before submitting a Bid:

4.1.1. To examine thoroughly the Contract Documents and other related data identified in the Bidding Documents (including "technical data" referred to below);

4.1.2. To visit the site to become familiar with and satisfy Bidder as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work;

4.1.3. To consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work;

- 4.1.4. To study and carefully correlate Bidder's knowledge and observations with the Contract Documents and such other related data; and
- 4.1.5. To promptly notify Engineer of all conflicts, errors, ambiguities or discrepancies which Bidder has discovered in or between the Contract Documents and such other related documents.
- 4.2. Reference is made to the Supplementary Conditions for identification of:
- 4.2.1. Those reports of explorations and tests of subsurface conditions at or contiguous to the site which have been utilized by Engineer in preparation of the Contract Documents. Bidder may not rely upon the data, interpretations, opinions or information contained in such reports or otherwise relating to the subsurface conditions at the site, nor upon the completeness thereof for the purposes of bidding or construction.
- 4.2.2. Copies of such subsurface reports will be made available by Owner to any Bidder on request. Those reports are not part of the Contract Documents and are not a warranty of surface or subsurface conditions. Bidder is responsible for any interpretation or conclusion drawn from any "technical data" contained therein. Bidder acknowledges that Owner and Engineer disclaim any responsibility for the accuracy, true location, and extent of the soils, surface, and subsurface investigations that have been prepared by others and disclaim responsibility for Bidder's interpretation of or conclusions or opinions drawn from such reports, e.g., without limitations, projecting soil-bearing values, rock profiles, soil stability and the presence, level and extent of underground water. Bidder is expected to examine the site and such reports and then decide for itself the character of the materials to be encountered.
- 4.3. Information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities or others, and Owner and Engineer do not assume responsibility for the accuracy or completeness thereof or for Bidder's interpretation of or conclusions or opinions drawn from such information and data. The Contractor is advised to coordinate closely with Engineer and Operator prior to the commencement of any underground construction activities. Such information and data is not a part of the Contract Documents and is not a warranty of subsurface conditions.
- 4.4 Before submitting a Bid, each Bidder will be responsible to obtain such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise, which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.
- 4.5 On request, Owner will provide each Bidder access to the site to conduct such examinations, investigations, explorations, tests and studies as each Bidder deems necessary for submission of a Bid. Bidder must fill all holes and clean up and restore the site to its former conditions upon completion of such explorations, investigations, tests and studies.
- 4.6 Reference is made to the Supplementary Conditions for the identification of the general nature of work that is to be performed at the site by the Owner or others (such as utilities and other prime contractors) that relates to the work for which a Bid is to be submitted. On request, Owner will provide, to each Bidder for examination, access to or copies of Contract Documents (other than portions thereof related to price) for such work.
- 4.7 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and applying the specific means, method, techniques, sequences or procedures of construction (if any) that may be shown or indicated or expressly required by the Contract Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities and discrepancies that Bidder has discovered in the Contract Documents and the written resolutions thereof by Engineer is acceptable to Bidder, and that the Contract

Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

5. Availability of Lands for Work, etc.

The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by Contractor in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Contract Documents.

6. Interpretations and Addenda.

6.1. All questions about the meaning or intent of the Bidding Documents are to be directed to Engineer. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda. All parties recorded by the Engineer as having received the Bidding Documents will be called and the addendum will be mailed or transmitted by electronic facsimile. The eligible party has the option to pick up the addendum at the Engineer's Office and sign required documentation list. Questions received less than 72 hours prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

6.2. Addenda may also be issued to modify the Bidding Documents as deemed advisable by Owner or Engineer.

7. Bid Security.

7.1. Each Bid must be accompanied by Bid security made payable to the Owner in the amount of five percent (5%) of the total bid amount and shall be in the form of a cashier's check or bid bond.

7.2. The Bid security of Successful Bidder will be retained until such Bidder has executed the Agreement, furnished the required contract security (as approved by Owner's attorney) and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Agreement and furnish the required contract security within ten days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of the seventh day after the Effective Date of the Agreement or the sixty-first day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned. Bid security with Bids which are not competitive will be returned within seven days after the Bid opening.

8. Contract Times.

The number of days (working days) within which, or the dates by which, the Work is to be completed and ready for final payment are set forth in the Agreement (or incorporated therein by reference to the attached Bid Form).

9. Liquidated Damages.

Provisions for liquidated damages, if any, are set forth in the Agreement.

10. Substitutes and "Or-Equal" Items.

The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or-equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a Substitutes or "or-equal" item of material or equipment may be furnished or

used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement. The procedure for submission of any such application by Contractor and consideration by Engineer is set forth in Paragraphs 6.7.1, 6.7.2 and 6.7.3 of the General Conditions and may be supplemented in the Special Specifications.

11. Subcontractors, Suppliers and Others.

11.1. If the Supplementary Conditions require or if the Owner requests the identity of certain Subcontractors, Suppliers and other persons and organizations (including those who are to furnish the principal items of material and equipment) to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening submit to Owner a list of all such Subcontractors, Suppliers and other persons and organizations proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, person or organization if requested by Owner. An Owner or Engineer who after due investigation has reasonable objection to any proposed Subcontractor, Supplier, other person or organization, may before the Notice of Award is given request apparent Successful Bidder to submit an acceptable substitute without an increase in price.

If apparent Successful Bidder declines to make any such substitution, Owner may award the contract to the next most qualified, responsible, and responsive Bidder that proposes to use acceptable Subcontractors, Suppliers and other persons and organizations. The declining to make requested substitutions will not constitute grounds for sacrificing the Bid security of any Bidder. Any Subcontractor, Supplier, other person or organization listed and to whom Owner or Engineer does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.8.2 of the General Conditions.

11.2. No Contractor shall be required to employ any Subcontractor, Supplier, other person or organization against whom Contractor has reasonable objection.

12. Bid Form.

12.1. The Bid Form is included with the Bidding Documents; additional copies may be obtained from the office of ADICO Consulting Engineers.

12.2. All blanks on the Bid Form must be completed in ink or by typewriter.

12.3. Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature.

12.4. Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.

12.5. All names must be typed or printed in ink below the signature.

12.6. The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which must be filled in on the Bid Form).

12.7. The address and telephone number for communications regarding the Bid must be shown.

12.8. Evidence of authority to conduct business as an out-of-state corporation in the state where the Work is to be performed shall be provided in accordance with Paragraph 3 above. State contractor license number, if any, must also be shown.

12.9. The bid price shall include such amount as the Bidder deems proper for overhead and profit.

12.10 By submitting a bid, Bidder agrees to promote and actively pursue diversity and inclusion. This may be accomplished by any and all of the following or similar actions: actively contacting historically underutilized businesses beyond what is required by law in order to encourage participation as a subcontractor, requiring subcontractors to agree to this provision or a similar requirement, and promoting diversity and inclusion through organizational values, inclusive hiring practices and employee training. A copy of the Bidder's diversity and including plan should be included in Bidder's proposal as an appendix.

13. Submission of Bids.

Bids shall be submitted at the time and place indicated in the Invitation to Bidders and shall be enclosed in an opaque sealed envelope, marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted) and name and address of Bidder and accompanied by the Bid security and other required documents. If the Bid is sent through the mail or other delivery system the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face of it. Bids not received by the time or at the location specified will be returned unopened to the Bidder.

14. Modification and Withdrawal of Bids.

14.1. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

14.2. If, within twenty-four hours after Bids are opened, any Bidder files a duly signed, written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid and the Bid security will be retained by the Owner. Thereafter, that Bidder will be disqualified from further bidding on the Work to be provided under the Contract Documents.

15. Opening of Bids.

Bids will be opened and (unless obviously non-responsive) read aloud publicly at the place where Bids are to be submitted. An abstract of the amounts of the base Bids and major alternates (if any) will be made available to Bidders after the opening of Bids.

16. Bids to Remain Subject to Acceptance.

All Bids will remain subject to acceptance for **sixty (60) days** after the day of the Bid opening, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to that date.

17. Award of Contract.

17.1. Owner reserves the right to reject any or all Bids, including without limitation the rights to reject any or all nonconforming, non-responsive, unbalanced or conditional Bids and to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by Owner. Owner also reserves the right to waive all informalities not involving price, time or changes in the Work and to negotiate contract terms with the Successful Bidder. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

17.2. In evaluating Bids, Owner will consider the proposal of Bidders, compliance with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

17.3. Owner may consider the proposal and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Supplementary Conditions. Owner may also consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.

17.4. Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of Bidders, proposed Subcontractors, Suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.

17.5. If the contract is to be awarded, it will be awarded to the most qualified, responsible, and responsive Bidder whose evaluation by Owner indicates to Owner that the award will be most advantageous to Owner and result in the best and most economical completion of the Project.

17.6. If the contract is to be awarded, Owner will give Successful Bidder a Notice of Award within sixty days after the day of the Bid opening.

18. Contract Security.

Paragraph 5.1 of the General Conditions and the Supplementary Conditions set forth Owner's requirements as to performance and payment Bonds. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by the required performance and payment Bonds.

19. Signing of Agreement.

When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement. Within ten days thereafter Contractor shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner with the required Bonds. Within ten days thereafter Owner shall deliver one fully signed counterpart to Contractor.

20. Mandatory Pre-bid Conference.

A pre-bid conference will be held at the time and place indicated in the Invitation to Bidders. The Invitation to Bidders will indicate whether this pre-bid conference is mandatory or non-mandatory. Representatives of Owner and Engineer will be present to discuss the project. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

21. Retainage.

An amount equal to ten percent of the amount of each monthly estimate (in accordance with current state laws) will be retained by the Owner until final payment under the Contract is approved and a certificate of final completion has been issued for the Work.

22. Permits.

The successful bidder shall be responsible for obtaining all required permits, including, but not limited, to the following:

Permit for construction within existing City of La Marque street right-of-way, as applicable.

23. Locations for Examining Contract Documents.

Bidders may examine the contract documents for these contracts at the office City of La Marque, City Hall, 1111 Bayou Road, La Marque, TX 77568, Ph: 409-938-9202 and at www.civcastusa.com.

24. Workers' Compensation Insurance Coverage.

(A) Definitions

Certificate of coverage ("certificate") - A copy of a certificate of insurance, a certificate of authority to self-insure issued by the Texas Workers' Compensation Commission (the "TWCC"), or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

Duration of the project - includes the time from the beginning of the work on the project until the Contractor's/person's work on the project has been completed and accepted by the governmental entity.

Persons providing services on the project ("subcontractor" in Section 406.096 of the Texas Labor Code) - includes all persons or entities performing all or part of the services the Contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the Contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity or employees of any entity which furnishes persons to provide services on the project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

- (B) The Contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreement, which meets the statutory requirements of Texas Labor Code, §401.011 (44) for all employees of the Contractor providing services on the project, for the duration of the project.
- (C) The Contractor must provide a certificate of coverage to the Owner prior to being awarded the contract.
- (D) If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the Owner, showing that the coverage has been extended.
- (E) The Contractor shall obtain from each person providing services on the project, and provide to the Owner:
 - (1) a certificate of coverage, prior to that person beginning work on the project, so that the Owner will have on file certificates of coverage showing coverage for all persons providing services on the project; and
 - (2) no later than seven days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
- (F) The Contractor shall retain all required certificates of coverage on file for the duration of the project and for one year thereafter;
- (G) The Contractor shall notify the Owner in writing by certified mail or personal delivery, within 10 days after the Contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project;
- (H) The Contractor shall post on each project site a notice, in the text, form and manner prescribed by the TWCC, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify current coverage and report failure to provide coverage.
- (I) The Contractor shall contractually require each person with whom it contracts to provide service on a project to:

- (1) provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code §401.011 (44) for all its employees providing services on the project, for the duration of the project;
 - (2) provide to the Contractor, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;
 - (3) provide the Contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
 - (4) obtain from each other person with whom it contracts, and provide to the Contractor:
 - (a) a certificate of coverage, prior to the other person beginning work on the project; and
 - (b) a new certificate of coverage showing extension of the coverage period, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
 - (5) retain all required certificates of coverage on file for the duration of the project and for one year thereafter;
 - (6) notify the Owner in writing by certified mail or personal delivery, within 10 days after the person knew or should known, of any change that materially affects the provision of coverage of any person providing service on the project; and
 - (7) contractually require each other person with whom it contracts to perform as required by paragraphs (1) - (7), with the certificate of coverage to be provided to the person for whom they are providing services.
- (J) By signing this contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the Owner that all employees of the Contractor who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the TWCC's Division of Self-Insurance Regulation. Providing false or misleading information may subject the Contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.
- (K) The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the Owner to declare the contract void if the Contractor does not remedy the breach within ten days after receipt of notice of breach from the Owner.

25. Sales Tax Exemption.

Owner is exempt from Texas sales and use taxes pursuant to Texas Tax Code § 151.309 as a political subdivision of the State of Texas. Owner shall provide Contractor with a completed Texas Sales and Use Tax Exemption Certification as evidence of the applicability of such exemption and, accordingly, Contractor shall not collect Texas sales and use taxes from Owner with respect to this contract. Contractor and all subcontractors to Contractor shall issue a Texas Sales and Use Tax Exemption Certification with respect to, and shall not pay Texas sales and use taxes on, all purchases of the following items that are exempt from Texas sales and use taxes pursuant to Texas Tax Code § 151.311: (i) tangible personal property that will be incorporated into Owner's realty; (ii) tangible personal property that is necessary and essential for the performance of this contract and is consumed entirely on the job site; and (iii) taxable services for use in the performance of this contract that are performed at the job site and are either integral to the performance of this contract or expressly required to be provided by this contract. In addition, Contractor and all subcontractors to Contractor (i) shall not include any provision for Texas sales and use taxes with respect to such exempt items in any bid or contract amount, and (ii) shall pass on to the Owner cost savings due to the exempt status

of such exempt items. Contractor's contracts with all subcontractors to Contractor shall include the foregoing provision regarding the exemption from Texas Sales and use taxes.

26. Labor Classification and Minimum Wage Scale.

- A. Chapter 2258 of the Texas Government Code provides that any political subdivision of the State of Texas shall determine the general prevailing wage rate received by the classes of workers employed on projects similar to this project and shall specify in the call for bids and in the Contract the applicable minimum wage rates. The statute further provides that the Contractor or Subcontractors shall pay, as a penalty, to the Owner Sixty Dollars (\$60.00) for each worker employed for each calendar day or part of the day that the worker is paid less than the wage rates stipulated in the Contract. The Owner is authorized to withhold from the Contractor the amount due under Contract.

The statute likewise requires that the Contractor and Subcontractors keep an accurate record of the name and occupations of all persons employed by them in the construction of the Project and to show the actual per diem wages paid to each worker. These records are open to the inspection of the Owner.

- B. **Labor Classification and Minimum Wage Scale:** Use the latest edition of City of Houston Prevailing Wage Rates in effect at the time the bids were received.

III. BID

BID
WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE
TO SERVE CITY OF LA MARQUE

City of La Marque, TX

City Hall
1111 Bayou Rd.
La Marque, TX 77568

CONTRACTOR: _____
(Legal Name of Company)

ADDRESS: _____
County: _____

TELEPHONE: _____ FAX: _____

E-MAIL: _____

The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Bid Price and within the Bid Times indicated in this Bid and in accordance with the terms and conditions of the contract Documents.

BIDDER accepts all of the terms and conditions of the Invitation to Bidders and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for **sixty (60) days** after the day of Bid opening. BIDDER will sign and deliver the required number of counterparts of the Agreement with the Bonds and other documents required by the Bidding Requirements within **seven (7) days** after the date of OWNER'S Notice of Award.

In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

BIDDER has examined, carefully studied, and understands all the terms and conditions set forth in the Bidding Documents and the following Addenda receipt of all which are hereby acknowledged:

<u>Addendum No.</u>	<u>Date Received</u>	<u>Acknowledgement</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

BIDDER will complete the Work in accordance with the Contract Documents for the following prices: (see attached bid form.)

BIDDER agrees that the Work will be completed and ready for final payment in accordance with Article 14 of the General Conditions within **270 calendar days** after the date when the Contract Times commences to run. BIDDER accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified in the Agreement.

The prescribed Bid Security in the form of a **Cashier's Check / Bid Bond** is attached to and made a condition of this Bid.

Terms used in this Bid which are defined in the General Conditions or Instructions to Bidders will have the meanings indicated in the General Conditions or Instructions to Bidders.

SUBMITTED on _____, 2025.
State Contractor License No. _____

INDIVIDUAL:

(individual) _____ (Seal)
doing business as _____
Business Address _____
Business Phone _____

PARTNERSHIP:

By (firm) _____ (Seal)
(General Partner) _____
Business Address _____
Business Phone _____

CORPORATION:

By (corp.) _____ (Seal)
State of Incorporation _____
By (person authorized) _____
Title _____

Attest (Secretary) _____
Business Address _____
Business Phone _____
Date of Qualification to do business is _____

JOINT VENTURE:

By (name) _____ (Seal)
Address: _____
By (name) _____ (Seal)
Address: _____

Address & Phone No. for official communications:

IV. STANDARD FORM OF AGREEMENT

**BID PROPOSAL
WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE
TO SERVE
CITY OF LA MARQUE
LA MARQUE, TX 77568
ADICO PROJECT NO. 23014-01**

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
<u>SECTION A - GENERAL</u>					
1.	Mobilization/Payment/ Performance Bonds/Permits & Fees	LS	1	\$ _____	\$ _____
SUBTOTAL SECTION A - GENERAL					\$ _____
<u>SECTION B - DEMOLITION</u>					
2.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items for demolition of influent channel, including offsite disposal, as shown on plans and according to specifications.	LS	1	\$ _____	\$ _____
3.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items for demolition of dumpster pad and sludge drawoff pad, including offsite disposal, as shown on plans and according to specifications.	LS	1	\$ _____	\$ _____
4.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items for removal and replacement of stairs and grating, including offsite disposal, as shown on plans and according to specifications.	LS	1	\$ _____	\$ _____
5.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items for demolition of handrails, including offsite disposal, as shown on plans and according to specifications.	LF	33	\$ _____	\$ _____
6.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items for demolition of manual bar screen, mechanical screen, debris chute, and gates, including offsite disposal, as shown on plans and according to specifications.	LS	1	\$ _____	\$ _____
7.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items for removal and replacement of pedestrian door located in the East and West Chemical Building, including offsite disposal, as shown on plans and according to specifications.	EA	6	\$ _____	\$ _____

**BID PROPOSAL
WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE
TO SERVE
CITY OF LA MARQUE
LA MARQUE, TX 77568
ADICO PROJECT NO. 23014-01**

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
8.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items for removal and replacement of overhead doors located in the the East and West Chemical Storage Building including offsite disposal, as shown on plans and according to specifications.	EA	2	\$ _____	\$ _____
9.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items for demolition of chemical feed equipment, dechlorination feed equipment, ton cylinder scales, and 150 lb cylinder tank scales, including offsite disposal, as shown on plans and according to specifications.	LS	1	\$ _____	\$ _____
10.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items for demolition of lighting, electrical equipment, fans and ventilation equipment in East and West Chemical Storage Building, including offsite disposal, as shown on plans and according to specifications.	LS	1	\$ _____	\$ _____
SUBTOTAL SECTION B - DEMOLITON					\$ _____
<u>SECTION C - HEADWORKS STRUCTURE REHABILITATION</u>					
11.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items for rehabilitation of influent channel, as indicated on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
12.	Provide all supervision, labor, materials, tools, equipment, incidentals and related items to construct dumpster pad and sludge drawoff pad, including drains, piping, and fittings, as indicated on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
13.	Provide all supervision, labor, materials, tools, equipment, incidentals and related items to supply and install Fiberglass Reinforced Plastic (FRP) grating, including grating supports and appurtenances, as indicated on plans and according to specifications, complete in place.	SF	337	\$ _____	\$ _____
14.	Provide all supervision, labor, materials, tools, equipment, incidentals and related items to supply and install aluminium handrails and appurtenances, as indicated on plans and according to specifications, complete in place.	LF	114	\$ _____	\$ _____

**BID PROPOSAL
WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE
TO SERVE
CITY OF LA MARQUE
LA MARQUE, TX 77568
ADICO PROJECT NO. 23014-01**

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
15.	Provide all supervision, labor, materials, tools, equipment, incidentals and related items to supply and install manual bar screen, as indicated on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
16.	Provide all supervision, labor, materials, tools, equipment, incidentals and related items to supply and install mechanical bar screen, washer compactor and appurtenances, as indicated on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
17.	Provide all supervision, labor, materials, tools, equipment, incidentals and related items to supply and install weir gates in manual bar screen and mechanical bar screen screen and appurtenances, as indicated on plans and according to specifications, complete in place.	EA	4	\$ _____	\$ _____
18.	Provide all supervision, labor, materials, tools, equipment, incidentals and related items to supply and install weir gates and appurtenances, as indicated on plans and according to specifications, complete in place.	EA	2	\$ _____	\$ _____
SUBTOTAL SECTION C - HEADWORKS STRUCTURE REHABILITATION					\$ _____

SECTION D - DISINFECTION EQUIPMENT EAST BUILDING

19.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items to supply and install ton cylinder tank scales and chemical feed equipment, as shown on plans and according to specifications, complete in place, for a complete operational system.	LS	1	\$ _____	\$ _____
20.	Provide all supervision, labor, materials, tools, equipment, incidentals and related items to supply and install lighting and electrical equipment, as indicated on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
21.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items to supply and install fans and ventilation equipment, as shown on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
22.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items to supply and install chlorine leak detection equipment, as shown on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
SUBTOTAL SECTION D - DISINFECTION EQUIPMENT EAST BUILDING					\$ _____

**BID PROPOSAL
WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE
TO SERVE
CITY OF LA MARQUE
LA MARQUE, TX 77568
ADICO PROJECT NO. 23014-01**

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
<u>SECTION E - DISINFECTION EQUIPMENT WEST BUILDING</u>					
23.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items to supply and install ton cylinder tank scales and chemical feed equipment, as shown on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
24.	Provide all supervision, labor, materials, tools, equipment, incidentals and related items to supply and install lighting and electrical equipment, as indicated on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
25.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items to supply and install fans and ventilation equipment, as shown on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
26.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items to supply and install chlorine leak detection equipment, as shown on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
SUBTOTAL SECTION E - DISINFECTION EQUIPMENT WEST BUILDING					\$ _____
<u>SECTION F - DECHLORINATION EQUIPMENT EAST BUILDING</u>					
27.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items to supply and install 150 lb tank scales and chemical feed equipment, as shown on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
28.	Provide all supervision, labor, materials, tools, equipment, incidentals and related items to supply and install lighting and electrical equipment, as indicated on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
29.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items to supply and install fans and ventilation equipment, as shown on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
30.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items to supply and install sulfur dioxide leak detection equipment, as shown on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
SUBTOTAL SECTION F - DECHLORINATION EQUIPMENT EAST BUILDING					\$ _____

**BID PROPOSAL
WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE
TO SERVE
CITY OF LA MARQUE
LA MARQUE, TX 77568
ADICO PROJECT NO. 23014-01**

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
<u>SECTION G - DECHLORINATION EQUIPMENT WEST BUILDING</u>					
31.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items to supply and install 150 lb tank scales, as shown on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
32.	Provide all supervision, labor, materials, tools, equipment, incidentals and related items to supply and install lighting and electrical equipment, as indicated on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
33.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items to supply and install fans and ventilation equipment, as shown on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
34.	Provide all supervision, labor, materials, tools, equipment, incidentals, and related items to supply and install sulfur dioxide leak detection equipment, as shown on plans and according to specifications, complete in place.	LS	1	\$ _____	\$ _____
SUBTOTAL SECTION G - DECHLORINATION EQUIPMENT WEST BUILDING					\$ _____
TOTAL BASE BID					\$ _____

BID PROPOSAL
WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE
TO SERVE
CITY OF LA MARQUE
LA MARQUE, TX 77568
ADICO PROJECT NO. 23014-01

BID SUMMARY

SUBTOTAL SECTION A - GENERAL	\$ _____
SUBTOTAL SECTION B - DEMOLITION	\$ _____
SUBTOTAL SECTION C - HEADWORKS STRUCTURE REHABILITATION	\$ _____
SUBTOTAL SECTION D - DISINFECTION EQUIPMENT EAST BUILDING	\$ _____
SUBTOTAL SECTION E - DISINFECTION EQUIPMENT WEST BUILDING	\$ _____
SUBTOTAL SECTION F - DECHLORINATION EQUIPMENT EAST BUILDING	\$ _____
SUBTOTAL SECTION G - DECHLORINATION EQUIPMENT WEST BUILDING	\$ _____
TOTAL BASE BID (A+B+C+D+E+F+G)	\$ _____

**STANDARD FORM OF AGREEMENT
BETWEEN OWNER AND CONTRACTOR**

THIS AGREEMENT is dated as of _____, 2025 by and between **City of La Marque**, (hereinafter called OWNER) and _____, hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK.

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

**WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE
TO SERVE CITY OF LA MARQUE**

Contract Amount: \$ _____

Article 2. ENGINEER.

The project has been designed by Adico, LLC Consulting Engineers, 2114 El Dorado Blvd., Suite 400, Friendswood, Texas 77546 (832-895-1093), who is hereinafter called ENGINEER and who is to act as OWNER'S representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Article 3. CONTRACT TIMES.

The Work will be completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions within **270 calendar days** after the date when the Contract Times commence to run.

OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in the above paragraph, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in ascertaining and proving the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER **Five Hundred Dollars (\$500.00)** for each day that expires after the time specified in the above paragraph for completion and readiness for final payment. OWNER and CONTRACTOR agree that such amount is a reasonable forecast of the damages OWNER will sustain per day that the work remains uncompleted. OWNER shall have the option of deducting the amount of any liquidated damages from any monies that may be owed to CONTRACTOR or to recover such amount from the CONTRACTOR or its Sureties, at CONTRACTOR'S expense.

Article 4. CONTRACT PRICE.

OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to the Bid Proposal and any subsequent change orders thereto.

Article 5. PAYMENT PROCEDURES.

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions and Supplemental Conditions.

OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR'S Applications for Payment as recommended by ENGINEER and in conformance with the procedures described in the General Conditions. All such payments will be measured by the schedule of values established in paragraph 2.07 of the General Conditions (and on the number of units of each bid item completed). Upon final completion and acceptance of the Work in accordance with paragraph 14.07 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.07.

Article 6. CONTRACTOR'S REPRESENTATIONS.

In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

CONTRACTOR has examined and carefully studied the Contract Documents (including the Addenda listed in paragraph 7) and the other related data identified in the Bidding Documents including "technical data".

CONTRACTOR has visited the site and become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, performance or furnishing of the Work.

CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, performance, and furnishing of the Work.

CONTRACTOR has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions. CONTRACTOR acknowledges that such reports and drawings are not Contract Documents, are not a warranty of surface or subsurface conditions, and may not be complete for CONTRACTOR'S purposes. CONTRACTOR acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of the information and data relating to surface or subsurface conditions or with respect to Underground Facilities at or contiguous to the site or CONTRACTOR'S interpretation of such information and data. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all such additional supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance, or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto. CONTRACTOR does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.

CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the site that relates to the Work as indicated in the Contract Documents.

CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

Article 7. CONTRACT DOCUMENTS.

1. This Agreement and Special Conditions of Agreement
2. Exhibits to this Agreement
3. Performance, Payment, and other Bonds identified
4. Invitation to Bidders

5. Instructions to Bidders
6. Notice to Proceed
7. General Conditions
8. Supplementary Conditions
9. Standard and Special Specifications
10. Construction Plans
11. Addenda
12. CONTRACTOR'S Bid
13. Documentation submitted by CONTRACTOR prior to Notice of Award
14. The following which may be delivered or issued after the Effective Date of the Agreement and are not attached thereto: All Written Amendments and other documents amending, modifying or supplementing the Contract Documents pursuant to paragraphs 3.04 of the General Conditions.

There are no Contract Documents other than those listed in this Article. The Contract Documents may only be amended, modified, or supplemented as provided in paragraphs 3.04 of the General Conditions.

Article 8. INDEMNITY PROVISIONS.

THE GENERAL, SPECIAL, AND SUPPLEMENTARY CONDITIONS ATTACHED TO THIS AGREEMENT CONTAIN PROVISIONS THAT MAY RELIEVE ONE PARTY FOR RESPONSIBILITY IT WOULD OTHERWISE HAVE UNDER THE LAW FOR DAMAGES OR OTHER LIABILITY ARISING OUT OF THE WORK.

EACH OF THE PARTIES HERETO SPECIFICALLY AGREES THAT IT HAS A DUTY TO READ THIS AGREEMENT, THE GENERAL, SPECIAL, AND SUPPLEMENTARY CONDITIONS, AND ALL OTHER ATTACHMENTS TO THIS AGREEMENT AND AGREES THAT IT IS CHARGED WITH NOTICE AND KNOWLEDGE OF THE TERMS OF THIS AGREEMENT AND ALL ATTACHMENTS HERETO; THAT IT HAS IN FACT READ THIS AGREEMENT AND ALL ATTACHMENTS HERETO AND IS FULLY INFORMED AND HAS FULL NOTICE AND KNOWLEDGE OF THE TERMS, CONDITIONS AND EFFECTS OF THIS AGREEMENT; THAT IT HAS HAD THE OPPORTUNITY TO BE REPRESENTED BY INDEPENDENT LEGAL COUNSEL OF ITS CHOICE PRECEDING ITS EXECUTION OF THIS AGREEMENT AND HAS RECEIVED OR VOLUNTARILY CHOSEN NOT TO RECEIVE THE ADVICE OF ITS ATTORNEY IN ENTERING INTO THIS AGREEMENT; AND THAT IT RECOGNIZES THAT CERTAIN TERMS OF THIS AGREEMENT AND ALL ATTACHMENTS HERETO RESULT IN ONE PARTY ASSUMING THE LIABILITY INHERENT IN SOME ASPECTS OF THE TRANSACTION AND RELIEVING THE OTHER PARTY OF ITS RESPONSIBILITY FOR SUCH LIABILITY. EACH PARTY HERETO AGREES AND COVENANTS THAT IT WILL NOT CONTEST THE VALIDITY OR ENFORCEMENT OF ANY EXCULPATORY PROVISION OF THIS AGREEMENT, THE GENERAL, SPECIAL, AND SUPPLEMENTARY CONDITIONS, OR ANY OTHER ATTACHMENTS TO THIS AGREEMENT ON THE BASIS THAT THE PARTY HAD NO NOTICE OR KNOWLEDGE OF SUCH PROVISION OR THAT THE PROVISION IS NOT "CONSPICUOUS".

Article 9. MISCELLANEOUS.

Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

No assignment by a party hereto of any rights or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

OWNER and CONTRACTOR each binds itself, its officers, directors, shareholders, partners, successors, assigns, and legal representatives to the other party hereto, its officers, directors, shareholders, partners, successors, assigns and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

Any provision of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

By executing this Agreement, Contractor agrees to promote and actively pursue diversity and inclusion. This may be accomplished by any or all of the following or similar actions: actively contacting historically underutilized businesses beyond what is required by law in order to encourage participation as a subcontractor, requiring subcontractors to agree to this provision or a similar requirement, and promoting diversity and inclusion through organizational values, inclusive hiring practices and employee training. Contractor further agrees to comply with the diversity and inclusion plan submitted with Contractor's bid/proposal documents.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR, and ENGINEER. All portions of the Contract Documents have been signed, initialed or identified by OWNER and CONTRACTOR or identified by ENGINEER on their behalf.

This Agreement will be effective on _____, 2025 (which is the effective date of the Agreement).

OWNER: City of La Marque

By: _____

Attest: _____

Address for giving notices:

CONTRACTOR:

By: _____

(CORPORATE SEAL)

Attest: _____

Address for giving notices:

License No. _____

Agent for service of process: _____

V. PERFORMANCE BOND

PERFORMANCE BOND

STATE OF TEXAS

COUNTY OF _____

KNOW ALL PERSONS BY THESE PRESENTS: That _____ Contractor), of the City of _____, County of _____ and State of Texas, as Principal, and _____, authorized under the Laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto City of La Marque (Owner), in the penal sum of _____ (\$_____) for the payment whereof, the said Principal and Surety bind themselves, and their respective officers, directors, shareholders, partners, heirs, administrators, executors, successors and assigns, jointly and severally, by these presents:

WHEREAS, the Principal has entered into a certain written contract with the Owner, dated the ____ day of _____, 2025, for construction of:

**WWTP REHABILITATION
HEADWORKS AND CHEMICAL STORAGE
TO SERVE CITY OF LA MARQUE**

which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform said Contract and shall in all respects duly and faithfully observe and perform all and singular the covenants, conditions and agreements in and by said contract agreed and covenanted by the Principal to be observed and performed, and according to the true intent and meaning of said Contract and the Documents and the Plans and Specifications related thereto, then this obligation shall be void; otherwise to remain in full force and effect;

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Chapter 2253 of the Texas Government Code as amended and all liabilities on this bond shall be determined in accordance with the provisions of said Statute to the same extent as if it were copied at length herein.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract, or to work performed thereunder, or the plans, specifications, or drawings, accompanying the same, shall in anyway affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract, or the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument ____ day of _____, 2025.

Principal

BY: _____

TITLE: _____

ADDRESS:

Surety

BY: _____

TITLE: _____

PHYSICAL ADDRESS:

MAILING ADDRESS:

TELEPHONE:

**LOCAL RECORDING AGENT
PERSONAL IDENTIFICATION NUMBER:**

The name and address of the Resident Agent of Surety is:

VI. PAYMENT BOND

PAYMENT BOND

STATE OF TEXAS

COUNTY OF _____

KNOW ALL PERSONS BY THESE PRESENTS: That _____ (Contractor), of the City of _____, County of _____, and State of Texas, as Principal, and _____, authorized under the Laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto City of La Marque (Owner), in the penal sum of _____ (\$_____) for the payment whereof, the said Principal and Surety bind themselves, and their respective officers, directors, shareholders, partners, heirs, administrators, executors, successors and assigns, jointly and severally, by these presents:

WHEREAS, the Principal has entered into a certain written contract with the Owner, dated the _____ day of _____, 2025 for construction of:

WWTP REHABILITATION HEADWORKS AND CHEMICAL STORAGE TO SERVE CITY OF LA MARQUE

which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION IS SUCH, that if the said Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of the work provided for in said contract, then, this obligation shall be void; otherwise to remain in full force and effect;

PROVIDED, HOWEVER, That this bond is executed pursuant to the provisions of Chapter 2253 of the Texas Government Code as amended and all liabilities on this bond shall be determined in accordance with the provisions of said Statute to the same extent as if it were copied at length herein.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract, or to work performed thereunder, or the plans, specifications, or drawings, accompanying the same, shall in anyway affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract, or the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument ____ day of _____, 2025.

Principal

Surety

BY: _____

BY: _____

TITLE: _____

TITLE: _____

ADDRESS:

PHYSICAL ADDRESS:

MAILING ADDRESS:

TELEPHONE: _____

**LOCAL RECORDING AGENT
PERSONAL IDENTIFICATION NUMBER:**

The name and address of the Resident Agent of Surety is:

VII. MAINTENANCE BOND

**CITY OF LA MARQUE
MAINTENANCE BOND**

1. The following terms shall have the following meanings in this document:

a. Bond Number: _____

b. Principal: _____

c. Surety:

Name: _____

State Where Surety is Incorporated: _____

d. Oblige(s): _____; and the City of West Columbia, Texas (If the Principal contracted directly with a general contractor rather than with the City of West Columbia, then list that general contractor here. If the Principal contracted directly with the City of West Columbia, then the City of West Columbia is the only Obligee, so leave this line blank.)

If there is more than one Obligee, then the terms "Obligee" and "Obligees" shall mean any and all Obligees hereunder, jointly and severally.

e. Contract: The Contract described as follows:

Date: _____

Parties: Principal and _____

Subdivision involved: _____

General subject matter (e.g. drainage, excavation, grading, paving, utilities, etc.): _____

This description of the subject matter is intended only to identify the Contract and shall not be construed to restrict the scope of the Contract.

f. Bond Amount: \$ _____

g. Maintenance Period:

Starting Date of Maintenance Period: _____

(Fill in **date of completion and acceptance** of the work performed or required to be performed under the Contract.)

Ending Date of Maintenance Period: one year after the Starting Date

h. Covered Defect: Any defect in the work or materials provided or required to be provided by Contractor under the Contract, provided that such defect develops during or before the Maintenance Period, and provided that such defect is caused by defective or inferior materials or workmanship.

2. Principal has entered into the Contract.
3. Principal, as Principal, and Surety, a corporation duly licensed to do business in the State of Texas, as Surety, are held and firmly bound unto Obligees, in the penal sum of the Bond Amount, and we hereby bind ourselves and our heirs, executors, administrators, and assigns, jointly and severally, to the payment of such Bond Amount.
4. The condition of this obligation is that if the Principal shall remedy without cost to the Obligees any Covered Defect, then this obligation shall be null and void; otherwise, this obligation shall be and remain in full force and effect.
5. However, any suit under this bond must be commenced no later than one year after the expiration date of the Maintenance Period.
6. If there is more than Obligees under this bond, then the Bond Amount applies to the Surety's aggregate liability to all Obligees.

DATED: _____

SURETY:

PRINCIPAL:

By: _____
Signature

By: _____
Signature

Print or Type Signer's Name

Print or Type Signer's Name

Signer's Title

Signer's Title

ATTACH POWER OF ATTORNEY

VIII. CONTRACTOR AFFIDAVIT FOR PARTIAL PAYMENT

CONTRACTOR AFFIDAVIT FOR PARTIAL PAYMENT

STATE OF TEXAS §

COUNTY OF _____ §

BEFORE ME, the undersigned authority, on this day personally appeared _____
_____ the _____ of _____
("CONTRACTOR"). CONTRACTOR has performed labor and furnished materials pursuant to that certain
Contract entered into on the _____ day of _____, 2025, by and between
CONTRACTOR and City of La Marque, ("OWNER") for the erection, construction, and completion of certain
improvements and/or additions upon the following described premises, to wit:

WWTP REHABILITATION HEADWORKS AND CHEMICAL STORAGE TO SERVE CITY OF LA MARQUE

The undersigned, being by me duly sworn, states upon oath that the materials supplied in connection with
CONTRACTOR's Application for Partial Payment No. _____, dated _____ (the "Application Date"), represents
the actual cost of sound materials that have been or will be fabricated into the Work in compliance with the agreed to
plans and specifications (and all authorized changes thereto).

The undersigned further states that as of the Application Date, CONTRACTOR has paid all bills and claims
for materials supplied in connection with the aforesaid Partial Payment, and that there are no outstanding unpaid bills
or claims for labor performed or materials furnished.

CONTRACTOR acknowledges complete satisfaction of, and forever waives and releases, all claims of every kind
against OWNER or the property where the labor and/or materials were installed, including, without limitation, any liens
or potential liens, which CONTRACTOR may have as a result of, or in connection with, the labor and/or materials
supplied in connection with the aforesaid Partial payment.

CONTRACTOR represents that the person executing this affidavit on behalf of CONTRACTOR is duly authorized to
sign this affidavit and to legally bind CONTRACTOR hereto. All of the provisions of this affidavit shall bind
CONTRACTOR, its heirs, representatives, successors and assigns and shall inure to the benefit of OWNER, and its
legal representatives, successors, assigns.

This affidavit is being made by the undersigned realizing that it is in reliance upon the truthfulness of the
statements contained herein that a partial payment under said Contract is being made, and in consideration of the
disbursement of said partial payment by OWNER.

CONTRACTOR HEREBY AGREES TO DEFEND, PROTECT, INDEMNIFY AND HOLD OWNER SAFE AND
HARMLESS FROM AND AGAINST ALL LOSSES, DAMAGES, COSTS, AND EXPENSES OF ANY CHARACTER
WHATSOEVER SPECIFICALLY INCLUDING COURT COSTS, BONDING FEES, AND ATTORNEY FEES ARISING
OUT OF OR IN ANY WAY RELATING TO CLAIMS FOR UNPAID LABOR OR MATERIALS FURNISHED AS OF THE
APPLICATION DATE.

Executed this ____ day of _____, 2025.

CONTRACTOR

By: _____

Name Printed: _____

Title: _____

STATE OF TEXAS §

COUNTY OF _____ §

Subscribed and sworn to before me, the undersigned authority, on this the _____ day of _____, 2025, to certify which, witness my hand and seal of office.

Notary Public, State of Texas

Notary's Name Printed:

My commission expires: _____

IX. CONTRACTOR AFFIDAVIT FOR FINAL PAYMENT

CONTRACTOR AFFIDAVIT FOR FINAL PAYMENT AND BILLS PAID

STATE OF TEXAS §

COUNTY OF _____§

BEFORE ME, the undersigned authority, on this day personally appeared _____
the _____ of _____
("CONTRACTOR"), party to that certain Contract entered into on the _____ day of _____,
2025 and City of La Marque ("OWNER") for the erection, construction, and completion of certain improvements and/or
additions upon the following described premises, to wit:

WWTP REHABILITATION HEADWORKS AND CHEMICAL STORAGE TO SERVE CITY OF LA MARQUE

Said party being by me duly sworn states upon oath that the said improvements (and the labor and materials supplied in connection therewith) have been erected and completed in a good and workmanlike manner and in full compliance with the above referred to Contract and the agreed plans and specifications therefore.

CONTRACTOR further states that he has paid in full all bills and claims for materials furnished and labor performed on said Contract and that there are no outstanding unpaid bills or claims for labor performed or materials furnished upon said job.

CONTRACTOR represents that the person executing this affidavit on behalf of CONTRACTOR is duly authorized to sign this affidavit and to legally bind CONTRACTOR hereto. All of the provisions of this affidavit shall bind CONTRACTOR, its heirs, representatives, successors and assigns and shall inure to the benefit of OWNER, and its legal representatives, successors, assigns.

THIS AFFIDAVIT IS BEING MADE BY THE UNDERSIGNED REALIZING THAT IT IS IN RELIANCE UPON THE TRUTHFULNESS OF THE STATEMENTS CONTAINED HEREIN THAT FINAL AND FULL SETTLEMENT OF THE BALANCE DUE ON SAID CONTRACT IS BEING MADE, AND IN CONSIDERATION OF THE DISBURSEMENT OF FUNDS BY OWNER, DEPONENT EXPRESSLY WAIVES AND RELEASES LIENS, CLAIMS, AND RIGHTS TO ASSERT A LIEN ON SAID PREMISES AND AGREES TO DEFEND, PROTECT, INDEMNIFY AND HOLD OWNER SAFE AND HARMLESS FROM AND AGAINST ALL LOSSES, DAMAGES, COSTS, AND EXPENSES OF ANY CHARACTER WHATSOEVER SPECIFICALLY INCLUDING COURT COSTS, BONDING FEES, AND ATTORNEY FEES, ARISING OUT OF OR IN ANY WAY RELATING TO CLAIMS FOR UNPAID LABOR OR MATERIAL USED OR ASSOCIATED WITH CONSTRUCTION OF IMPROVEMENTS ON THE ABOVE-DESCRIBED PREMISES.

CONTRACTOR

By: _____
Name Printed: _____
Title: _____

STATE OF TEXAS §

COUNTY OF _____ §

Subscribed and sworn to before me, the undersigned authority, on this the _____ day of _____ 2025, to certify which, witness my hand and seal of office.

Notary Public, State of Texas

Notary's Name Printed:

My commission expires: _____

**CERTIFICATION OF COMPLETION
(By CONTRACTOR)**

We hereby certify that the Work on the Project **“WWTP REHABILITATION HEADWORKS AND
CHEMICAL STORAGE TO SERVE CITY OF LA MARQUE”** has been completed in substantial compliance
with the PLANS and TECHNICAL SPECIFICATIONS.

CONTRACTOR

By: _____

Title: _____

Date: _____

**CERTIFICATION OF COMPLETION
(By Subcontractor)**

We hereby certify that the (Description of Work Performed) _____

Work performed by us on the Project **“WWTP REHABILITATION HEADWORKS AND CHEMICAL STORAGE TO SERVE CITY OF LA MARQUE”** has been completed in substantial compliance with the PLANS and TECHNICAL SPECIFICATIONS.

Subcontractor's Company Name

By: _____

Title: _____

Date: _____

XI. STANDARD GENERAL CONDITIONS

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by



AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

AMERICAN SOCIETY OF CIVIL ENGINEERS

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
A Practice Division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

Copyright © 2007 National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314-2794
(703) 684-2882
www.nspe.org

American Council of Engineering Companies
1015 15th Street N.W., Washington, DC 20005
(202) 347-7474
www.acec.org

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400
(800) 548-2723
www.asce.org

Associated General Contractors of America
2300 Wilson Boulevard, Suite 400, Arlington, VA 22201-3308
(703) 548-3118
www.agc.org

The copyright for this EJCDC document is owned jointly by the four
EJCDC sponsoring organizations and held in trust for their benefit by NSPE.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

TABLE OF CONTENTS

	Page
Article 1 – Definitions and Terminology	1
1.01 Defined Terms.....	1
1.02 Terminology	5
Article 2 – Preliminary Matters	6
2.01 Delivery of Bonds and Evidence of Insurance	6
2.02 Copies of Documents.....	6
2.03 Commencement of Contract Times; Notice to Proceed.....	6
2.04 Starting the Work	7
2.05 Before Starting Construction	7
2.06 Preconstruction Conference; Designation of Authorized Representatives.....	7
2.07 Initial Acceptance of Schedules.....	7
Article 3 – Contract Documents: Intent, Amending, Reuse	8
3.01 Intent.....	8
3.02 Reference Standards.....	8
3.03 Reporting and Resolving Discrepancies.....	9
3.04 Amending and Supplementing Contract Documents.....	9
3.05 Reuse of Documents	10
3.06 Electronic Data.....	10
Article 4 – Availability of Lands; Subsurface and Physical Conditions; Hazardous Environmental Conditions; Reference Points.....	11
4.01 Availability of Lands.....	11
4.02 Subsurface and Physical Conditions.....	11
4.03 Differing Subsurface or Physical Conditions	12
4.04 Underground Facilities.....	13
4.05 Reference Points.....	14
4.06 Hazardous Environmental Condition at Site	14
Article 5 – Bonds and Insurance.....	16
5.01 Performance, Payment, and Other Bonds.....	16
5.02 Licensed Sureties and Insurers.....	16
5.03 Certificates of Insurance	17
5.04 Contractor’s Insurance	17
5.05 Owner’s Liability Insurance.....	19
5.06 Property Insurance.....	19
5.07 Waiver of Rights	20
5.08 Receipt and Application of Insurance Proceeds	21

5.09	Acceptance of Bonds and Insurance; Option to Replace	21
5.10	Partial Utilization, Acknowledgment of Property Insurer.....	22
Article 6 – Contractor’s Responsibilities		22
6.01	Supervision and Superintendence.....	22
6.02	Labor; Working Hours	22
6.03	Services, Materials, and Equipment	22
6.04	Progress Schedule	23
6.05	Substitutes and “Or-Equals”	23
6.06	Concerning Subcontractors, Suppliers, and Others.....	25
6.07	Patent Fees and Royalties	27
6.08	Permits.....	27
6.09	Laws and Regulations	28
6.10	Taxes	28
6.11	Use of Site and Other Areas.....	28
6.12	Record Documents.....	29
6.13	Safety and Protection	29
6.14	Safety Representative.....	30
6.15	Hazard Communication Programs.....	30
6.16	Emergencies	30
6.17	Shop Drawings and Samples	31
6.18	Continuing the Work.....	32
6.19	Contractor’s General Warranty and Guarantee	33
6.20	Indemnification	33
6.21	Delegation of Professional Design Services.....	34
Article 7 – Other Work at the Site		35
7.01	Related Work at Site	35
7.02	Coordination.....	35
7.03	Legal Relationships.....	36
Article 8 – Owner’s Responsibilities.....		36
8.01	Communications to Contractor.....	36
8.02	Replacement of Engineer.....	36
8.03	Furnish Data	36
8.04	Pay When Due.....	36
8.05	Lands and Easements; Reports and Tests.....	36
8.06	Insurance.....	36
8.07	Change Orders.....	37
8.08	Inspections, Tests, and Approvals	37
8.09	Limitations on Owner’s Responsibilities	37
8.10	Undisclosed Hazardous Environmental Condition	37
8.11	Evidence of Financial Arrangements.....	37
8.12	Compliance with Safety Program.....	37
Article 9 – Engineer’s Status During Construction.....		37
9.01	Owner’s Representative	37

9.02	Visits to Site	37
9.03	Project Representative.....	38
9.04	Authorized Variations in Work	38
9.05	Rejecting Defective Work.....	38
9.06	Shop Drawings, Change Orders and Payments.....	39
9.07	Determinations for Unit Price Work	39
9.08	Decisions on Requirements of Contract Documents and Acceptability of Work	39
9.09	Limitations on Engineer's Authority and Responsibilities	39
9.10	Compliance with Safety Program.....	40
Article 10 –	Changes in the Work; Claims	40
10.01	Authorized Changes in the Work	40
10.02	Unauthorized Changes in the Work.....	41
10.03	Execution of Change Orders.....	41
10.04	Notification to Surety.....	41
10.05	Claims.....	41
Article 11 –	Cost of the Work; Allowances; Unit Price Work	42
11.01	Cost of the Work.....	42
11.02	Allowances	45
11.03	Unit Price Work	45
Article 12 –	Change of Contract Price; Change of Contract Times	46
12.01	Change of Contract Price	46
12.02	Change of Contract Times	47
12.03	Delays	47
Article 13 –	Tests and Inspections; Correction, Removal or Acceptance of Defective Work.....	48
13.01	Notice of Defects.....	48
13.02	Access to Work	48
13.03	Tests and Inspections	49
13.04	Uncovering Work.....	49
13.05	Owner May Stop the Work.....	50
13.06	Correction or Removal of Defective Work	50
13.07	Correction Period	50
13.08	Acceptance of Defective Work.....	51
13.09	Owner May Correct Defective Work	52
Article 14 –	Payments to Contractor and Completion	52
14.01	Schedule of Values.....	52
14.02	Progress Payments	52
14.03	Contractor's Warranty of Title.....	55
14.04	Substantial Completion.....	55
14.05	Partial Utilization	56
14.06	Final Inspection	57
14.07	Final Payment.....	57
14.08	Final Completion Delayed	58

14.09 Waiver of Claims	58
Article 15 – Suspension of Work and Termination	59
15.01 Owner May Suspend Work.....	59
15.02 Owner May Terminate for Cause	59
15.03 Owner May Terminate For Convenience	60
15.04 Contractor May Stop Work or Terminate.....	60
Article 16 – Dispute Resolution	61
16.01 Methods and Procedures	61
Article 17 – Miscellaneous	61
17.01 Giving Notice	61
17.02 Computation of Times	62
17.03 Cumulative Remedies	62
17.04 Survival of Obligations	62
17.05 Controlling Law	62
17.06 Headings	62

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
 7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
 10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
 11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 Terminology

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on

Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

- A. Standards, Specifications, Codes, Laws, and Regulations
 1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
 - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;
2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

1. is of such a nature as to establish that any “technical data” on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
2. is of such a nature as to require a change in the Contract Documents; or
3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer’s Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner’s obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer’s findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor’s cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and

contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

- c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all such information and data;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the

consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also

meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

- a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
 5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:
1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
 2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
 3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
 4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
 5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
 6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors,

members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's

interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and “Or-Equals”*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or-equal” item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
 - 1. “Or-Equal” Items: If in Engineer’s sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an “or-equal” item, in which case review and approval of the proposed item may, in Engineer’s sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
 - 3) it has a proven record of performance and availability of responsive service.
- b. Contractor certifies that, if approved and incorporated into the Work:
- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - 1) shall certify that the proposed substitute item will:
 - a) perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;
 - 2) will state:
 - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
 - b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

- c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
 - 3) will identify:
 - a) all variations of the proposed substitute item from that specified, and
 - b) available engineering, sales, maintenance, repair, and replacement services; and
 - 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 Concerning Subcontractors, Suppliers, and Others

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be

required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.
- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
 - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
 - 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner,

Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

- 1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
- 2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
- 3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought

by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and

shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is

required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

- a. Submit number of Samples specified in the Specifications.
- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:

- a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
- b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
- c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
- d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. Engineer's Review:

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. Resubmittal Procedures:

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 - 1. observations by Engineer;
 - 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 - 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 - 4. use or occupancy of the Work or any part thereof by Owner;
 - 5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
 - 6. any inspection, test, or approval by others; or
 - 7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
1. written notice thereof will be given to Contractor prior to starting any such other work; and
 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 3. the extent of such authority and responsibilities will be provided.

- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

- A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or

continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not

exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
 - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 - 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
 - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data

shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part;
 2. approve the Claim; or
 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of

said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
- 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not

limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:*
 1. Contractor agrees that:
 - a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance:*
 1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to

the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
 - 1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 - 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
 - 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee*: The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or
2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or

neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
 2. correct such defective Work; or
 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.
- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. Applications for Payments:

- 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an

Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. Review of Applications:

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or

- involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
- b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
- a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
 - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due:

- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment:

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or
 - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 Contractor's Warranty of Title

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 Substantial Completion

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before

final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
 - 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and
 - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying

documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due:

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
 1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
 2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's repeated disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
 2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
 3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when

so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
 - 3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 - 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days

to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
 - 1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agrees with the other party to submit the Claim to another dispute resolution process; or
 - 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

- A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

XII. SUPPLEMENTARY CONDITIONS

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (C-700) (2007 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect. To the extent of a conflict between the standard General Conditions and these Supplementary Conditions, these Supplementary Condition Control.

SC-1 The terms used in the Supplementary Conditions which are defined in the Standard General Conditions of the Construction Contract (C-700, 2007 Edition) have the meanings assigned to them in the General Conditions.

SC-2.1 Delete Paragraph 2.01.A of the General Conditions in its entirety and insert the following in its place:

When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds and insurance as CONTRACTOR may be required to furnish in accordance with Article 5, as amended by these Supplementary Conditions.

SC-2.7 Delete Paragraph 2.01.B of the General Conditions in its entirety.

SC-4.2 Contractor shall consult with Engineer for the availability of a geotechnical report.

Contractor may not rely upon the data, interpretations, opinions or information contained in such reports or otherwise relating to the subsurface conditions at the site, nor upon the completeness thereof for the purposes of bidding or construction.

Copies of such subsurface reports will be made available by Owner to Contractor on request. Those reports are not part of the Contract Documents and are not a warranty of surface or subsurface conditions. Contractor is responsible for any interpretation or conclusion drawn from any "technical data" contained therein. Contractor acknowledges that Owner and Engineer disclaim any responsibility for the accuracy, true location, and extent of the soil, surface, and subsurface investigations that have been prepared by others and disclaim responsibility for Contractor's interpretation of or conclusions or opinions drawn from such reports, e.g., without limitation, projecting soil-bearing values, rock profiles, soil stability and the presence, level and extent of underground water. Contractor is expected to examine the site and such reports and then decide for itself the character of the materials to be encountered.

Information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities or others, and Owner and Engineer do not assume responsibility for the accuracy or completeness thereof or for Contractor's interpretation of or conclusions or opinions drawn from such information and data. The Contractor is advised to coordinate closely with Engineer and Operator prior to the commencement of any underground construction activities. Such information and data is not a part of the Contract Documents and is not a warranty of subsurface conditions.

SC-4.4 Delete Paragraph 4.05 of the General Conditions in its entirety and insert the following in its place:

OWNER will supply construction staking to establish both reference points and layout for the project. CONTRACTOR shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations. CONTRACTOR shall give a minimum of two working days notice to the survey company employed by the OWNER when requesting staking services and a minimum of 4 working hours notice to the survey company employed by the OWNER for cancellation of scheduled staking services. The CONTRACTOR will pay for any re-staking charges due to CONTRACTOR'S lack of protection for established survey points, and for any charges resulting from CONTRACTOR'S improper cancellation of scheduled staking services. The OWNER shall have the option to deduct and withhold the amount of any re-staking charges and charges for improper cancellation of scheduled staking services from any monies due to the CONTRACTOR or recover such amount from the CONTRACTOR or the CONTRACTOR'S surety at the CONTRACTOR'S expense.

SC-5.1 Delete Paragraph 5.01 of the General Conditions in its entirety and insert the following in its place:

The successful bidder must submit, within **7 days** after the date of the Owner's Notice of Award, Payment and Performance Bonds on the forms furnished, in the amount of 100% of the total contract price. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by laws or regulations or the Contract Documents. The surety company issuing Payment and Performance Bonds, and a Maintenance Bond (if so required by these Supplementary Conditions), must (a) be authorized to do business in the State of Texas as evidenced by licensing through the State Board of Insurance; (b) be authorized to issue Payment and Performance Bonds, and Maintenance Bonds (if so required by these Supplementary Conditions), in the amount required for the contract as indicated by the records of the State Board of Insurance; (c) for contracts over \$100,000, the surety must also hold a certificate of authority from the United States Secretary of Treasury to qualify as a surety or reinsurer on obligations permitted or required under federal law ("Certificate of Authority") or have obtained reinsurance for any liability in excess of \$100,000 from a reinsurer that is authorized and admitted as a reinsurer in the State of Texas and is the holder of a Certificate of Authority; and (d) have a rating of at least "B+" in the current Best's Key Rating Guide or, if the surety company does not have any such rating due to the length of time it has been a surety company, the surety company must demonstrate eligibility to participate in the surety bond guarantee program of the Small Business Administration and must be an approved surety company listed in the current United States Department of Treasury Circular 570.

If the surety company does not have a rating in Best's Key Rating Guide and is eligible to participate in the surety bond program of the Small Business Administration, the Payment and Performance Bonds, and the Maintenance Bond (if so required by these Supplementary Conditions) issued by such surety, in addition to the criteria set out above, also must meet the criteria contained in the rules and regulations promulgated by the United States Department of Treasury with respect to Performance and Payment Bonds, and Maintenance Bonds (if so required by these Supplementary Conditions), for federal jobs, including specifically the rules related to the underwritten limitation.

The person executing the Payment and Performance Bonds, and the Maintenance Bond (if so required by these Supplementary Conditions), must be licensed as a Texas Local Recording Agent through the State Board of Insurance as required by the laws of the State of Texas and such licensing must be recorded in the files of the State Board of Insurance.

The person executing the Payment and Performance Bonds, and the Maintenance Bond (if so required by these Supplementary Conditions), must hold an appointment from the surety company to execute Payment and Performance Bonds, and the Maintenance Bond (if so required by these Supplementary Conditions), and bind such surety, and such appointment must be recorded in the office of the State Board of Insurance.

SC-5.3.2 Delete Paragraph 5.03.A of the General Conditions in its entirety and insert the following in its place:

CONTRACTOR shall deliver to OWNER, within 7 days after the date of Owner's Notice of Award, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by OWNER or any additional insured) which CONTRACTOR is required to purchase and maintain in accordance with Article 5.

SC-5.4 Delete Paragraph 5.04 of the General Conditions in its entirety and insert the following in its place:

1. INSURANCE.

- a. Procurement. Contractor shall procure and maintain in force and effect during the Work the insurance described in the Contract Documents, procure such endorsements as may be necessary to cause Contractor's insurance to comply with the Contract Documents, and shall obtain such other casualty insurance as Contractor may deem necessary for protection of potential liabilities or Contractor's property. If Contractor fails to procure and maintain in force the insurance required, Owner may, but is not required to, procure the same at Contractor's sole expense. In all events, Contractor shall be liable for all loss caused by its failure to comply with these requirements.

Provision of the required insurance coverages and the actual certificates is a condition precedent to the obligations of Owner under the Contract Documents, and if Contractor shall at any time fail to provide the required insurance coverages, such failure shall constitute a material breach of Contractor's obligations under this Contract.

Contractor agrees to procure and to maintain in full force and effect, at Contractor's sole expense, insurance of the types set forth below, underwritten by insurance companies satisfactory to Owner and having an A.M. Best's Rating of not less than "A- VII":

- i. Workers' Compensation and Employers' Liability. Contractor shall carry statutory Workers' Compensation Insurance covering Contractor's employees in compliance with all requirements of the Texas Workers' Compensation Act, as further described in these Special Conditions below. Contractor shall also carry Employer's Liability Insurance in an amount not less than the following:

Each Accident	\$1,000,000
Each Disease Each Employee	\$1,000,000
Disease Policy Limit	\$1,000,000

- ii. General Liability Insurance. Contractor shall carry general liability insurance on a form no less broad than the coverage provided by a "Commercial General Liability Insurance" form promulgated by the Insurance Services Office, and containing language affording coverage for contractual liability, including Personal and Advertising Injury, the products and completed operations hazards, broad form property damage liability, and the explosion, collapse and underground hazards, as respects all operations and work hereunder, for all liability arising out of injury to or death of one or more persons, and injury to or destruction of property, in any one occurrence, in amounts not less than:

General Aggregate (Limit to apply per project)	\$ 2,000,000
Products Comp/Ops Aggregate	\$ 1,000,000
Personal & Advertising Injury	\$ 1,000,000
Each Occurrence	\$ 1,000,000

- iii. Automobile Liability Insurance. Contractor shall carry Automobile Liability Insurance on a form no less broad than the coverage provided by a Business Automobile Liability Insurance form promulgated by the Insurance Services Office, on all owned or hired autos, as well as non owned autos, in an amount not less than \$1,000,000 combined single limit, for all liability arising out of injury to or death of one or more persons, and injury to or destruction of property, in any one occurrence.
- iv. Excess Liability Insurance. Contractor shall carry Excess Liability Insurance that follows the form of the underlying primary liability insurance required by Sections 1.a.ii and 1.a.iii, in an amount not less than \$2,000,000 per occurrence and \$2,000,000 in the aggregate. Such excess liability insurance shall name Owner and Engineer as additional insureds in accordance with Section 1.b.i, and shall contain language waiving or otherwise relinquishing any "other insurance" limitation or right of contribution by other insurance that may be maintained by Owner or Engineer.
- v. Builder's Risk Insurance. Contractor shall procure Builder's Risk insurance for any projects or work that include above-ground improvements (including without limitation, water well(s), water plants(s), potable and non-potable water pump stations, wastewater treatment plant(s), but not including underground water, sanitary sewer and storm sewer lines) in the amount of the total Contract Price, and shall name Owner and Contractor as insureds, as their respective interests may appear. If Owner elects to request that Contractor obtain Builder's Risk insurance through a broker designated by Owner, then Contractor shall procure such insurance as Owner may direct, and Owner shall reimburse Contractor the actual cost of the difference in premiums, if any, for such insurance without markup and the insurance offered by Contractor. In the event Owner elects to pursue a claim under any applicable Builder's Risk Policy, Contractor shall cooperate with Owner, the insurer, and their agents and representatives in investigating the loss in question or in asserting or substantiating the claim or in investigating the loss in question.
- vi. Pollution Liability. Insurance for preparatory work related to potentially contaminated areas, if required, in the amount required by Owner.
- vii. Crossings. Whenever Work under the Contract involves construction activities that require the Contractor's employees, agents, subcontractors, equipment and/or materials to cross or temporarily occupy railroad, gas or other utility properties and tracks, the Contractor shall secure and maintain in his own name the types of insurance in the minimum amounts as required by owners of such properties issued by companies satisfactory to the Owner and the owner of such properties.

b. Required Endorsements.

- i. Additional Insured. To the fullest extent allowed by applicable Laws and Regulations, Contractor shall name the Indemnified Parties as additional insureds to the same extent as Contractor is required to indemnify the Indemnified Parties pursuant to the Contract Documents. Such additional insured coverage shall be to the full extent of the limits of liability on all policies of liability insurance (other than Worker's Compensation and Employers' Liability insurance) maintained in force or procured by Contractor during the Work, and shall cause such insurance to provide, if necessary by endorsement, that each such policy shall respond as primary insurance and shall not contribute with or apply as excess over any other valid and collectible other insurance that may be maintained by Owner or Engineer. In addition, Contractor shall cause the insurance required by Sections 1.a.ii, 1.a.iii, 1.a.iv and 1.a.v to provide or be endorsed to provide that such insurance applies separately to each insured against whom claim is made or suit is brought.
- ii. Waiver of Subrogation. Inasmuch as Owner and Contractor intend that all of Contractor's insured loss and liabilities fall upon Contractor's insurers, without recourse against the Indemnified Parties, Contractor agrees to cause of all its policies of insurance maintained in force or procured by Contractor during the Work to provide, if necessary by endorsement, that each such insurer fully waives subrogation against Owner and Engineer. The insurance as to which subrogation waiver is required includes, but is not limited to, that required by Sections 1.a.i, 1.a.ii, 1.a.iii, 1.a.iv and 1.a.v. Contractor hereby waives and releases all Claims it may have against the Indemnified Parties to the extent any of such Claims are covered by insurance required to be furnished by Contractor or any Subcontractors hereunder, whether or not Contractor actually obtains such insurance, and EVEN IF SUCH CLAIMS ARISE OUT OF, RELATE TO OR ARE BASED UPON THE NEGLIGENCE, BREACH OF CONTRACT, BREACH OR VIOLATION OF A STATUTE, ORDINANCE, GOVERNMENTAL REGULATION, STANDARD, OR RULE, OR OTHER FAULT, HOWEVER CHARACTERIZED, OR STRICT LIABILITY WITHOUT REGARD TO FAULT, OF AN INDEMNIFIED PARTY.
- iii. Notice of Modification/Cancellation. All policies for which any Indemnified Parties are named insureds or additional insureds shall be endorsed to require the insurer to provide such named insured and additional insureds with at least thirty (30) days prior written notice of any reduction in the limit of liability by endorsement of the policy, cancellation, or non-renewal of the insurance coverage required under this Contract. For policies on which an Indemnified Party is neither a named insured nor an additional insured, Contractor shall provide such Indemnified Party with at least thirty (30) days prior written notice of any reduction in the limit of liability by endorsement of the policy, cancellation, or non-renewal of the insurance coverage required under this Contract.
- iv. Indemnified Parties include:

City of La Marque

- c. Deductibles. Any and all deductibles, or self-insured retentions, of all insurance policies maintained by Contractor, including insurance required hereunder, shall be assumed by, for the account of, and at the Contractor's sole risk and expense, and shall not be billed to or payable by Owner.
- d. Certificates of and Proof of Insurance. Contractor shall furnish Owner with certificates of insurance showing Contractor's procurement of the insurance required hereunder, in compliance with Applicable Laws and Regulations. Contractor agrees to review each certificate, and hereby warrants to Owner the accuracy of all information shown on each Certificate furnished. In addition, Contractor, upon request, shall promptly:
 - i. Permit Owner to inspect the originals of all required insurance at the offices of Contractor or its insurance broker;
 - ii. Provide copies of all required insurance to Owner; and
 - iii. Authorize Owner to communicate directly (by telephone, email, or in person) with Contractor's insurance broker for the purpose of verifying Contractor's compliance with these requirements or to answer questions concerning Contractor's insurance.
- e. Claims-Made Insurance. If the insurance required hereunder is procured on a form affording "claims-made" coverage, then (i) all limits stated above as "per occurrence" shall be understood to mean "per claim" or "per occurrence," as is consistent with the terms of the "claims-made" policy; and, (ii) such claims-made insurance shall not provide for a retroactive date later than the commencement of Contractor's performance hereunder.
- f. Insolvency of Insurer and Reinstatement of Impaired Limits. In the event of the insolvency of any insurer underwriting any insurance required hereunder, Contractor shall replace such insurance with insurance meeting the requirements hereof. In the event that the required aggregate limits of liability of any insurance required hereunder are reduced or impaired by 50% or more, then Contractor shall give Owner prompt notice of the impairment and promptly cause such impaired limits to be reinstated to the required limits.
- g. Subcontractors' Insurance. Contractor shall cause its subcontractors, including all persons hired by Contractor who are not Contractor's employees, who perform any part of the work hereunder, to procure and to maintain in full force and effect insurance of the types and amounts, and meeting the requirements described in Sections 1.a.i, 1.a.ii, 1.a.iii, 1.a.iv and 1.a.v and of 1.b.i and 1.b.ii above. In addition, subcontractors shall comply with Section 1.a.v, if applicable.
- h. Term of Required Insurance. All terms of these insurance requirements shall survive termination of this Contract and shall continue until thirty (30) calendar days after completion of all Work or services to be provided hereunder, including the performance of any warranty work. In addition, Contractor shall maintain in force and effect completed operations coverage under the insurance policies required by paragraphs 1.a.ii and 1.a.iv, and any "claims-made" coverage within paragraph 1.e, for a minimum of two (2) years after Final Completion of all work or services to be provided hereunder. Contractor shall purchase an extended reporting period, or "tail coverage," if necessary to comply with the latter requirement.

- i. No Waiver by Owner. Contractor's failure to provide insurance as required hereunder, or Contractor's failure to supply certificates of insurance that comply with Section 1.d, above, or the failure of Owner to require evidence of insurance or to notify Contractor of any breach by Contractor of the requirements of these provisions, or deficiencies in the insurance obtained, shall not constitute a waiver by Owner of any of the these insurance requirements, or a waiver of any other terms and conditions of this Contract, including Contractor's obligations to defend, indemnify, and hold harmless Owner, as required herein.
- j. Minimum Limits. The foregoing insurance requirements are minimum requirements intended to benefit Owner and Engineer, shall not be interpreted to limit Contractor's liability to Owner in any manner whatsoever; and, are separate from and independent of Contractor's other obligations under this Contract, including Contractor's obligations to defend, indemnify and hold harmless Owner.

2. WORKER'S COMPENSATION INSURANCE COVERAGE.

a. Definitions:

- 1. Certificate of coverage ("certificate")- A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.
 - 2. Duration of the project - includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity.
 - 3. Persons providing services on the project ("subcontractor" in §406.096 of the Texas Labor Code) - includes all persons or entities performing all or part of the services the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.
- b. The contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.
 - c. The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract.
 - d. If the coverage period shown on the contractor's current certificate of coverage ends during the duration of the project, the contractor must, prior to the end of the

coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

- e. The contractor shall obtain from each person providing services on a project, and provide to the governmental entity:
 - 1. a certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and
 - 2. no later than seven days after receipt by the contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.
- f. The contractor shall retain all required certificates of coverage for the duration of the project and for one year thereafter.
- g. The contractor shall notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.
- h. The contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.
- i. The contractor shall contractually require each person with whom it contracts to provide services on a project, to:
 - 1. provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the project, for the duration of the project;
 - 2. provide to the contractor, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;
 - 3. provide the contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
 - 4. obtain from each other person with whom it contracts, and provide to the contractor:
 - a. a certificate of coverage, prior to the other person beginning work on the project; and
 - b. a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

5. retain all required certificates of coverage on file for the duration of the project and for one year thereafter;
 6. notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and
 7. contractually require each person with whom it contracts, to perform as required by paragraphs (1) - (7), with the certificates of coverage to be provided to the person for whom they are providing services.
- j. By signing this contract or providing or causing to be provided a certificate of coverage, the contractor is representing to the governmental entity that all employees of the contractor who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.
 - k. The contractor's failure to comply with any of these provisions is a breach of contract by the contractor which entitles the governmental entity to declare the contract void if the contractor does not remedy the breach within ten days after receipt of notice of breach from the governmental entity.

SC-5.6 Amend the first sentence of Paragraph 5.06 of the General Conditions to read as follows:

CONTRACTOR shall purchase and maintain property insurance upon the Work at the site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

and as so amended the other Paragraphs under Paragraph 5.06 remain in effect.

Add the following language at the end of Paragraph 5.06 of the General Conditions:

The policies of insurance required to be purchased and maintained by CONTRACTOR in accordance with this Paragraph 5.06 shall comply with the requirements of Paragraph 5.08 of the General Conditions.

SC-5.6.1 Delete Paragraph 5.06.1 of the General Conditions in its entirety and insert the following in its place:

include the interests of OWNER, ENGINEER, ENGINEER'S Consultants and any other persons or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

SC-5.7 Delete Paragraph 5.06.B of the General Conditions in its entirety and insert the following in its place:

CONTRACTOR shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations

which will include the interests of OWNER, ENGINEER, ENGINEER's Consultants and any other persons or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

SC-5.8 Delete Paragraph 5.06.C of the General Conditions in its entirety and insert the following in its place:

All policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained by CONTRACTOR in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least thirty days' prior written notice by certified mail from insurance company has been given to OWNER and CONTRACTOR and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

SC-5.9 Delete Paragraph 5.06.D of the General Conditions in its entirety and insert the following in its place:

OWNER shall not be responsible for purchasing and maintaining any property insurance to protect the interests of the CONTRACTOR, Subcontractors or others in the Work to the extent of any deductible amounts. The risk of loss within such deductible amount, will be borne by CONTRACTOR, Subcontractor or others suffering any such loss and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

SC-5.10 Delete Paragraph 5.06.E of the General Conditions in its entirety.

SC-5.11 Amend the heading for Paragraph 5.07 of the General Conditions to read as follows:

Waiver and Release of Rights:

SC-5.11.1 Delete Paragraph 5.07.A of the General Conditions in its entirety and insert the following in its place:

All policies purchased in accordance with Paragraph 5.06 will protect OWNER, ENGINEER, ENGINEER's Consultants and all other persons or entities identified in the Supplementary Conditions to be listed as insured or additional insureds in such policies and will provide primary coverage for all losses and damages caused by the perils thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. CONTRACTOR waives all rights against OWNER, ENGINEER, ENGINEER's Consultants, and their respective officers, directors, employees and agents for all losses and damages caused by, arising out of or resulting from any of the perils covered by such policies and any other property insurance; and, in addition, waives all such rights against ENGINEER, ENGINEER's Consultants and all other persons or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds under such policies for losses and damages so caused.

SC-5.11.2 Amend the first sentence of Paragraph 5.07.B of the General Conditions to read as follows:

In addition, CONTRACTOR waives all rights against OWNER, ENGINEER, ENGINEER's Consultants and the officers, directors, employees and agents of any of them for:

and as so amended the other Paragraphs under Paragraph 5.07.B remain in effect.

Amend the last sentence of Paragraph 5.07.B of the General Conditions to read as follows:

Any insurance policy maintained by CONTRACTOR covering any loss, damage or consequential loss referred to in this paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage or consequential loss the insurers will have no rights of

recovery against any of OWNER, ENGINEER, ENGINEER's Consultants and the officers, directors, employees and agents of any of them.

SC-5.11.2.1 Delete Paragraph 5.07.B.1 of the General Conditions in its entirety and insert the following in its place:

loss due to business interruption, loss of use or other consequential loss extending beyond direct physical loss or damage to any property or the Work caused by, arising out of or resulting from fire or other peril, whether or not insured; and

SC-5.12 Delete Paragraph 5.08.A of the General Conditions in its entirety and insert the following in its place:

Any insured loss under the policies of insurance required by Paragraph 5.06 will be made payable directly to each of the insureds and additional insureds.

SC-5.13 Delete Paragraph 5.08.B of the General Conditions in its entirety.

SC-5.14 Delete Paragraph 5.09.A of the General Conditions in its entirety and insert the following in its place:

If OWNER has any objection to the coverage afforded by or other provisions of the Bonds or insurance required to be purchased and maintained by the CONTRACTOR in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the OWNER party shall so notify the CONTRACTOR in writing within ten days after receipt of the certificates (or other evidence requested) required by Paragraph 2.7. CONTRACTOR shall provide to the OWNER such additional information in respect of insurance provided as the OWNER may reasonably request. If CONTRACTOR does not purchase or maintain all of the Bonds and insurance required by the Contract Documents, CONTRACTOR shall notify OWNER in writing of such failure to purchase prior to execution of the Contract, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the OWNER may elect to obtain equivalent Bonds or insurance to protect OWNER's interests at the expense of the CONTRACTOR who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

SC-5.15 Delete Paragraph 5.09.B of the General Conditions in its entirety.

SC-6.1 Delete the first sentence of Paragraph 6.01.A and substitute the following in lieu thereof:

Contractor shall supervise and direct the Work, using the Contractor's best skill and attention, in a good and workmanlike manner and in the best and most expeditious and economical manner consistent with the interests of the Owner, shall exercise the degree of care, skill and diligence in the performance of the Work in accordance with and consistent with industry standards for similar circumstances, shall utilize its best skill, efforts and judgment in furthering the interests of Owner, and shall furnish efficient business administration and supervision (the Contractor's "Standard of Care").

SC-6.3 Amend the first sentence of Paragraph 6.02.A of the General Conditions to read as follows:

CONTRACTOR shall provide competent, suitably qualified personnel to construct the Work as required by the Contract Documents.

and as so amended Paragraph 6.02.A remains in effect.

SC-6.11 Amend Paragraph 6.06.G to include the following:

CONTRACTOR SHALL AT ITS COST INDEMNIFY, DEFEND, AND SAVE OWNER HARMLESS FROM ALL CLAIMS GROWING OUT OF THE DEMANDS OF PERSONS SUPPLYING LABOR AND/OR MATERIALS FOR THE WORK, AS THOSE TERMS ARE

DEFINED IN CHAPTER 2253 OF THE TEXAS GOVERNMENT CODE. Contractor shall furnish satisfactory evidence that all obligations for labor and materials have been satisfied in the form of an Affidavit of Bills Paid as set forth in these Contract Documents. If Contractor fails to provide an affidavit as to any laborer or supplier, then Owner may, at Owner's option, pay directly any unpaid sums otherwise due to Contractor under this Contract or withhold from Contractor's unpaid compensation a sum of money deemed reasonably sufficient to liquidate any and all claims until satisfactory evidence is furnished that all liabilities have been fully discharged, whereupon payments to Contractor shall be resumed in full in accordance with the terms of this Contract. In no event shall the provisions of this paragraph be construed to impose any obligation upon Owner by either Contractor or its Surety.

SC-6.12 Delete Paragraph 6.07 of the General Conditions in its entirety and insert the following in its place:

INTELLECTUAL PROPERTY RIGHTS AND INDEMNIFICATION

- (A) Contractor shall not furnish or provide to Owner any Materials or Work that infringes a third party's intellectual property rights (whether it be claims of improper use of confidential information, patent infringement, copyright infringement, or the like). Contractor shall not disclose or provide to Owner any information, ideas, concepts, improvements, discoveries, inventions, or forms of expression of ideas which Contractor does not own or otherwise have the right to disclose or provide to Owner.
- (B) Contractor represents and warrants that the Materials and the Work shall be free from third party claims of ownership and that Owner's right to own, use, or otherwise disclose such Materials and Work shall be free from third party claims of infringement of intellectual property rights (whether it be claims of improper use of confidential information, patent infringement, copyright infringement, trademark infringement or the like).
- (C) Contractor represents and warrants to Owner that all information, ideas, concepts, improvements, discoveries, inventions, or forms of expression of ideas disclosed or provided to Owner shall be free from third party claims of ownership and that Owner's right to own, use or otherwise disclose such information, ideas, concepts, improvements, discoveries, inventions, or forms of expression of ideas shall be free from third party claims of infringement of intellectual property rights (whether it be claims of improper use of confidential information, patent infringement, copyright infringement, trademark infringement or the like).
- (D) Contractor represents and warrants that all processes or methods utilized by Contractor to provide its services to Owner are free from infringement of third party intellectual property rights (whether it be claims of improper use of confidential information, patent infringement, copyright infringement, or the like) and that all products provided by Contractor to Owner are free from third party claims of infringement of intellectual property rights, including allegations that the product infringes the claims of the United States process patent in violation of the Process Patents Amendment Act of 1988. Contractor shall cooperate fully and promptly with Owner with respect to any notice of infringement or request for disclosure or response to a request for disclosure generated or received by Owner in connection with Contractor's Work pursuant to the Process Patents Amendment Act of 1988. To the extent that Contractor obtains products from third parties which it intends to provide to Owner, Contractor shall obtain agreements from Contractor's vendors to cooperate in connection with requests for disclosure generated or received by Owner pursuant to the Process Patents Amendment Act of 1988.
- (E) **CONTRACTOR SHALL DEFEND, PROTECT, INDEMNIFY AND HOLD OWNER HARMLESS FROM AND AGAINST ALL LIABILITY, CLAIMS, DEMANDS AND CAUSES OF ACTION BROUGHT BY THIRD PARTIES (AND ALL COSTS, EXPENSES, DAMAGES, LIABILITIES OR JUDGMENTS SUSTAINED OR INCURRED BY OWNER IN CONNECTION THEREWITH, INCLUDING THE COSTS OF INVESTIGATION AND REASONABLE ATTORNEYS FEES) ARISING OUT OF OR RELATING TO: (I) CONTRACTORS BREACH OF ANY REPRESENTATION OR WARRANTY, WHETHER EXPRESS OR IMPLIED, REGARDING INTELLECTUAL PROPERTY RIGHTS; (II)**

ALLEGATIONS THAT OWNER, BY USE OF THE MATERIALS, EQUIPMENT, OR THE WORK, INFRINGES ANY THIRD PARTY'S INTELLECTUAL PROPERTY RIGHTS (WHETHER IT BE CLAIMS OF IMPROPER USE OF CONFIDENTIAL INFORMATION, PATENT INFRINGEMENT, COPYRIGHT INFRINGEMENT, TRADEMARK INFRINGEMENT OR THE LIKE); (III) ALLEGATIONS THAT A THIRD PARTY OWNS INFORMATION, IDEAS, CONCEPTS, IMPROVEMENTS, DISCOVERIES, INVENTIONS, OR FORMS OF EXPRESSION OF IDEAS DESCRIBED OR PROVIDED BY CONTRACTOR TO OWNER; (IV) ALLEGATIONS THAT OWNER'S OWNERSHIP OR USE OF INFORMATION, IDEAS, CONCEPTS, IMPROVEMENTS, DISCOVERIES, INVENTIONS, OR FORMS OF EXPRESSION OF IDEAS DISCLOSED OR PROVIDED BY CONTRACTOR TO OWNER INFRINGE A THIRD PARTY'S INTELLECTUAL PROPERTY RIGHTS; (V) ALLEGATIONS THAT THE PROCESSES UTILIZED BY CONTRACTOR IN PROVIDING ITS SERVICES TO OWNER INFRINGE THIRD PARTY INTELLECTUAL PROPERTY RIGHTS (INCLUDING A VIOLATION OF THE PROCESS PATENTS AMENDMENT ACT OF 1988); OR (VI) THE COSTS AND EXPENSES, INCLUDING REASONABLE ATTORNEY'S FEES INCURRED BY OWNER IN ENFORCING THE INTELLECTUAL PROPERTY INDEMNITY INCLUDED IN THIS PARAGRAPH. THIS CONTRACTUAL OBLIGATION OF INDEMNIFICATION SHALL APPLY EVEN IF THE THIRD PARTY ALLEGES OR ESTABLISHES THAT OWNER WAS PARTIALLY NEGLIGENT OR OTHERWISE AT FAULT (E.G., WITHOUT LIMITATION, THAT OWNER WAS NEGLIGENT IN RETAINING CONTRACTOR'S SERVICES AND ACCEPTING MATERIALS, EQUIPMENT, WORK, INFORMATION, IDEAS, CONCEPTS, IMPROVEMENTS, DISCOVERIES, INVENTIONS, OR FORMS OF EXPRESSION OF IDEAS FROM CONTRACTOR, OR THAT OWNER WAS NEGLIGENT IN FAILING TO ASCERTAIN WHETHER THE MATERIALS, EQUIPMENT, WORK, INFORMATION, IDEAS, CONCEPTS, IMPROVEMENTS, DISCOVERIES, INVENTIONS, OR FORMS OF EXPRESSION OF IDEAS INFRINGED THE RIGHTS OF THIRD PARTIES). IF USE OF ANY PART OF SUCH EQUIPMENT, MATERIAL OR PROCESS IS LIMITED OR PROHIBITED, CONTRACTOR SHALL, AT ITS SOLE EXPENSE, PROCURE THE NECESSARY LICENSES TO USE THE INFRINGING EQUIPMENT, MATERIAL OR PROCESS, OR THE OWNER MAY, AT ITS OPTION, (1) ALLOW THE CONTRACTOR, WITH THE OWNER'S PRIOR WRITTEN APPROVAL, TO REPLACE SAME WITH SUBSTANTIALLY EQUAL BUT NOT INFRINGING EQUIPMENT, MATERIALS OR PROCESSES, OR MODIFY SAME TO BE NONINFRINGING; PROVIDED THAT ANY SUCH SUBSTITUTE OR MODIFIED EQUIPMENT, MATERIALS OR PROCESS SHALL MEET ALL THE REQUIREMENTS AND BE SUBJECT TO ALL THE PROVISIONS OF THIS CONTRACT, PROVIDED THAT SUCH REPLACEMENT OR MODIFICATIONS SHALL NOT MODIFY OR RELIEVE THE CONTRACTOR OF ITS OBLIGATIONS UNDER THIS CONTRACT; OR (2) OWNER MAY CANCEL THE CONTRACT.

SC-6.13 Add the following language at the end of Paragraph 6.08 of the General Conditions:

The Construction Drawings and Special Specifications include a Storm Water Pollution Prevention Plan in accordance with TCEQ requirements. The Contractor shall be responsible for obtaining permit coverage under the TCEQ's Construction Storm Water General Permit for all phases of project construction, and shall be further responsible for all activities necessary to initially meet and thereafter continuously maintain strict compliance with such permit as well as all applicable rules of TCEQ relating to Storm Water discharges (including, but not limited to, implementing the best management practices set forth in the Storm Water Pollution Prevention Plan for this project.

SC-6.14.1 Add the following language at the end of Paragraph 6.08 of the General Conditions:

Chapter 2258 of the Texas Government Code provides that any political subdivision of the State of Texas shall ascertain the general prevailing wage rate received by the classes of workers employed on projects similar to this project and shall specify in the call for bids and in the Contract the minimum wage rates which shall be paid for each type of worker. This statute further provides

that the Contractor or Subcontractors shall pay, as a penalty, to the Owner Sixty Dollars (\$60.00) for each worker employed for each calendar day or part of the day that the worker is paid less than the wage rates stipulated in the Contract. The Owner is authorized to withhold from the Contractor the amount of this penalty from any payment due under the Contract.

The statute likewise requires that the Contractor and subcontractors keep an accurate record of the names and occupations of all persons employed by them in the construction of the Project and to show the actual per diem wages paid to each worker. These records are open to the inspection of the Owner.

The Prevailing Wage Rate Scale that applies to this Contract is attached in the Invitation to Bidders.

SC-6.14.3 Add Paragraph 6.09.D as follows:

Contractor shall at all times observe and comply with federal, state, and local laws, ordinances, and regulations which in any manner affect this Contract of the Work; **INDEMNIFY AND SAVE OWNER HARMLESS AGAINST ANY CLAIM ARISING FROM VIOLATION OF ANY SUCH LAWS OR ORDINANCES WHETHER BY CONTRACTOR, ITS EMPLOYEES, AGENTS, PERMITTEES, OR LICENSEES**; and notify Owner promptly upon discovery of any instance of failure to comply with applicable laws, ordinances, and regulations.

SC-6.15 Add the following language at the end of Paragraph 6.10 of the General Conditions:

Owner is exempt from Texas sales and use taxes pursuant to Texas Tax Code § 151.309 as a political subdivision of the State of Texas. Owner shall provide Contractor with a completed Texas Sales and Use Tax Exemption Certification as evidence of the applicability of such exemption and, accordingly, Contractor shall not collect Texas sales and use taxes from Owner with respect to this contract. Contractor and all subcontractors to Contractor shall issue a Texas Sales and Use Tax Exemption Certification with respect to, and shall not pay Texas sales and use taxes on, all purchases of the following items that are exempt from Texas sales and use taxes pursuant to Texas Tax Code § 151.311: (i) tangible personal property that will be incorporated into Owner's realty; (ii) tangible personal property that is necessary and essential for the performance of this contract and is consumed entirely on the job site; and (iii) taxable services for use in the performance of this contract that are performed at the job site and are either integral to the performance of this contract or expressly required to be provided by this contract. In addition, Contractor and all subcontractors to Contractor (i) shall not include any provision for Texas sales and use taxes with respect to such exempt items in any bid or contract amount, and (ii) shall pass on to the Owner cost savings due to the exempt status of such exempt items. Contractor's contracts with all subcontractors to Contractor shall include the foregoing provision regarding the exemption from Texas Sales and use taxes.

Contractor shall pay, when due, all taxes, fees, and contributions imposed by reason of prosecution of the Work **AND SHALL PROTECT, INDEMNIFY, AND HOLD OWNER HARMLESS FROM LIABILITY RESULTING FROM FAILURE TO MAKE TIMELY PAYMENT OF THESE AMOUNTS AND COMPLY WITH THE REPORTING, FILING, OR OTHER PROCEDURAL REQUIREMENTS WITH RESPECT TO PAYMENT**. Interest, penalties, or other liabilities arising from failure to make payments shall not be reimbursed to Contractor.

SC-6.20 Amend Paragraph 6.13 to include the following:

Contractor shall develop a written safety program, including provisions for trench safety, applicable to the Premises and to the Work, and enforce the safety program to the Work at all

times. Further, Contractor shall comply with all applicable laws and regulations, including but not limited to, the standards and regulations promulgated by the Secretary of Labor under the Occupational Safety and Health Act of 1970 (OSHA) and any other legislation enacted for the safety and health of Contractor's employees. Contractor shall have complete and sole responsibility for protecting the safety and health of its employees and subcontractors and all other persons.

Contractor shall notify Owner, by telephone with prompt confirmation in writing, of lost time injuries and fatalities that occur on the Premises in connection with any work being performed under this Contract and shall provide Owner with reports of injuries and fatalities as Owner shall deem necessary, including, but not limited to, copies of all reports or other documents filed or provided in connection with injuries or fatalities to Surety or Contractor's insurers or the State of Texas.

No provision on this paragraph shall be interpreted as enlarging any legal duty the Owner may have to Contractor or to Contractor's agents, employees, subcontractors, or third parties, or as altering the status of Contractor as an independent contractor.

The Contractor shall include sufficient compensation in his bid for trench and project safety systems in accordance with all applicable local, state, and federal law, including, but not limited to, OSHA and all proposed OSHA rules and regulations published in the Federal Register related to trench and project safety systems if such are more stringent than rules and regulations of official record. All trench and project safety systems shall be designed by the Contractor's Registered Professional Engineer. The Contractor's Registered Professional Engineer shall be registered in the State of Texas.

The Construction Drawings, prepared by ADICO Consulting Engineers, do not extend to or include designs or systems pertaining to the safety of the Contractor or its employees, agents or representatives in the performance of the Work. The seal of ADICO Consulting Engineer's Registered Professional Engineer(s) on the BID DOCUMENTS AND SPECIFICATIONS OR CONSTRUCTION DRAWINGS or any written explanatory matter thereof, as prepared by ADICO Consulting Engineers does not extend to any such trench or project safety systems that may be necessary in the Contractor's completion of the Work.

THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND ENGINEER AND THEIR RESPECTIVE OFFICERS, DIRECTORS, EMPLOYEES, CONSULTANTS AND AGENTS FROM ANY AND ALL DAMAGES, COSTS (INCLUDING WITHOUT LIMITATIONS, LEGAL FEES, COURT COSTS, AND THE COST OF INVESTIGATION), JUDGMENTS OR CLAIMS BY ANYONE FOR PROPERTY DAMAGE, INJURY, OR DEATH TO PERSONS RESULTING FROM THE COLLAPSE OR FAILURE OF TRENCHES CONSTRUCTED UNDER THIS CONTRACT OR THE FAILURE TO PROVIDE SAFETY EQUIPMENT OR SAFETY SYSTEMS UNDER THIS CONTRACT.

CONTRACTOR ACKNOWLEDGES AND AGREES THAT THIS CONTRACTUAL OBLIGATION OF INDEMNIFICATION EXTENDS TO AND COVERS THE OWNER AND ENGINEER AND THEIR RESPECTIVE OFFICERS, DIRECTORS, EMPLOYEES, CONSULTANTS, OR AGENTS NEGLIGENCE (WHETHER SOLE, JOINT, CONCURRENT, OR GROSS), EITHER BY ACT OR OMISSION, WITH RESPECT TO THE CONTRACTOR'S SAFETY EQUIPMENT OR SYSTEMS, OR THE LACK THEREOF, INCLUDING BUT NOT LIMITED TO INSPECTIONS, FAILURE TO ISSUE STOP WORK ORDERS, AND THE HIRING OF THE CONTRACTOR.

THIS CONTRACTUAL OBLIGATION OF INDEMNIFICATION EXTENDS TO THE OWNER AND ENGINEER AND THEIR RESPECTIVE OFFICERS, DIRECTORS, EMPLOYEES, CONSULTANTS, OR AGENTS NEGLIGENCE (WHETHER SOLE, JOINT, CONCURRENT, OR GROSS) WHETHER SUCH NEGLIGENT ACTION OR OMISSION IS SOLE OR CONCURRENT WITH CONTRACTOR AND/OR OTHERS. THIS CONTRACTUAL OBLIGATION OF INDEMNIFICATION SHALL BE SUPPORTED BY CONTRACTUAL LIABILITY INSURANCE

AS SPECIFIED IN THE GENERAL AND SUPPLEMENTARY CONDITIONS OF THE CONTRACT.

SC-6.31 Delete Paragraph 6.20 of the General Conditions in its entirety and insert the following in its place:

To the maximum extent allowed by law, the Contractor shall indemnify and hold harmless the Owner, its board, directors, officers, employees and agents, Engineer and its consultants, directors, officers, agents and employees and Developer and its directors, officers, agents and employees (collectively, the "Indemnitees"), from and against any and all claims, demands, suits, causes of action, settlements, liabilities, costs, expenses, fines, and judgments (including, without limitation, reasonable and necessary court costs, experts' fees and attorney's fees) (collectively, "Losses"), whether arising in equity, at common law, or by statute, including without limitation the Texas Deceptive Trade Practices Act (as amended) or similar statute of other jurisdictions, or under the law of contracts, torts (including, without limitation, negligence and strict liability without regard to fault) or property, of every kind or character (including, without limitation, claims for property damage, personal injury (including without limitation emotional distress), and economic loss), arising in favor of or brought by any of the Contractor's employees, agents, Subcontractors, Suppliers or representatives, or by any governmental agency or any other third party, based upon, in connection with, relating to or arising out of the Work, the Contractor's failure to comply with the Contract Documents, or the Contractor's actions or inactions under the Contract Documents, including without limitation any failure to pay taxes or failure to comply with any applicable law, and **EVEN IF ANY SUCH LOSSES ARE DUE IN PART TO ANY INDEMNITEES' SOLE OR CONCURRENT NEGLIGENCE OR OTHER FAULT, BREACH OF CONTRACT OR WARRANTY, VIOLATION OF STATUTE, OR STRICT LIABILITY WITHOUT REGARD TO FAULT.**

The foregoing indemnification obligation shall apply regardless of the amount of insurance coverage held by the Contractor, including without limitation any such coverage under any worker's compensation act, disability act, or other act or law which would limit the amount or type of damages, compensation, or benefits payable by or for the Contractor, and shall not be limited by any insurance carried or provided by the Contractor in accordance with the Contract Documents or otherwise.

Contractor shall and does hereby waive all causes of action it has for, and releases and forever discharges the Indemnitees from, Losses for injuries (including death) to any person or damage to or destruction of any property sustained or alleged to have been sustained in connection with or arising out of or incidental to the Work.

Contractor shall promptly settle or cause the settlement of all Losses for which it is responsible pursuant to the Contract Documents. Upon becoming aware of facts which may constitute any Loss, Contractor shall immediately notify the Owner of the full particulars thereof, and the Owner may elect, by notice to Contractor, to have its representative accompany Contractor's representative in making settlement of the same.

Contractor agrees and covenants that it will not contest the validity or enforceability of any indemnity or exculpatory provision of this Contract on the basis that it has no notice or knowledge of any such provision or that any such provision is not "conspicuous."

Other provisions in the Contract Documents containing indemnities shall be deemed to be cumulative of and to operate independently of the indemnities provided above such that all indemnities provided in the Contract Documents shall be construed to grant indemnity to the Indemnitees to the fullest extent possible.

SC-6.32 Delete Paragraph 6.21 of the General Conditions in its entirety.

SC-7.1 Related Work at the Site. The following projects either have or will be contracted for in the vicinity of the proposed construction in connection with this contract:

There is no related work at site

SC-8.5 and SC-8.10 Delete Paragraph 8.05 and 8.10 of the General Conditions in their entirety.

SC-9.3 Add the following language at the end of Paragraph 9.20 of the General Conditions:

The ENGINEER will provide a project representative for this project whose responsibilities are outlined in the attached Exhibit XC-A.

In addition to inspection by the OWNER and ENGINEER, the work under this contract will be subject to inspection by Brazoria County, the Brazoria County Drainage District, the City of La Marque, and the Texas Commission on Environmental Quality.

SC-12.2 Add the following language at the end of Paragraph 12.02.B of the General Conditions:

The CONTRACTOR and the OWNER agree that time is of the essence of this contract. The CONTRACTOR and the OWNER agree that a breach of this CONTRACT by failure to complete the Work in the specified time will cause harm to the OWNER, and further agree that the harm the OWNER would sustain and the actual measure of damages the OWNER would incur from the breach are incapable or very difficult of ascertainment. Therefore, the CONTRACTOR and the OWNER agree that for each and every day the work or any portion thereof shall remain uncompleted after the expiration of the time limit set in the Contract, or as extended under the provisions for Extension of Time in Article 12 of this Contract, CONTRACTOR shall be liable to OWNER for liquidated damages in the sum stipulated in the Standard Form of Agreement between OWNER and CONTRACTOR, which sum the parties agree is a reasonable forecast of the damages the OWNER will sustain per day that the work remains uncompleted and in no way constitutes a penalty. The OWNER shall have the option to deduct and withhold the amount of any liquidated damages from any monies that the OWNER owes the CONTRACTOR or to recover such amount from the CONTRACTOR or the Sureties on the CONTRACTOR'S bond at the CONTRACTOR'S expense.

SC-13.4 Add the following language at the end of Paragraph 13.03 of the General Conditions:

CONTRACTOR shall give a minimum of two working days notice to the independent testing laboratory employed by the OWNER when requesting testing services and a minimum of 4 working hours notice to the independent testing laboratory employed by the OWNER for cancellation of scheduled testing services. CONTRACTOR will pay all charges for retesting required due to CONTRACTOR'S failure to pass initial tests, and for charges resulting from CONTRACTOR'S improper cancellation of scheduled testing services. The OWNER shall have the option to deduct and withhold the amount of any retesting charges and charges for improper cancellation of scheduled testing services from any monies due to the CONTRACTOR or recover such amount from the CONTRACTOR or the CONTRACTOR'S Surety at the CONTRACTOR'S expense.

SC-13.12 Amend Paragraph 13.07 of the General Conditions to include the following:

The one-year correction period will commence at the time that the project is at the final completion stage and has been accepted by Brazoria County, the Brazoria County Drainage District, the City of La Marque, the Texas Commission on Environmental Quality, the ENGINEER, and the OWNER.

SC-14.2 Amend Paragraph 14.02.A.1 of the General Conditions to include the following:

The CONTRACTOR shall make arrangements to meet the ENGINEER'S Project Representative at the job site to determine the status of work completed for the project prior to the due date for submittal of each monthly application for payment. The due dates for monthly applications for payment will be determined at the Pre-construction Conference or outlined in the Notice to Proceed. The status of work completed as agreed upon between the ENGINEER'S Project Representative and the CONTRACTOR will be the basis for the application for payment submitted to the ENGINEER'S Project Manager. Deviations from the agreed status of work completed in the application for payment may result in processing delays or disapproval of the estimate. In addition, payment may be delayed until the next payment cycle on applications for payment

received after the prescribed submittal due dates. If the CONTRACTOR believes that an oversight was made in the agreed status of work completed, he should contact the ENGINEER'S Project Manager prior to submitting an application for payment that is not in one hundred percent compliance with the agreed status of work completed. Unless specific approval is granted by the Owner, payment will not be approved for materials delivered and stored at the site but not incorporated in the work.

An amount equal to ten percent of the amount of each monthly estimate will be retained by the OWNER until final payment under the Contract is approved. Applications for payment by the CONTRACTOR shall not include payment for retainage without prior approval of the ENGINEER'S Project Manager.

All monthly applications for payment shall include an Affidavit of Bills Paid and all required Storm Water Pollution Prevention Plan inspection and maintenance reports. Absence of an Affidavit of Bills Paid or any required Storm Water Pollution Prevention Plan inspection and maintenance reports from a monthly application for payment may result in processing delays or disapproval of the estimate.

SC-14.4 Delete Paragraph 14.02.B.1 in entirety and insert the following paragraph:

ENGINEER will, within fifteen days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER, or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application. Thirty days after presentation of the Application for Payment to OWNER with ENGINEER's recommendation, the amount recommended will (subject to the provisions of the last sentence of paragraph 14.02.B.5) become due and when due will be paid by OWNER to CONTRACTOR.

SC-14.11 Amend Paragraph 14.06 of the General Conditions to include the following:

Final inspections will also be conducted by the governments entities listed in SC-9.3. It is intended that all inspections by governmental entities pass on the dates of the inspections. CONTRACTOR shall have crews ready and prepared to remedy any and all problems or deficiencies on the dates of the inspections. The CONTRACTOR will be notified by the ENGINEER as to the dates and times of the inspections immediately upon their being scheduled by each governmental entity.

SC-14.12 Amend Paragraph 14.07.A of the General Conditions to include the following:

The final application for payment shall include consent of surety to release final payment, affidavit of bills paid, waiver and release of liens, contractors warranty, any required O&M manuals, any required Storm Water Pollution Prevention Plan inspection and maintenance reports and record drawings. The final application for payment shall not be submitted for approval until the satisfactory completion of all testing and inspection requirements.

SC-15.2 Delete Paragraph 15.02.A of the General Conditions in its entirety and insert the following in its place:

Upon occurrence of any one or more of the following events:

15.02.1. if CONTRACTOR fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.9 as adjusted from time to time pursuant to paragraph 6.6) seven (7) days after written notification from the OWNER, or the ENGINEER;

15.02.2 if CONTRACTOR continues to disregard Laws and Regulations of any public body having jurisdiction seven (7) days after written notification from the OWNER, ENGINEER, or said public body;

15.02.3 if CONTRACTOR continues to disregard the authority of ENGINEER, or if the CONTRACTOR fails to comply with the orders of the ENGINEER, when such orders are consistent with the Contract Documents, seven (7) days after written notification from the OWNER, or the ENGINEER; or

15.02.4 if CONTRACTOR abandons and fails or refuses to resume work or if CONTRACTOR otherwise continues to violate in any substantial way any provisions of the Contract Documents seven (7) days after written notification from the OWNER, or the ENGINEER;

OWNER may, in the case where performance and payment bonds exist, notify the Surety on these bonds in writing to complete the Work, and a copy of said notice shall be delivered to the CONTRACTOR.

After receiving copy of said notice to Surety to complete the Work, the CONTRACTOR shall be excluded from the site and shall not remove from the site any machinery, equipment, tools, materials or supplies then on the job, but the same, together with any materials and equipment under contract for the Work, may be held for use on the Work by the OWNER or the Surety on the performance bond, or another contractor in completion of the Work; and the CONTRACTOR shall not receive any rental or credit therefor (except when used in connection with Extra Work, where credit shall be allowed as provided for under Paragraph 11), it being understood that the use of such equipment and materials will ultimately reduce the cost to complete the work and be reflected in the final settlement. In any case, CONTRACTOR shall not be entitled to receive any further payments until the Work is finished.

Where there is no performance bond provided or in case the Surety should fail to commence compliance with the notice to complete the Work hereinabove provided for, within seven (7) days after service of such notice, then the OWNER may provide for completion of the work in either of the following elective manners:

- A. The OWNER may thereupon employ such force of men and use such machinery, equipment, tools, materials and supplies as said OWNER may deem necessary to complete the work and charge the expense of such labor, machinery, equipment, tools, materials and supplies to said CONTRACTOR, and expense so charged shall be deducted and paid by the OWNER out of such moneys as may be due, or that may thereafter at any time become due to the CONTRACTOR under and by virtue of this Agreement. In case such expense is less than the sum which would have been payable under this contract, if the same had been completed by the CONTRACTOR, then said CONTRACTOR shall receive the difference. In case such expense is greater than the sum which would have been payable under this contract, if the same had been completed by said CONTRACTOR, then the CONTRACTOR and /or his Surety shall pay the amount of such excess to the OWNER; or
- B. The OWNER under sealed bids, after seven (7) days notice published one or more times in a newspaper having general circulation in the county of the location of the work, may let the contract for the completion of the work under substantially the same terms and conditions which are provided in this contract. In case any increase in cost to the OWNER under the new contract as compared to what would have been the cost under this contract, such increase shall be charged to the CONTRACTOR and the Surety shall be and remain bound therefor. However, should the cost to complete any such new contract prove to be less than what would have been the cost to complete under this contract, the CONTRACTOR and/or his Surety shall be credited therewith.

When the work has been completed the CONTRACTOR and his Surety shall be so notified and Certificates of Completion and Acceptance, as provided in Paragraph 14.07, shall be issued. A

complete itemized statement of the contract account, certified to by the ENGINEER as being correct, shall then be prepared and delivered to the CONTRACTOR and his Surety, whereupon the CONTRACTOR and/or his Surety, or the OWNER as the case may be, shall pay the balance due as reflected by said statement, within thirty (30) days after the date of such Certificate of Completion.

In the event the statement of accounts shows that the cost to complete the Work is less than that which would have been the cost to the OWNER had the Work been completed by the CONTRACTOR under the terms of this contract; or when the CONTRACTOR and/or his Surety pays the balance in full shown to be due by them to the OWNER, then all machinery, equipment, tools, materials or supplies left on the site of the Work shall be turned over to the CONTRACTOR and/or his Surety. Should the cost to complete the Work exceed the contract price, and the CONTRACTOR and/or his Surety fail to pay the amount due the OWNER within the time designated hereinabove, and there remains any machinery, equipment, tools, materials or supplies on the site of the Work, notice thereof, together with an itemized list of such equipment and materials shall be mailed to the CONTRACTOR and his Surety at the respective addresses designated in the contract, provided, however, that actual written notice is given in any manner will satisfy this condition. After mailing, or other giving of such notice, such property shall be held at the risk of the CONTRACTOR and his Surety subject only to the duty of the OWNER to exercise ordinary care to protect such property. After ten (10) days from the date of said notice the OWNER may sell such machinery, equipment, tools, materials or supplies and apply the net sum derived from such sale to the credit of the CONTRACTOR and his Surety. Such sale may be made at either public or private sale, with or without notice, as the OWNER may elect. The OWNER shall release any machinery, equipment, tools, materials, or supplies, which remain on the site of the Work, and belong to persons other than the CONTRACTOR or his Surety, to their proper owners. The books on all operations provided herein shall be open to the CONTRACTOR and his Surety.

Cost by the OWNER to complete the Work as referenced herein, shall include, but not be limited to, all expenses for labor, machinery, equipment, tools, materials, and supplies along with any claims, losses, and damages sustained by OWNER arising out of or resulting from completing the Work.

Such expenses, claims, losses, and damages incurred by OWNER will be reviewed by ENGINEER as to their reasonableness and when so approved by ENGINEER incorporated in a Change Order, provided that when exercising any rights or remedies under this paragraph OWNER will not be required to obtain the lowest price for the Work performed.

SC-17.2.2 Add the following language to the end of Paragraph 17.02 of the General Conditions:

Contract time will be determined based on Calendar Days. A "Calendar Day" is defined as any day including Saturdays, Sundays, or legal holidays, in which weather or other conditions, not under the control of the CONTRACTOR, will permit construction of the principal units of the work for a period of not less than seven hours between 7:00 a.m. and 6:00 p.m.

END OF SUPPLEMENTARY CONDITIONS

**EXHIBIT X-A TO
SUPPLEMENTARY CONDITIONS**

**A LISTING OF THE DUTIES, RESPONSIBILITIES AND
LIMITATIONS OF AUTHORITY OF THE PROJECT REPRESENTATIVE.**

ENGINEER shall furnish a Project Representative (PR) to assist ENGINEER in observing performance of the work of Contractor.

Through more extensive on-site observations of the work in progress and field checks of materials and equipment by the PR, ENGINEER shall endeavor to provide further protection for OWNER against defects and deficiencies in the work of CONTRACTOR; but, the furnishing of such services will not make ENGINEER responsible for or give ENGINEER control over construction means, methods, techniques, sequences or procedures or for safety precautions or programs, or responsibility for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

The duties and responsibilities of the PR are limited to those of ENGINEER in ENGINEER's agreement with the OWNER and in the construction Contract Documents, and are further limited and described as follows:

A. General

PR is ENGINEER's agent at the site, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding PR's actions. PR's dealings in matters pertaining to the on-site work shall in general be with ENGINEER and CONTRACTOR keeping OWNER advised as necessary. PR's dealings with subcontractors shall be only through or with the full knowledge and approval of CONTRACTOR. PR shall generally communicate with OWNER with the knowledge of and under the direction of ENGINEER.

B. Duties and Responsibilities of PR

1. *Conferences and Meetings:* Attend meetings with CONTRACTOR, such as preconstruction conferences, progress meetings, job conferences and other project-related meetings.
2. *Liaison:*
 - a. Serve as ENGINEER's liaison with CONTRACTOR, working principally through CONTRACTOR's superintendent and assist in understanding the intent of the Contract Documents; and assist ENGINEER in serving as OWNER's liaison with CONTRACTOR when CONTRACTOR's operations affect OWNER's on-site operations.
 - b. Assist in obtaining from OWNER additional details or information when directed by Engineer and when required for proper execution of the Work.
3. *Shop Drawings and Samples:* Advise ENGINEER and CONTRACTOR of the commencement of any Work requiring a Shop Drawing or sample if the submittal has not been approved by ENGINEER.

4. *Review of Work, Rejection of Defective Work, Inspections and Tests:*
 - a. Conduct on-site observations of the Work in progress to assist ENGINEER in determining if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Report to ENGINEER whenever PR believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise ENGINEER of Work that PR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
 - c. Verify that tests, equipment and systems startups and operating and maintenance training are conducted in the presence of appropriate personnel, and that CONTRACTOR maintains adequate records thereof; and observe, record and report to ENGINEER appropriate details relative to the test procedures and startups.
 - d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to ENGINEER.
5. *Interpretation of Contract Documents:* Report to ENGINEER when clarifications and interpretations of the Contract Documents are needed and transmit to CONTRACTOR clarifications and interpretations as issued by ENGINEER.
6. *Modifications:* Consider and evaluate CONTRACTOR's suggestions for modifications in Drawings or Specifications and report with PR's recommendations to ENGINEER. Transmit to CONTRACTOR decisions as issued by ENGINEER.
7. *Records:* Maintain a diary or log book that reflects project data required to evaluate change order requests, time extension requests, and changed project conditions. The documentations shall include any significant on-site project meetings, and daily observations to ensure construction conformance with contract documents.
8. *Reports:*
 - a. Furnish ENGINEER periodic reports as required of progress of the Work.
 - b. Consult with ENGINEER in advance of scheduled major tests, inspections or start of important phases of the Work.
 - c. Report immediately to ENGINEER and OWNER upon the occurrence of any accident.
9. *Payment Requests:* Review applications for payment with CONTRACTOR for compliance with the established procedure for their submission and forward with recommendations to ENGINEER, noting particularly the relationship of the payment requested to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.

10. *Completion:*

- a. Before ENGINEER issues a Certificate of Final Completion, submit to CONTRACTOR a list of observed items requiring completion or correction.
- b. Conduct final inspection in the company of OWNER, and CONTRACTOR and prepare a final list of items to be completed or corrected.
- c. Observe that all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance.

C. Limitations of Authority

Project Representative:

1. Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by ENGINEER.
2. Shall not exceed limitations of ENGINEER's authority as set forth in the Agreement or the Contract Documents.
3. Shall not undertake any of the responsibilities of the CONTRACTOR, subcontractors or CONTRACTOR's superintendent.
4. Shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.
5. Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.
6. Shall not authorize OWNER to occupy the Project in whole or in part.
7. Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by ENGINEER.

XIII. TECHNICAL SPECIFICATIONS

SUMMARY OF WORK

1.0 WORK COVERED BY CONTRACT DOCUMENTS

- A. The work of this contract includes the Rehabilitation of the Wastewater Treatment Plant (WWTP) Headworks and Chemical Storage Facilities to serve the City of La Marque, Texas.

2.0 CONTRACTS

- A. Construct the work under a single unit price contract.

3.0 WORK SEQUENCE

- A. Construct the work in stages to provide for district convenience. Do not close off public use of facilities until completion of one stage of construction will provide alternate usage.
- B. Coordinate use of premises under direction of Engineer.
- C. Assume full responsibility for the protection and safekeeping of products under this contract, stored at the site.
- D. Move any stored products under Contractor's control which interfere with operations of the Owner of separate contractor.
- E. Obtain and pay for the use of additional storage or work areas needed for operations.

4.0 OWNER OCCUPANCY

- A. Owner may occupy the premises during the entire period of construction for the conduct of his normal operations. Cooperate with Owner's representative in all construction operations to minimize conflict, and to facilitate Owner usage.
- B. Contractor shall at all times conduct his operations to ensure the least inconvenience to the general public.

END OF SECTION

CUTTING AND PATCHING

1.0 GENERAL

1.01 DESCRIPTION

- A. Contractor shall be responsible for all cutting, fitting and patching, including attendant excavation and backfill, required to complete the work or to:
 - 1. Make its several parts fit together properly.
 - 2. Uncover portions of the work to provide for installation of ill-timed work.
 - 3. Remove and replace defective work.
 - 4. Remove and replace work not conforming to requirements of contract documents.
 - 5. Remove samples of installed work as specified for testing.
 - 6. Provide routine penetrations of nonstructural surfaces for installation of piping and electrical conduit.
- B. Related Requirements in Other Parts of the Project Manual. Basic responsibilities of parties: Condition of the Contract.
- C. Related Requirements Specified in Other Sections.
 - 1. Summary of Work: Division 1 - General Requirements.
 - 2. Earthwork: Division 2 – Site Work
 - 3. Mechanical General Provisions: Division 15 - Mechanical.
 - 4. Electrical General Provisions: Division 16 - Electrical.

1.02 SUBMITTALS

- A. Submit a written request to Engineer well in advance of executing any cutting or alteration which affects:
 - 1. The work of the Owner or any separate Contractor.
 - 2. The structural value or integrity of any element of the project.
 - 3. The integrity of effectiveness of weather-exposed or moisture resistant elements or systems.
 - 4. The efficiency, operational life, maintenance or safety of operational elements.
 - 5. The visual qualities of sight-exposed elements.
- B. The request shall include:

1. Identification of the project.
 2. Description of the affected work.
 3. The necessity for cutting, alteration or excavation.
 4. The effect on the work of the Owner or any separate Contractor, or on the structural or weatherproof integrity of the project.
 5. Description of the proposed work.
 - a. The scope of cutting, patching, alteration, or excavation.
 - b. The trades who will execute the work.
 - c. Products proposed to be used.
 - d. The extent of refinishing to be done.
 6. Alternatives to cutting and patching.
 7. Cost proposal, when applicable.
 8. Written permission of any separate Contractor whose work will be affected.
- C. Should conditions of the work or the schedule indicate a change of products from the original installation, Contractor shall submit a request for substitution as specified in Section 01 600 - Materials and Equipment.
- D. Submit a written notice to Engineer designating the date and the time the work will be uncovered.

2.0 PRODUCTS

Comply with specifications and standards for each specific product involved.

3.0 EXECUTION

3.01 INSPECTION

- A. Inspect existing conditions of the project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering work, inspect the conditions affecting the installation of products or performance of the work.
- C. Report unsatisfactory or questionable conditions to the Architect/Engineer in writing; do not proceed with the work until the Architect/Engineer has provided further instructions.

3.02 PREPARATION

- A. Provide adequate temporary support as necessary to assure the structural value or integrity of the affected portion of the work.
- B. Provide devices and methods to protect other portions of the project from damage.
- C. Provide protection from the elements for that portion of the project which may be exposed by cutting and patching work, and maintain excavations free from water.

3.03 PERFORMANCE

- A. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances and finishes.
- B. Execute cutting, demolition, excavating and backfilling by methods which will prevent damage to other work and will prevent settlement.
- C. Restore work which has been cut or removed and install new products to provide completed work in accord with requirements of the contract documents.
- D. Refinish entire surfaces as needed to provide an even finish. On continuous surfaces, refinish to the nearest intersections. For an assembly, refinish the entire item.

END OF SECTION

REFERENCE SPECIFICATIONS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes modifications of City of Houston Standard Construction Specifications for Wastewater Collection Systems, Water Lines, Storm Drainage and Street Paving, which pertain to the Work described in the Contract Documents.
- B. Except as modified herein, City of Houston Standard Construction Specifications for Wastewater Collection Systems, Water Lines, Storm Drainage and Street Paving, latest edition, are incorporated herein by reference as if copied verbatim including any supplementary specification or amendments thereto unless indicated otherwise in the Drawings or Specifications.
- C. Where a portion of the reference specification is modified or deleted herein, the unaltered portions of the specification shall remain in effect.
- D. Whenever the term “City Engineer”, “Design Consultant”, or “Project Manager” is used therein, it is intended to refer to the ENGINEER as defined in the Contract Documents.
- E. Whenever the term “City of Houston” or “City” is used therein, it is intended to refer to the OWNER as defined in the Contract Documents.
- F. Change all references to Section 01330-Submittals Procedures to Section 01 300 – Submittals.
- G. Change all references to Section 01454-Testing Laboratory Services to Section 01410 – Testing Laboratory Services.
- H. Change all references to Section 01504-Temporary Facilities and Controls to Section 01500 – Temporary Facilities and Controls.
- I. Delete all references to Section 01270 – Measurement and Payment.

END OF SECTION

STORMWATER MANAGEMENT

PART 1 - GENERAL

1.1 DESCRIPTION

Storm Water Management consists of all permitting and implementation activities necessary to conform to the requirements of the Environmental Protection Agency (EPA) Storm Water NPDES Permit Regulations as outlined in Federal Register Volume 57, No. 175 and Texas Commission on Environmental Quality (TCEQ) Regulation.

1.2 RELATED WORK

- A. Division 2 - Site Work. All sections in Division 2.

1.3 REFERENCE STANDARDS

- A. Storm Water Management Handbook for Construction Activities - Prepared by Harris County, Harris County Flood Control District and City of Houston; 2022 Edition.

1.4 SUBMITTALS

- A. NOT USED

1.5 PAYMENT

Work performed under this section will be paid for as indicated in the Bid Proposal.

PART 2- PRODUCTS

All products used to implement the PPP shall conform to the Technical Specifications as outlined in Appendix 'C' of the Storm Water Management Handbook for Construction Activities.

PART 3 - EXECUTION

3.1 POLLUTION PREVENTION PLAN

The PPP shall be developed and implemented in accordance with Section III, Section IV and the Technical Specifications of the Storm Water Management Handbook for Construction Activities.

3.2 NOTICE OF INTENT (NOI)

The NOI shall be completed by the Contractor and submitted to the TCEQ two days prior to beginning work that involved the initial disturbance of soils associated with clearing, grading, excavation or other construction activities. The PPP must be reviewed and approved by the Engineer prior to submitting NOI.

3.3 NOTICE OF TERMINATION (NOT)

The NOT shall be completed by the Contractor and submitted to the TCEQ upon obtaining stabilization of the soils on the site as determined by the Engineer.

END OF SECTION

SUBMITTALS

1.0 PRIOR TO BEGINNING WORK

Submit the following items with the signed agreement form as a prerequisite to starting the work. The number of copies required of each submittal is six (6). The location of information concerning each submittal is referenced.

- A. Performance Bond. Bidding Documents, Contract Forms, General and Supplementary Conditions.
- B. Payment Bond. Bidding Documents, Contract Forms, General and Supplementary Conditions.
- C. Certificate of Insurance. General and Supplementary Conditions.
- D. List of Subcontractors. General and Supplementary Conditions.
- E. Material and Equipment List. Specifications sections.
- F. Construction Schedule. General Conditions and as specified in the section on Construction Schedule.
- G. Maintenance Bond. Bidding Documents, Contract Forms, General and Supplementary Conditions.

2.0 DURING CONSTRUCTION

During the progress of the work, make the following submittals in a timely manner to prevent any delay in the work.

- A. Work Schedules. Submit progress schedules monthly as evidence that the project will be ready for occupancy by the date of substantial completion. Six (6) copies are required.
- B. Shop Drawings, Product Data and Samples. Submit in accordance with the section on Shop Drawings, Product Data and Samples.
- C. Mill Certificates. Submit mill certificates on the following items as required by the specifications.
 - (1) Reinforcing Steel
 - (2) Bulk Cement
- D. Application for Payment. Submit application for partial payment as specified in the General and Supplementary Conditions and within the time specified in the agreement.
- E. Change Order Proposal. A proposal for change order may be submitted to the Engineer whenever a need arises. The request must be in writing and must include sufficient information to assess the need for a change in the work, the contract time, or the contract sum.

3.0 PROJECT CLOSEOUT

With a written notice of completion, submit the following items in the proper form as a condition of final acceptance of the work.

- A. Project Record Documents. Submit in accordance with the section on Project Record Documents included in SECTION 01 720 - Project Record Documents.
- B. Guarantees, Warranties and Bonds. Submit as required in the General and Supplementary Conditions and listed in various sections of the specifications.
- C. Certificates of Inspection. Deliver evidence of compliance with requirements of governing authorities and the specifications as specified in various sections of the specifications.
- D. Operation and Maintenance Data. As specified in various sections of the specifications.
- E. Spare Parts and Maintenance Materials. As specified in the various specification sections.
- F. Keys and Keying Schedule. As required.

END OF SECTION

CONSTRUCTION SCHEDULES

PART 1 - GENERAL

- A. Promptly after award of the contract, the Contractor shall prepare and submit to the Architect/Engineer estimated construction progress schedules for the work, with sub-schedules of related activities which are essential to its progress.
- B. Submit revised progress schedules periodically.
- C. Related Requirements in Other Parts of the Project Manual. Conditions of the Contract.
- D. Related Requirements Specified in Other Sections.
 - 1. Summary of the work: Section 01 010

1.01 FORM OF SCHEDULES

- A. Prepare schedules in the form of a horizontal bar chart.
 - 1. Provide separate horizontal bar for each trade or operation.
 - 2. Horizontal Time Scale. Identify first work day of each week.
 - 3. Scale and Spacing. To allow space for notations and future revisions.
- B. Identification of Listings. By major specification section numbers.

1.02 CONTENT OF SCHEDULES

- A. Construction Progress Schedule.
 - 1. Show complete sequence of construction by activity.
 - 2. Show dates of beginning and completion of each major element of construction.
 - 3. Show projected percentages of completion for each item, as of the first day of each month.
- B. Prepare and submit sub-schedules for each separate stage or work specified in Section 01010.
- C. Provide sub-schedules to define critical portions of prime schedules.

1.03 PROGRESS REVISIONS

- A. Indicate progress of each activity to date of submission.

- B. Show changes occurring since previous submission of schedule.
 - 1. Major changes in scope.
 - 2. Activities modified since previous submission.
 - 3. Revised projections in progress and completion.
 - 4. Other identifiable changes.
- 1.04 SUBMISSIONS
- A. Submit initial schedules within 15 days after award of contract.
 - 1. Engineer will review schedules and return review copy within 10 days after receipt.
 - 2. If required, resubmit within seven days after return of review copy.
 - B. Submit revised progress schedules with each application for payment.
- 1.05 DISTRIBUTION
- A. Distribute copies of reviewed documents to:
 - 1. Job site file.
 - 2. Subcontractors.
 - 3. Other concerned parties.
 - B. Instruct recipients to report promptly to Contractor, in writing, any problems anticipated by the projections shown in the schedules.

END OF SECTION

SCHEDULE OF VALUES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Preparation and submittal of schedule of values for:
 - 1. Submit a schedule of values at least 10 days prior to submitting the first application for payment. Upon request, support values given with data that will substantiate the amounts. Use schedule of values only as basis for application for payment.
 - 2. Submit quantities of designated materials. List quantities of materials specified under unit price allowances.

PART 2 - FORM OF SUBMITTAL

Submit typewritten schedule of values on 8-1/2" x 11", plain bond, white paper. Use the table of contents of this project manual as a format for listing costs of work by sections under Divisions 2 through 16.

PART 3 - PREPARATION

3.01 PREPARING SCHEDULE OF VALUES

- A. Itemize separate line item cost for each of following general costs items:
 - 1. Performance and payment bonds.
 - 2. Field supervision and layout.
 - 3. Temporary facilities and controls.
- B. Itemize separate line item cost for work required by each section of this specification.
- C. Break down installed costs into:
 - 1. Delivered cost of material, with taxes paid.
 - 2. Total installed cost, with overhead and profit.
- D. Break down costs to list major products or operations for each line item which has an installed value of more than \$10,000.
- E. Make sum of total costs for all items listed in the schedule equal to the total contract sum.

3.02 PREPARING SCHEDULE OF UNIT MATERIAL VALUES

- A. Submit separate schedule of unit prices for materials to be stored on which partial payments will be made.
- B. Make a submittal form parallel to the schedule of values, with line items identified the same as line items in the schedule of values.
- C. Include in unit prices only:
 - 1. Cost of material.
 - 2. Delivery and unloading at site.
 - 3. Sales taxes.
- D. Make sure that the unit price multiplied by the quantity given equals the material cost of that item in the schedule of values.

3.03 REVIEW AND RESUBMITTAL

After review by the Engineer, revise and resubmit the schedule of values or material values, if required. Resubmit revised schedules in the same manner as the original schedules.

END OF SECTION

TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1 PAYMENT

- A. Payment for services of an independent testing laboratory to perform specified testing shall be as directed in the Special Conditions to the Standard General Conditions.

1.2 RELATED WORK

- A. General Conditions of the Contract for Construction
Inspections and testing required by laws, ordinances, rules and regulations or orders of public authorities are the responsibility of the Owner.
- B. Specification Sections
Contained in the various specification sections are requirements for certification of products, testing, adjusting and balancing of equipment; and other tests and standards.

1.3 WORK INCLUDED

Testing is required for the following items of work, if applicable:

- A. Soils compaction control.
- B. Asphalt concrete paving.
- C. Asphalt densities.
- D. Portland cement concrete paving.
- E. Concrete reinforcement.
- F. Cast-in-place concrete.
- H. Other testing as required by local governing authority.

PART 2 - TESTING LABORATORY

2.1 DUTIES

- A. Cooperate with the Engineer and Contractor; provide qualified personnel promptly on notice.
- B. Perform specified inspections, sampling and testing of materials and methods of construction:
 - 1. Comply with specified standards; ASTM, other recognized authorities, and as specified.
 - 2. Ascertain compliance with requirements of the contract documents.
- C. Promptly notify the Engineer and Contractor by fax or email of irregularities or deficiencies of work which are observed during performance of services.

- D. Prepare and distribute reports of inspections and tests within three days of test completion or weekly on continuous work as follows:
 - 1. Engineer: One copy by fax, email or certified mail unless otherwise directed by Engineer.
 - 2. Contractor: One copy by fax, email or certified mail unless otherwise directed by Contractor.
 - 3. Owner: One copy by fax, email or certified mail unless otherwise directed by Owner.
- E. Include the following information for each test as well as additional data specified in the applicable section.
 - 1. Date of test.
 - 2. Location of test.
 - 3. Specified standards.
 - 4. Test results.
 - 5. Remarks.

2.2 LIMITS OF AUTHORITY

The laboratory is not authorized to:

- A. Release, revoke, alter, or enlarge on requirements of the contract documents.
- B. Approve or accept any portion of the work.
- C. Perform any duties of the Contractor.

PART 3 - CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel; provide access to the work or to manufacturer's operations.
- B. Provide to laboratory, preliminary representative samples of materials to be tested, in required quantities.
- C. Furnish labor and equipment:
 - 1. To provide access to the work to be tested in accordance with OSHA requirements.
 - 2. To obtain and handle samples at the site.
 - 3. To facilitate inspections and tests.
 - 4. For laboratory's exclusive use for storage and curing of test samples.

- D. Notify the laboratory at least 48 hours in advance of operations to allow for his assignment of personnel and scheduling of tests.
- E. Arrange with the laboratory and pay for additional samples and tests required for the Contractor's convenience.
- F. Testing type and frequency will be specified within the Supplementary Conditions to the General Conditions and project specifications

END OF SECTION

INSPECTION SERVICES

PART 1 - GENERAL

1.1 SCOPE

This section summarizes the duties, responsibilities and limitations of authority of the inspector in connection with his observation and inspection of the work.

1.2 AUTHORITY

- A. Services of the inspector are set forth in the General Conditions of the Contract for Construction. In particular, the definitions of the Engineer's duties provide authority for observation and inspection of the work.
- B. The inspector's authority to require special inspection or testing in connection with rejected work is also provided in the General Conditions. Furthermore, the provision that upon request by the Contractor the inspector inspect and accept or reject any material furnished, is also granted in the General Conditions.
- C. The provision for removing work for inspection by the inspector is set forth in the General Conditions.

PART 2 - DEFINITIONS

- A. Inspector. A representative of the Engineer or Owner will be assigned authority to observe and inspect the work.
- B. Working Day. Inspectors are not required to work on Saturdays, Sundays, or legal holidays. If the Contractor plans work on a Saturday, Sunday, or legal holiday, prior arrangements should be made for an inspector not later than 2:00 p.m. on the working day before the Saturday, Sunday or legal holiday.
- C. Uninspected Work. Any work performed on a Saturday, Sunday, or legal holiday without benefit of an inspection may require removal and replacement if so directed by the inspector. Removal and replacement will be completed at no additional cost to the Owner.

END OF SECTION

TEMPORARY FACILITIES AND CONTROLS

1.0 GENERAL

The facilities and controls specified in this section are considered minimum for the project. The Contractor may provide additional facilities and controls which he considers necessary for the proper execution of the work and to meet his responsibilities for protection of persons and property.

2.0 UTILITIES

- A. No land line is required. Superintendent is to have cell phone available at all times.
- B. Temporary Connections. Arrange and secure all temporary connections for water, electricity, gas and other services needed to perform the work. The cost of connection and use shall be arranged for and paid by the Contractor.
- C. The Contractor shall provide all power and fuel for equipment tests.

3.0 SANITATION

- A. Provide and maintain sanitary conveniences to satisfy requirements of local, state and Federal authorities, ordinances and laws. Obtain approval for location secluded from view.

4.0 ACCESS AND PARKING

Access and parking at the site are not limited by provisions other than those concerning free access and protection of adjoining property.

5.0 SECURITY AND TEMPORARY PROTECTIONS

Furnish, install and maintain suitable barriers and protections to prevent public entry, and to protect the work, existing facilities, trees and plants from construction operations.

6.0 CONSTRUCTION AIDS

Furnish, install and maintain construction aids required by personnel to facilitate the execution of the work including: scaffolds, staging, ladders, stairs, ramps, runways, platforms, railings, hoists, cranes, chutes, and other such facilities and equipment.

7.0 CONTROLS

Protect equipment, newly finished areas and connected finished areas from dust and moisture. Use temporary walls, dust curtains or other enclosures, as necessary, to prevent damage.

- A. Temporary Heat. Provide temporary heat, fuel and services necessary to protect work and materials from injury from dampness and cold weather.

8.0 PROJECT SIGNS

Signs other than those specified, will not be permitted on the project site without approval.

9.0 REMOVAL OF TEMPORARY FACILITIES AND CONTROLS

Prior to final inspection, remove all temporary buildings, sanitary conveniences, signs and other items. Remove or restore, as required, all temporary roads and parking areas. Clean up the entire area as specified in the section on Cleaning and Adjusting.

10.0 MEASUREMENT AND PAYMENT

No separate payment will be made for Work under this section unless indicated otherwise in the Bid Proposal form.

END OF SECTION

TRAFFIC CONTROL

1.0 GENERAL

1.1 SCOPE

This section specifies, in general, the Contractor's responsibility for handling and maintaining the safe and efficient flow of vehicular and pedestrian traffic near construction areas. Routings other than those shown on the plans are possible. Any traffic handling routing not shown on the plans shall be reviewed by the Engineer.

1.2 REFERENCE STANDARDS

- A. Latest revision of the 1980 Texas Manual on Uniform Traffic Control Devices for Streets and Highways (TMUTCD), "Part IV - Traffic Controls for Street and Highway Construction and Maintenance Operations".

1.3 WORK AREAS

Traffic handling near construction areas shall be as shown on the plans or as directed by the Engineer. A request for work areas around construction other than those shown on the plans shall be accompanied by a traffic handling plan. The plan shall be drawn up in accordance with the reference standards and shall be reviewed by the Engineer and the City of Houston Traffic and Transportation Department.

1.4 ACCESS TO PROPERTIES

- A. When construction activities necessitate the closing of a street to through traffic, the Contractor shall maintain, at all times, a 10-foot wide all-weather lane adjacent to the work area, free of construction equipment and obstructions, for the use of emergency vehicles.
- B. The Contractor shall provide continuous access to properties adjacent to work areas.

1.5 ADVANCE WARNING

Advance warning signs are not shown on the plans but are required.

1.6 PEDESTRIAN TRAFFIC

The Contractor shall take precautions to ensure the safety of pedestrians passing near work areas. This may entail the erection of a temporary fence on the construction side of pedestrian passageways to delineate out-of-bounds areas. If pedestrian safety cannot be assured, the Contractor shall close off the sidewalk(s) with signs and fences and shall direct pedestrians to use other suitable routes. The decision to close a sidewalk shall be reviewed by the Engineer.

1.7 MAINTENANCE OF EQUIPMENT AND MATERIAL

- A. The Contractor shall designate individuals to be responsible for the maintenance of traffic handling around the construction area. At least one of these individuals shall be able to be contacted at any time during construction. This individual shall immediately correct any deficiencies in the equipment and materials used to handle traffic, such as missing, damaged, or obscured signs, drums, barricades, or pavement markings. The names,

addresses, and telephone numbers of the designated individuals shall be given to the City of Houston's inspector on the job and to the Engineer.

- B. The Contractor shall make daily inspections of signs, barricades, drums, lamps, and temporary pavement markings to verify that these are visible, in good working order, and in conformance with the traffic handling plans and the directions of the Engineer. When not in conformance, the Contractor shall immediately bring the equipment and materials into conformance by replacement, repair, cleaning, relocation, and/or realignment.
- C. The Contractor shall keep all equipment and materials, especially signs and pavement markings, clean and free of dust, dirt, grime, oil, mud, or debris.
- D. The Engineer will make the decision whether to permit the reuse of damaged or vandalized signs, drums, and barricades.

END OF SECTION

WASTE MATERIAL DISPOSAL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Disposal of waste material and salvageable material. Waste material disposal consists of disposal of rubbish and other objectionable matter from operations such as clearing and grubbing, excavation, grading and demolition. Unless otherwise specified, the Contractor is responsible for removal and disposal of waste material.

1.02 UNIT PRICES

- A. No separate payment will be made for waste material disposal under this Section. Include payment in unit price for related sections.

1.03 SUBMITTALS

- A. Submittals shall conform to requirements of Section 01300 - Submittal Procedures.
- B. Obtain and submit disposal permits for proposed disposal sites if required by local ordinances.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 SALVAGEABLE MATERIAL

- A. Excavated Material: When indicated on Drawings, load, haul, and deposit excavated material at a location or locations shown on Drawings outside the limits of Project.

3.02 EXCESS MATERIAL

- A. Vegetation, rubble, broken concrete, debris, asphaltic concrete pavement, excess soil, and other materials not designated for salvage, shall become the property of Contractor and shall be removed from the job site and legally disposed of and in accordance with the direction of the OWNER.
- B. Verify the flood plain status of any proposed disposal site. Do not dispose of excavated materials in an area designated as within the 100-year Flood Hazard Area.
- C. Waste materials shall be removed from the site on a daily basis, such that the site is maintained in a neat and orderly condition.

END OF SECTION

MATERIALS & EQUIPMENT

1.0 GENERAL

A. Material and Equipment Incorporated into the Work

1. Conform to applicable specifications and standards.
2. Comply with size, make, type and quality specified, or as specified approved in writing by the Engineer.
3. Manufactured and Fabricated Products.
 - a. Design, fabricate and assemble in accord with the best engineering and shop practices.
 - b. Manufacture like parts of duplicate units to standard sizes and gages, to be interchangeable.
 - c. Two or more items of the same kind shall be identical, by the same manufacturer.
 - d. Products shall be suitable for service conditions.
 - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
4. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

B. Related Requirements in Other Parts of the Project Manual

Conditions of the Contract.

C. Related Requirements Specified in Other Sections

SECTION 01010 – SUMMARY OF WORK

SECTION 01340 – SHOP DRAWINGS, PRODUCT DATA & SAMPLES

SECTION 01710 – CLEANING & ADJUSTING

2.0 REUSE OF EXISTING MATERIAL

A. NOT USED

3.0 MANUFACTURER'S INSTRUCTIONS

- A. When contract documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two copies to Engineer. Maintain one set of complete instructions at the job site during installation and until completion.

- B. Handle, install, connect, clean, condition and adjust products in strict accordance with such instructions and in conformity with specified requirements.
 - 1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with Engineer for further instructions.
 - 2. Do not proceed with work without clear instructions.
- C. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by contract documents.

4.0 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of products in accordance with construction schedules; coordinate to avoid conflict with work and conditions at the site.
 - 1. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 2. Immediately on delivery, inspect shipments to assure compliance with requirements of contract documents and approved submittals, and that products are properly protected and undamaged.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

5.0 STORAGE AND PROTECTION

- A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible.
 - 1. Store products subject to damage by the elements in weather-tight enclosures.
 - 2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
- B. Exterior Storage
 - 1. Store fabricated products above the ground, on blocking or skids; prevent soiling or staining. Cover products which are subject to deterioration with impervious sheet coverings; provide adequate ventilation to avoid condensation.
 - 2. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.
- C. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration.
- D. Protection After Installation

Provide substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove when no longer needed.

6.0 SUBSTITUTIONS AND PRODUCT OPTIONS

A. Products List

Within 30 days after contract date, submit to Engineer a complete list of major products proposed to be used, with the name of the manufacturer and the installing subcontractor.

B. Contractor's Options

1. For products specified only by reference standard, select any product meeting that standard.
2. For products specified by naming several products or manufacturers, select any one of the products or manufacturers named, which complies with the specifications.
3. For products specified by naming one or more products or manufacturers and "or equal", Contractor must submit a request as for substitutions for any product or manufacturer not specifically named.
4. For products specified by naming only one product and manufacturer, there is no option.

C. Substitutions

1. For a period of 30 days after contract date, Engineer will consider written requests from Contractor for substitution of products.
2. Submit a separate request for each product, supported with complete data, with drawings and samples as appropriate, including:
 - a. Comparison of the qualities of the proposed substitution with that specified.
 - b. Changes required in other elements of the work because of the substitution.
 - c. Effect on the construction schedule.
 - d. Cost data comparing the proposed substitution with the product specified.
 - e. Any required license fees or royalties.
 - f. Availability of maintenance service, and source of replacement materials.
3. Engineer shall be the judge of the acceptability of the proposed substitution.
4. Engineer will review requests for substitutions with reasonable promptness, and notify Contractor, in writing, of the decision to accept or reject the requested substitution.

D. Contractor's Representation

A request for a substitution constitutes a representation that Contractor:

1. Has investigated the proposed product and determined that it is equal to or superior in all respects to that specified.
2. Will provide the same warranties or bonds for the substitution as for the product specified.
3. Will coordinate the installation of an accepted substitution into the work, and make such other changes as may be required to make the work complete in all respects.
4. Waives all claims for additional costs, under his responsibility, which may subsequently become apparent.

END OF SECTION

CONTRACT CLOSEOUT

1.0 GENERAL

- A. Comply with requirements stated in the Conditions of the Contract and in specifications for administrative procedures in closing out the work.
- B. Related Requirements in Other Parts of the Project Manual
Fiscal provisions, legal submittals and additional administrative requirements.

1.1 SUBSTANTIAL COMPLETION

- A. When Contractor considers the work substantially complete, he shall submit to Engineer:
 - 1. A written notice that the work is substantially complete.
 - 2. A list of items to be completed or corrected.
- B. Within a reasonable time after receipt of such notice, Engineer will make an inspection to determine the status of completion.
- C. Should the Engineer determine that the work is not substantially complete:
 - 1. Engineer will promptly notify the Contractor in writing, giving the reasons therefore.
 - 2. Contractor shall remedy the deficiencies in the work, and send a second written notice of substantial completion to the Engineer.
 - 3. Engineer will re-inspect the work.
- D. When Engineer finds that the work is substantially complete, he will:
 - 1. Prepare and deliver to Owner a tentative Certificate of Substantial Completion with a tentative list of items to be completed or corrected before final payment.
 - 2. After due consideration of any objections to the tentative certificate that have been made by the Owner as provided in the General Conditions, the Engineer will execute and deliver to the Owner and Contractor a definite Certificate of Substantial Completion with a revised list of items to be completed or corrected.

1.2 FINAL INSPECTION

- A. When Contractor considers the work complete, he shall submit written certification that:
 - 1. Contract documents have been reviewed.
 - 2. Work has been inspected for compliance with contract documents.
 - 3. Work has been completed in accordance with the contract documents.

4. Equipment and systems have been tested in the presence of the Owner's representative and are operational.
 5. Work is completed and ready for final inspection.
- B. Engineer will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.
- C. Should the Engineer consider the work is incomplete or defective:
1. Engineer will promptly notify the contractor in writing, listing the incomplete or defective work.
 2. Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written certification to Engineer that the work is complete.
 3. Engineer will re-inspect the work.
- D. When the Engineer finds the work is acceptable under the contract documents, he shall request the Contractor to make closeout submittals.

1.3 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER

A. Project Record Documents

As required.

B. Operation and Maintenance Data, Instructions to Owner's Personnel

To requirements of respective sections in specifications.

C. Keys and Keying Schedule

As required.

D. Spare Parts and Maintenance Materials

As specified in respective sections of specifications.

E. Evidence of Payment and Release of Liens

Submit the following in such form as approved by Owner.

1. Contractor's affidavit of payment of debts and claims.
2. Contractor's affidavit of release of liens, with:
 - a. Consent of surety to final payment.
 - b. Separate releases or waivers of liens for subcontractors and other with lien rights against property of Owner with a list of those parties.

3. All submittals shall be duly executed before delivery to Engineer.

F. Certificate of Insurance for Products and Completed Operations

G. Maintenance Bond

Submit as specified in the Supplementary Conditions.

END OF SECTION

CLEANING & ADJUSTING

PART 1 - GENERAL

1.1 RESPONSIBILITY

- A. The Contractor is responsible for cleaning and adjusting the work. If the Contractor fails to clean and adjust the work, the Owner may do so and charge the resulting costs to the Contractor.
- B. Detailed cleaning and adjusting requirements for specific trades or work are specified in sections pertaining to that trade or work.

1.2 REQUIREMENTS OF REGULATORY AGENCIES

A. Fire Protection

Store volatile waste in covered metal containers and remove from premises daily.

B. Pollution Control

Conduct cleaning and disposal operations in compliance with local ordinances and antipollution laws.

- 1. Burning or burying of rubbish and materials on the project site is not permitted.
- 2. Disposal of volatile fluid wastes and other chemical wastes in storm or sanitary sewer systems or into streams or waterways is not permitted.

C. Safety Standards

Maintain the project in accordance with insurance and safety standards.

PART 2 - PRODUCTS

Use only cleaning materials recommended by the manufacturer of the surface to be cleaned. Employ cleaning materials as recommended by the cleaning material manufacturer.

PART 3 - EXECUTION

3.1 DURING CONSTRUCTION

- A. Oversee cleaning and ensure that the premises are maintained free from accumulations of waste material and rubbish. Do not allow waste materials, rubbish and debris to accumulate and become unsightly or create a hazard. Provide containers and locate on site for collection of waste material, rubbish and debris.
- B. At reasonable intervals during progress of the work, collect and dispose of waste material, rubbish and debris. Handle waste in a controlled manner; do not drop or throw materials from heights.

- C. Remove waste materials, rubbish and debris from the site and legally dispose at public and private dumping areas off the project site.
- D. If applicable, vacuum clean interior building areas when ready to receive finish painting and continue vacuum cleaning as needed until the building is ready for acceptance or occupancy. Schedule cleaning operations so that resulting dust and other contaminants will not fall on wet, newly painted surfaces.

3.2 FINAL CLEANING AND ADJUSTING

- A. Use experienced workmen or professional cleaners for final cleaning.
- B. Broom clean paved surfaces; rake clean other surfaces of grounds.
- C. If installed features of the work fail to operate or operate improperly, make the necessary adjustments to prevent damage and ensure proper operation. Remove and repair or replace maladjusted items if necessary, for proper adjustment.
- D. Remove all waste material and rubbish from the project area, as well as all tools, construction equipment, machinery, surplus materials and temporary facilities.
- E. Immediately prior to acceptance, conduct a final inspection of exposed interior and exterior surfaces to verify that the work is properly cleaned. Maintain cleaning until the premises are occupied by the Owner.

3.3 ADJACENT AREAS

To the Owner's satisfaction, clean or repair adjacent areas affected by the construction. Remove dust and debris in the adjacent area. Repair, patch and touch-up marred surfaces to match adjacent finishes.

END OF SECTION

PROJECT RECORD DOCUMENTS

1.0 GENERAL

Prepare and maintain record documents for the project to accurately reflect the construction as built. Documents must be submitted at work completion as a condition of final acceptance.

2.0 MAINTENANCE OF RECORD DOCUMENTS

A. Maintain at the job site, one copy of:

1. Contract drawings.
2. Specifications.
3. Addenda.
4. Reviewed shop drawings.
5. Change orders and field numbers.
6. Other contract modifications.
7. Field test records.
8. Correspondence.

B. Store record documents in an approved location apart from documents used for construction. Do not use record documents for construction purposes. Provide files and racks for orderly storage. Maintain documents in clean, dry, legible condition. Make documents and samples available at all times for inspection by the Architect/Engineer.

3.0 MARKING DEVICES

Mark all changes with red ink pen.

4.0 RECORDING

- A. Keep record documents current. Do not permanently conceal any work until required information has been recorded.
- B. Label each document "PROJECT RECORD" in neat, large, printed letters. Legibly mark contract drawings to record actual construction:
1. Depths of various elements of foundations or structures in relation to survey data.
 2. Horizontal and vertical location of underground and underslab utilities and appurtenances referenced to permanent surface improvements.

3. Location of internal utilities and appurtenances referenced to permanent surface improvements.
 4. Field changes of dimension and detail.
 5. Changes made by change order or field order.
 6. Details not on original drawings.
- C. Legibly mark specifications and addenda to record:
1. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
 2. Changes made by change order or field order.
 3. Other matters not originally specified.

5.0 SUBMITTAL

- A. At project completion, deliver record documents to the Architect/Engineer. Place all letter-sized material in a 3-ring binder, neatly indexed. Bind contract drawings and shop drawings in rolls of convenient size for ease of handling.
- B. Accompany the submittal with a transmittal letter, containing:
1. Date.
 2. Project title and number.
 3. Contractor's name and address.
 - a. Title and number of each record document.
 - b. Certification that each document as submitted is complete and accurate.
 - c. Signature of Contractor.

END OF SECTION

OPERATIONS AND MAINTENANCE DATA

1.0 GENERAL

1.1 SCOPE

- A. This section describes submittal requirements for equipment and facility Operations and Maintenance (O&M) Manuals.

1.2 REFERENCE STANDARD

- A. City of Houston, Texas, Department of Public Works. Specification 01782, Standard Construction Specifications for Wastewater Collection Systems, Water Lines, Storm Drainage and Street Paving, and all applicable amendments.

1.3 MEASUREMENT AND PAYMENT

- A. Work will be paid as part of the lump sum price of related work.

1.4 SUBMITTALS

- A. Conform to requirements of Reference Standard specification with the following exceptions: Submit four (4) final copies of O&M manuals.

1.5 EQUIPMENT O&M DATA

- A. Conform to requirements of Reference Standard specification for data requirements. In addition, provide in electronic format all PLC programs with related O&M volumes.
- B. Bind all O&M manuals into standard 3-inch (max.), 3-ring, loose-leaf, vinyl-covered binders with matching colors. Print the following information on the cover of each binder: (1) project title; (2) "Operation and Maintenance Manual"; (3) owner's name; (4) engineer's name, address, and phone number; (5) contractor's name, address and phone number; and (6) volume number. Provide labeled, tabbed dividers between each section of the manual and include a table of contents with titles and section numbers. Provide four (4) copies of each volume (i.e., binder) of the O&M Manual. Include an electronic copy of the PLC program with each manual.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION – NOT USED

END OF SECTION

1.0 GENERAL

1.01 DESCRIPTION

The work includes demolition and disposal of existing structures, materials and equipment.

1.02 JOINT INSPECTION

Prior to demolition, a joint inspection by the owner's representative and contractor will be made to determine condition of existing improvements adjacent to items being demolished. Adjacent improvements damaged by demolition operations must be restored satisfactorily at no expense to the owner.

1.03 DISPOSITION OF MATERIALS AND EQUIPMENT

A. Ownership of Material and Equipment. Certain materials and equipment may be designated for reuse or salvage and will remain the Owner's property. If the designated items are damaged during demolition, handling or storage, the items must be restored satisfactorily at no expense to the Owner. Materials and equipment not designated for reuse or salvage become the Contractor's property and shall be removed from the site in a timely manner and disposed in accordance with applicable regulations. Remove debris daily to avoid clutter.

B. Reuse. Certain items may be reused if they are compatible with the work and will provide performance equal to new materials. Materials and equipment designated for reuse will be stored and protected until time of installation. A list of items for reuse follows:

C. Salvage. Deliver items to be salvaged to a designated storage area.

2.0 PRODUCTS

The Contractor shall use equipment and materials suitable for properly completing the demolition without damage to existing structures designated to remain.

3.0 EXECUTION

3.01 PROTECTION OF PERSONS AND PROPERTY

A. Provide protection of persons and property, including safe working conditions

throughout work progress. Install and maintain enclosures, barriers, warning lights, and other required protective devices.

- B. Minimize the spread of dust and flying particles. Execute demolition in a manner to prevent damage from falling debris or other sources to Owner's property or adjacent property.
- C. Do not interfere with use of adjacent buildings; maintain free and safe access at all times. Guard against movement or settlement of adjacent structures. The Contractor is responsible for safety and integrity of adjacent structures and, consequently, is liable for any movement or settlement and any resulting injuries or damage. Provide proper bracing and shoring necessary for support. If safety of adjacent structures appears to be endangered, cease operations. Do not resume demolition until proper protective measures have been taken.

3.02 BLASTING

Blasting is not permitted on this project.

3.03 FIRES

Fires are not permitted on this project.

3.04 UTILITY SERVICES

- A. Interruption. When temporary interruption of utility service is required by the work, properly coordinate the outage to prevent untimely or damaging interruptions to Owner or adjacent occupants.
- B. Follow rules and regulations of authorities or companies having jurisdiction over communications, pipelines, and electrical distribution services.

3.05 GENERAL WORK ITEMS

- A. Operational procedures are at the Contractor's option but must not interfere with the execution of other work. Materials or equipment designated for reuse or salvage will be carefully removed, transported and stored in approved storage areas.
- B. Structures. Remove structures as shown on the plans. Where no limits are shown, the limits shall be 4 inches outside new items to be installed. Removals beyond these limits shall be at the Contractor's expense; satisfactorily reconstruct excess removals. Demolish piping and structures to a minimum of 3 feet below grade, unless otherwise indicated on the drawings.
- C. Removing and Replacing Concrete. Use these procedures where existing concrete

must be removed to facilitate operations but will be replaced subsequently.

1. Make initial cut with a concrete saw exercising care to avoid cutting reinforcement.
2. After removing concrete, cut cross bars at center of breakout and bend back.
3. Before replacing concrete, bend bars back to the original position and provide a splice bar for each cut bar. Splice bars must be the size of cut bars and of a length to lap each cut end a minimum of 20 diameters of the bar, unless restricted by the job conditions.
4. Immediately before placing new concrete, thoroughly clean old concrete and apply a heaving coat of bonding agent.
5. Replace concrete as specified.

D. Backfill.

1. Backfill holes resulting from demolition with an approved material to the density of adjacent soil as specified.
2. Backfilling with rubbish or burying rubbish on the site is not permitted.

3.06 MECHANICAL WORK ITEM

1. Remove existing process, water, chemical, gas, fuel oil and other piping designated for removal. Take out piping to the limits shown or to a point where it will not interfere with new work. Piping not indicated to be removed or which does not interfere with new work shall be removed to 3 feet below grade or to the nearest solid support, capped, and the remainder left in place. Purge chemical and fuel lines and tanks. Verify that such lines are safe prior to removal or capping.
2. Where piping that is to be removed passes through existing walls, cut and pipe on each side of the wall. Use cap appropriate for pipe material to be capped. Provide fire-rated sealant for walls classified as fire rated.

END OF SECTION

SECTION 05 521

ALUMINUM HANDRAILS

PART 1 GENERAL

1.01 SECTION INCLUDES

Aluminum mechanical sub-assembled handrails and fittings.

1.02 REFERENCES

ASTM 6061-T6 and/or ASTM 6063-T6.

1.03 DESIGN REQUIREMENTS

- A. Railing assembly and attachments to resist a concentrated load of 200 pounds applied in any direction at any point and a uniform load of 50 pounds per linear foot applied to the horizontal rails in any direction. The loads shall not be applied simultaneously.
- B. Space support posts 6 feet on center, maximum.

1.04 SUBMITTALS

Submit Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

1.05 ACCEPTABLE MANUFACTURERS

- A. Golden Railings, Inc.
- B. Enerco Metal Products, "Alumrail"
- C. Julius Bloom, "Connectorail"
- D. Reynolds Metals, "Reynorail #2"
- E. Or Approved Equal.

PART 2 PRODUCTS

2.01 RAILING SYSTEM

- A. Railings shall be constructed 1-1/2 inch diameter aluminum pipe schedule 40 with anodized satin finish. Finish to be clear anodized (0.7 mil). All fittings shall be extruded aluminum pre-engineered for railing application.
- B. All railing shall be mounted as shown on the plans using 1/2 inch diameter stainless steel anchors.
- C. All hardware used on the railing system shall be stainless steel.

- D. All railing surfaces in contact with concrete or dissimilar metals shall receive one coat of zinc chromate.
- E. All fittings shall be secured to the post and railing with #17 x 1" stainless steel set screws.
- F. Railings shall be provided with two horizontal rails and a 4-inch high toe board.
- G. Toe boards shall be 4 inch extruded aluminum "Z" shape. Toe boards shall be connected to each railing post with a minimum of two fasteners in horizontal slotted holes. Splices shall be located and detailed to allow for thermal expansion and contraction.
- H. Openings in rail shall be provided for access to gates and valves. Provide double strand 3/16 inch diameter stainless steel chain.
- I. Provide expansion joints at maximum 24 ft. centers using splice sleeves.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Beginning of installation means erector accepts existing conditions.

3.02 INSTALLATION

- A. Install components plumb and level, accurately fitted, free from distortion or defects.
- B. Provide anchors and sockets required for connecting railings to concrete.

END OF SECTION

PROTECTIVE COATINGS FOR
WASTEWATER SYSTEMS

PART 1 GENERAL

1.01 SCOPE

- A. This section provides requirements for furnishing labor, materials and equipment to prepare surfaces and to apply protective coatings to equipment, pumps, piping, valves, structural steel other than galvanized or stainless steel, and other miscellaneous items at wastewater treatment plants and lift stations. Requirements for coating concrete masonry buildings, concrete structures and interior surfaces are addressed on other Division 9 sections.
- B. The term "paint" as used in this section means the protective coatings specified. Other painting may be required in other sections of the specifications. All paint for concrete or metal shall be especially adapted for use around wastewater treatment plants and shall be applied in conformance with the manufacturer's published specifications.
- C. All paint for final coats shall be fume resistant, compounded with pigments suitable for exposure to sewage gases, especially to hydrogen sulfide and to carbon dioxide. Pigments shall be materials which do not tend to darken, discolor or fade due to the action of sewage gases. If a paint manufacturer proposes use of paint which is not designated "fume resistant" in its literature, it shall furnish full information concerning the pigments used in this paint and test data to demonstrate its color stability and chemical resistance.

1.02 REFERENCE STANDARDS

Work performed and materials used must comply with the requirement of the Steel Structures Painting Council's Vol. No. 1, "Good Painting Practices", and Vol. 2, "Systems and Specifications", and these technical specifications. Where a conflict exists between these technical specifications and the Steel Structures Painting Council's specifications, these technical specifications govern.

1.03 SUBSTITUTIONS

- A. Wherever a product is designated by trade name with provision for an equal, the product specified must be used unless a written request for substitution is submitted to the engineer, including the manufacturer's complete technical data sheets on the proposed product with a certified ingredients analysis signed by an officer of the manufacturer and sufficient information, including applicable case history information, for making a complete comparison between specified and proposed product. No unspecified products will be pre-qualified.
- B. Consideration will be given only to those products which have been used in wastewater treatment plant service for at least 10 years. The request for substitution must include a list of at least 10 applications in the Gulf Coast area where the product has been in continuous use for at least 5 years. Furnish the owner's name, the owner's representative and the name of product used.

1.04 SUBMITTALS

- A. Product Data and Shop Drawings. Submit product data, shop drawings, certificates and instructions on all protective coating items as specified herein.
- B. Certificates. Before beginning work, submit to the engineer a certificate from the paint supplier stating that sufficient paint has been purchased to provide the coatings specified in this section. List on the certificate the quantities and types of paint purchased. In addition, submit to the engineer a certificate from the blast cleaning abrasive supplier stating that sufficient abrasive has been purchased for the surface preparation specified in this section; list on the certificate the quantities and gradation purchased.
- C. Product Data. Complete data on each type and kind of paint and primer shall be submitted to the engineer for review. Favorable review shall be obtained from the engineer before the paint is delivered to the job site. This procedure must be followed whether or not the paint that the contractor proposes to use is named in the specifications. Submittal data shall shown where and for what uses each paint product is to be used, with cross reference made to paragraphs of the specifications or the coating schedule. Data submitted on each type and kind of paint product shall include information to show that the product meets the detailed requirements of these specifications.
- D. Manufacturer's Instructions. The manufacturer's published instructions, for use as a guide in specifying and applying the manufacturer's proposed paint, shall be submitted to the engineer. Paint shall not be delivered to the job site before review of the manufacturer's instructions by the engineer. A manufacturer's paint will not be considered for use unless that manufacturer's published instructions meet the following requirements:
 - 1. The instructions must have been written and published by the manufacturer for the purpose and with the intent of giving complete instruction for the use and application of the proposed paint in the locality and for the conditions for which the paint is specified or shown to be applied under this contract.
 - 2. All limitations, precautions and requirements that may adversely affect the paint; that may cause unsatisfactory results after the painting application; or that may cause the paint not to serve the purpose for which it was intended, that is, to protect the covered material from corrosion, shall be clearly and completely stated in the instructions. These limitations and requirements shall include, but not be limited to, the following:
 - a. Surface preparation.
 - b. Methods of application.
 - c. Number of coats.
 - d. Thickness of each coat.
 - e. Total thickness.
 - f. Drying time of each coat, including primer.

- g. Drying time of final coat before placing in service.
- h. Time allowed between coats.
- i. Primer required to be used.
- j. Primers not permitted.
- k. Use of a primer.
- l. Compatible topcoats.
- m. Thinner and use of thinner.
- n. Weather limitations during and after application (temperature, humidity, wind velocity).
- o. Protection from sun.
- p. Physical properties of paint, including solids content and ingredient analysis.
- q. Cathodic disbonding limitations, if any.
- r. Equipment settings (air cap, fluid tip, equipment pressure settings, etc.)

1.05 PAYMENT

Protective coating will be paid for under the lump sum price bid for the project or unit prices, as applicable.

1.06 DELIVERY AND STORAGE

- A. Delivery. Have paint delivered to the job site in original unopened containers.
- B. Storage. Store materials in an approved location. Keep the storage area clean and repair any damage done. Remove oily rags, waste, or other fire hazards from buildings each night; take adequate precautions to avoid damage by fire. Place cloths and cotton waste which might constitute a fire hazard in metal containers or destroy at the end of each work day.

1.07 MAINTENANCE MATERIAL

At the end of the project, the contractor shall turn over to the owner a gallon can of each type and color of paint, primer, thinner, or other coatings used in the field painting. The material shall be delivered in unopened labeled cans, just as it comes from the factory. If the manufacturer does not package the material in gallon cans, and in the case of special colors, the materials shall be delivered in new gallon containers, properly closed with typed labels indicating brand, type,

Adico LLC

color, etc. Where multiple component materials are used, the contractor shall supply an unopened kit of the necessary materials in the manufacturer's smallest standard packaging size (i.e., a 2-component epoxy with a 1:1 ratio would require a 1-gallon can of resin and a 1-gallon can of curing agent). The manufacturer's literature describing the materials and giving directions for their use shall be furnished in three bound copies. A typewritten inventory list shall be furnished at the time of delivery.

1.08 COATING SYSTEM COMPATIBILITY

The contractor shall apply coating from only one manufacturer. Application of coating from more than one contractor will not be allowed.

1.09 WASTEWATER TREATMENT PLANT PIPING CODES

Color codes used in painting wastewater treatment plant piping to be in accordance with the following schedule. Service of pipe as designated on yard piping and mechanical plans shall be indicated on each pipe. Owner shall designate location of lettering.

<u>Service</u>	<u>Color</u>
Sludge Line	Brown
Gas Line	Red
Potable Water Line	Blue
Chlorine Line	Yellow
Sewage Line	Grey
Compressed Air Line	Green
Heating Water Lines	Blue with 6" red bands spaced 30" apart
Power Conduit	Orange
Non-Potable Waterlines	Black lettering on white background

PART 2 PRODUCTS

2.01 COLOR SCHEDULE

Final color selection will be made by the engineer from color chips submitted by the contractor; colors submitted shall be in conformance with Federal Standard 595 which may or may not be a manufacturer's standard color.

2.02 TEST EQUIPMENT

The following pieces of equipment will be used by the engineer to determine film thickness and presence of flaws.

- A. Mikrotest. Model DFG-100, 0-40 mils film thickness gage including a set of U.S. Department of Commerce, Bureau of Standards Film Thickness Calibration Standards from 0-8 mils and 10-18 mils.

- B. Tinker-Rasor. Model M-1, low voltage flaw detector (holiday detector).
- C. Clemtex Comparator. Surface anchor profile standard.

PART 3 EXECUTION

3.01 WORK CONDITIONS

- A. Weather. No coating or painting shall be applied: 1) when the surrounding air temperature of the temperature of the surface to be coated or painted is below 50° F (10.0° C); 2) to wet or damp surfaces or in rain, snow, fog or mist; 3) when the temperature is less than 5° F (2.78° C) above the dew point; 4) when it is expected the air temperature will drop below 50° F (10.0° C) or less than 5° F (2.78° C) above the dew point within 8 hours after application of coating or paint. Dew point shall be measured by use of an instrument such as a Sling Psychrometer in conjunction with U.S. Department of Commerce Weather Bureau Psychrometric tables. If preceding conditions are prevalent, coating or painting shall be delayed or postponed until conditions are favorable. The day's coating or painting shall be completed in time to permit the film sufficient drying time prior to damage by atmospheric conditions.
- B. Surface. If surfaces to be painted cannot be put in proper condition for painting by customary cleaning and sanding operations, notify the engineer in writing or assume the responsibility for and rectify any unsatisfactory finish resulting from application to an unsatisfactory surface. Do not apply paint to a wet or damp surface.
- C. Equipment. The contractor's coating and painting equipment shall be designed for application of the materials specified and shall be maintained in good working order comparable to that described in printed instructions of the coating manufacturer. Clean equipment thoroughly before and after use with the appropriate cleaning solution indicated by the coating manufacturer. All gages and controls on spray equipment shall be in proper working order at all times and the gages must be operational and readable.
- D. Warnings. Display caution signs in necessary areas advising of spray painting and warning against open flames.

3.02 SURFACE PREPARATION

- A. Solvent Cleaning. Remove oil, grease, soil and other contaminants by use of solvents, emulsions, cleaning compounds, steam cleaning, or similar materials and methods which involve a solvent or cleaning action, in accordance with Steel Structures Painting Council Surface Protection Specifications (SSPC) SP-1.
- B. Grinding. Remove weld splatter and rough edges and grind rough welds so that all surfaces are in proper condition, in the opinion of the engineer, to receive the specified coating.
- C. Abrasive Blast Cleaning.

1. Use a source that provides compressed air, free of detrimental amounts of water and oil. The compressor shall, as a minimum, be capable of delivering a pressure at the blast nozzle of at least 90 psig; the blast nozzle shall be of the venturi type.
 2. Use a coal slag abrasive such as Clemtex 20/40 Black Beauty or approved equivalent. Keep abrasive clean, dry and free of clay particles and other extraneous matter.
 3. Abrasive blast clean only those areas that can be primed the same day or before any rust starts to form, whichever occurs first. Areas which are not painted the same day must be reblasted again on the day the prime coat is applied. Remove abrasive from surface by brush or industrial vacuum.
 4. All iron and steel surfaces which are to receive a coal-tar epoxy system shall be blast cleaned to "near-white" metal in accordance with Steel Structures Painting Council Surface Preparation Specifications (SSPC) SP-10, Near White Blast Cleaning. The blast cleaning shall produce an anchor pattern of 2-1/2 to 3 mils.
 5. All iron and steel surfaces which are to receive an epoxy-polyurethane system shall be commercial blast cleaned in accordance with SSPC SP-6. The blast cleaning shall produce an anchor pattern of 1-1/2 to 2 mils.
 6. All concrete surfaces to be finished shall be "brush-off blast cleaned" in accordance with SSPC-SP7.
 7. All galvanized metal and concrete surfaces to be finished shall be "brush-off blast cleaned" in accordance with SSPC-SP7. Any remaining paint shall be firmly bonded to the surface. If any remaining paint becomes loosened by application of subsequent painting, the contractor shall re-blast the surface and remove all paint. Care shall be taken not to damage or deteriorate the galvanized coating.
- D. Power Tool Cleaning. Subject to review by the engineer, any above metal work in which SP-6 or SP-10 abrasive blast cleaning cannot be accomplished shall be cleaned in accordance with SSPC SP-3, Power Tool Cleaning, removing loose mill scale, loose rust, loose paint and other foreign matter.
- E. Shop Priming. Where metalwork, equipment, valves and the like are shop primed, the primer used must be compatible with the coating system to be applied in the field. Full information shall be furnished regarding the shop prime coat and, if not compatible with succeeding coats, in the opinion of the engineer, the shop prime coat shall be removed by blast cleaning or as otherwise directed by the engineer.
- F. Unknown or Noncompatible Materials. Items coated with an unknown paint system, or a primer or system which is not compatible with the specified system, shall be blast cleaned and recoated with the specified coating system at the job site. When abrasive blast cleaning is not feasible, the contractor shall notify the engineer and request permission to apply a barrier coat over the unknown or noncompatible material. The proposed barrier coat must be recommended in writing by the paint system manufacturer and is subject to review by the engineer. Following application of the barrier coat, if permitted, the

specified coating system shall be applied. Minimum dry film thickness shall be increased an amount equal to the barrier coat and unknown or non-compatible coats.

3.03 COATING APPLICATION

- A. Manufacturer's Representative. The coating manufacturer will be responsible, through an authorized representative, to provide technical assistance to the paint contractor as needed.
- B. Workmen. Employ workmen skilled in structural steel, piping, and mechanical equipment painting.
- C. Materials.
 - 1. Coating materials, abrasive, and equipment used in painting and blast cleaning are subject to inspection at any time by the engineer or his representative.
 - 2. Remove blasting abrasive and dust from the surface to be painted before paint application is begun.
- D. Paint Coating Methods.
 - 1. Double-lap all welds. Apply prime coat by brush to all weld areas; then apply prime coat to entire surface, including weld areas, by spray, roller or method selected.
 - 2. Coat areas with a uniform film, free of sags, runs, or brushmarks. Where multiple coats of paint are specified, apply each coat in a different color which compliments the following coat and is different than the preceding coat. Each coat must be free of shadows and uniform in appearance.
 - 3. Except where otherwise specified, thin paint only as necessary for workability of coating material in accordance with manufacturer's printed instructions. Use only an appropriate thinner as recommended by the paint manufacturer.
 - 4. When paint is being applied to interior of wet well or any other closed areas, provide adequate ventilation.
 - 5. Comply with recommendations of the paint manufacturer in regard to drying time for each coat, technique of spray application, ventilation, paint thinning, and safety precautions. The contractor must fully inform all members of his field crew of these recommendations.
 - 6. Where inspection shows that the specified thickness is not developed, apply additional coats in accordance with the manufacturer's surface preparation and cure schedule requirements to produce the required film thickness.
 - 7. Repair and recoat improper applications as recommended by the manufacturer or as required by the engineer.
 - 8. Factory finished items shall be protected against damage during transit, storage and erection. Damaged areas must be refinished as the original so that at the end of the

project the finish on all items will be in perfect shape. The following items shall receive final finish at the factory, colors to be reviewed by the engineer.

- a. Electrical panels (to be factory painted ANSI No. 61 gray).
 - b. Light Fixtures.
 - c. Pressure gages.
 - d. Instrumentation.
 - e. Similar equipment with standard factory finish, subject to engineer's review.
9. The following items shall not be painted unless otherwise specified:
- a. Aluminum, brass, bronze, chrome, copper or stainless steel.
 - b. Nameplates or serial numbers.
 - c. Grease fittings.
 - d. Valve operator stems.
 - e. Buried or encased piping or conduit.
 - f. Concrete floors and slabs.
 - g. Glass.
- E. Cleaning. Upon completion of the work, remove all staging and scaffolding. Dispose of all used sand, containers and rubbish in a suitable manner. Remove paint spots, oil or stains on adjacent surfaces. Leave the entire job clean and acceptable.

3.04 FINISH SCHEDULE

- A. Coat items in accordance with Table 1 below.

TABLE 1
SURFACE PREPARATION AND FINISH SCHEDULE

Item:	Coating System
All non-submerged fittings, valves, piping and structural steel (excluding galvanized or stainless steel)	Epoxy Polyurethane

All submerged fittings, valves, piping and structural steel (excluding galvanized or stainless steel piping)	Coal Tar Epoxy
--	----------------

3.05 COATING SYSTEM

- A. Epoxy-Polyurethane. Total minimum dry film thickness after the third coat has dried 5 days will be 8.0 dry mils. See Color Schedule for color of final coat. Final coat of polyurethane shall be topcoat-able.

- | | |
|--|---|
| 1. First Coat (Primer)
2.0 dry mils | Acro 4421 Epoxy Primer;
Engard 422 Epoxy Primer;
Koppers 187 Epoxy Primer;
Mobile Chemical 13-R-56 Epoxy Primer;
Tnemec 66-1211 Epoxoline Primer. |
| 2. Second Coat
4.0 dry mils | Acro 4460 Epoxy-Polyamide;
Engard 460 Epoxy;
Koppers MILP 24441 HB Epoxy;
Mobile Chemical 89 Series Val-Chem
Hi-Build Epoxy;
Tnemec Series 66 Hi-Build Epoxoline |
| 3. Third Coat
2.0 dry mils | Acro 4428 Polyurethane;
Engard 428 Hi-Build Polyurethane;
Koppers 1122B Linear Polyurethane;
Mobil Chemical 40 Series Polyurethane;
Tnemec Series 70 Endure-Shield |

- B. Coal-Tar Epoxy. Apply first coat of coal-tar with horizontal strokes, and second coat of coal-tar with vertical strokes. Total minimum dry film thickness required after third coat has dried 5 days will be 17.5 dry mils.

- | | |
|--|--|
| 1. First Coat (Primer)
1.5 dry mils | Acro 4421 Epoxy Primer;
Engard 422 Epoxy Primer;
Koppers 654 Epoxy Primer;
Tnemec 66-1211 Epoxoline Primer. |
| 2. Second Coat
8.0 dry mils | Acro 4463 Coal Tar Epoxy;
Engard 468 Epoxy Tar Coating;
Koppers Bitumastic 300-M;
Tnemec 46-413 Tneme-Tar. |
| 3. Third Coat
8.0 dry mils | Acro 4463 Coal Tar Epoxy;
Engard 468 Epoxy Tar Coating;
Koppers Bitumastic 300-M;
Tnemec 46-413 Tneme-Tar. |

- C. Bituminous Coated Surfaces. Surfaces of pipe or valves which are to receive an epoxy-polyurethane coating as specified above and which have been bituminous coated shall be abrasive blast cleaned as specified hereinbefore.
- D. Galvanized Surfaces. Surfaces which have been galvanized and which are to receive an epoxy-polyurethane coating as specified above shall be solvent cleaned and, unless specifically recommended otherwise in writing by the paint manufacturer, shall receive one coat of wash primer, 0.5 dry mil, in addition to the 3-coat epoxy-polyurethane system. Total minimum dry film thickness after application of the epoxy-polyurethane coating shall be 12.0 mils to account for the wash primer and galvanizing.

3.06 INSPECTION AND TESTING

A. Inspection.

1. The contractor shall provide OSHA-approved staging, scaffolding and lighting as required to permit proper inspection as outlined in these specifications.
2. Surface preparation, coating application and repairs are subject to inspection by the engineer. The standards published by the Steel Structures Painting Council, especially SSPV-VISL635, Pictorial Surface, will be used as guides for acceptance or rejection of the cleaning, painting or coating application. Particular attention will be given hard-to-reach areas, bolted connections, supports, anchor bolts and threaded joints.
3. A magnetic-type dry film thickness gage, and an electrical holiday detector will be used to determine the acceptability of the paint application. Calibration of the magnetic thickness gage will be done on the site using the U.S. Department of Commerce, Bureau of Standard Film Thickness Calibration Standards.
4. Give sufficient notice in advance of coating applications so that the engineer can perform the following inspections:
 - a. Examination and approval of surface preparation prior to any coating.
 - b. Examination and approval of each coat prior to application of the next coat.
 - c. Inspection of the completed coating for runs, overspray, roughness, and any evidence of improper application.
 - d. Direction or observation of testing.
5. Any re-inspection cost will be charged to the contractor at \$30 per hour including travel time.

B. Testing.

1. The engineer will conduct all tests.
2. Scaffolding shall remain in place until coating inspection has been completed.

3. Should any paint system fail to pass a test, the engineer will specify corrective measures. The paint system will then be retested. Additional expenses including retesting will be charged to the contractor.
 4. The following tests will be conducted:
 - a. Dry film thickness will be tested after each coat of interior and exterior paint has been applied, and after final coat of the exterior system has been applied to the pump, motor, piping and appurtenances. A test will be made for every 25 square feet of surface and at locations designated by the inspector.
 - b. All paint systems will be tested for holidays after the final coat has been applied.
- C. Warranty Inspection. Warranty inspection shall be conducted during the eleventh month following completion of all coating and painting work. All personnel present at the pre-construction conference are requested to attend this inspection. All defective work shall be repaired in accordance with this specification and to the satisfaction of the engineer.

END OF SECTION

CHLORINATION/SULFONATION EQUIPMENT

PART 1 GENERAL

1.01 SCOPE

This section specifies the furnishing, installation and testing of all piping, valves and equipment, including gas feeding, control and alarm equipment and accessories as specified and indicated on the drawings, leak detection equipment, self-contained breathing apparatus, GRP building, and all miscellaneous items required for a complete system.

1.02 SUBMITTALS

Product Data. Submit product data for review by the Engineer in accordance with General Conditions and Specifications including schematic piping and control diagrams and detailed installation instructions and drawings.

Operation and Maintenance Data. Provide the following information:

1. Operating instructions
2. Equipment description and functional description of operation including as-built modifications
3. Maintenance requirements
4. Assembly/disassembly drawings
5. materials and parts list
6. Start-up and shut-down procedures
7. Troubleshooting guide
8. Name, address and telephone number of local manufacturer's representative

1.03 QUALITY ASSURANCE

- A. Provide all specified equipment of guaranteed by the manufacturer to meet the performance requirements as specified herein. All equipment specified herein shall be provided by a single supplier. Acceptable manufacturers are listed in the Proposal section of the Contract Documents.
- B. Provide a qualified technical representative of the manufacturer to inspect the completed equipment installation, make all the adjustments necessary to place the equipment in trouble-free operation, and to instruct operating personnel in the proper care and operation of the equipment furnished.

1.04 WARRANTY

Use equipment guaranteed by the manufacturer to be free of defect in material or workmanship for a period of one year from the date of final acceptance of the project. Manufacturer agrees to replace without cost to the Owner any materials found imperfect or improper.

1.05 COMPLIANCE

All equipment provided and installed shall comply with the 30 TAC 217, latest revision. All equipment should comply with Chlorine Institute, compressed gas society.

PART 2 PRODUCTS

2.01 GAS FEEDERS

- A. Provide remote vacuum type gas feeder equipment.
- B. Feeder shall have the maximum capacity stated on the plans.
- C. Gases shall be metered under vacuum created by injector sized as shown on the plans and located near each feeder. Injector shall be designed to operate against a backpressure of 20 psig at discharge of injector and a supply pressure of 60 psig.
- D. Provide 5" rotameter scales.
- E. Each feeder shall be equipped with necessary piping and fittings and contain automatic safety features to prevent escape of gas in event of (1) loss of vacuum, (2) failure of water supply, (3) blockage of solution line and (4) breakage of any part of vacuum system.
- F. All components such as vacuum regulators, control units, automatic controllers and injectors located as shown on drawings.
- G. When multiple gas feeders are connected to the same gas supply, remote pressure relief valve shall be supplied in the cylinder area. No vent connection shall be allowed in the feeder room. Remove pressure relief valves from individual gas feeders and plug.

2.02 FEEDER CONTROLLERS

- A. Provide Wallace & Tiernan SFC flow proportional controller or equal.
- B. Each controller shall pace a motorized plug positioner, which adjusts the feedrate of the chlorinator. Full-scale control valve travel shall be no less than 3 inches. Pacing signal shall be 4-20 ma from flowmeter, signal conditioner or process controller. Provide feedback potentiometer in actuator to provide closed-loop control circuit with the controller.
- C. Provide 8 channel alphanumeric LCD display. Provide V-notch plug capacities to match feeder rotameter capacities.
- D. Provide controller in NEMA 4X housing and actuator in NEMA 4X housing.

- E. Inputs / Outputs
 - 1. 115 VAC
 - 2. 4-20 ma control input - scaleable from 10-400% (dosage)
 - 3. 4-20 ma configurable output
 - 4. 3 alarm outputs
 - F. Flow scaling from 10 - 400%.
 - G. Control accuracy +/- 2% of full scale over operating range of 100:1.
 - H. Flow input signal scaled from 20 to 200% via dosage control knob.
 - I. Electronic manual and automatic control with on-line diagnostics and self-test/calibration functions.
 - J. Tactile touch key pad control, calibration and diagnostics with 3-digit security.
 - K. Install in location shown on the Drawings.
- 2.03 VACUUM REGULATOR - CHECK UNIT
- A. Provide automatic non-isolating switchover vacuum regulator-check unit system(s) designed for remote vacuum operation.
 - B. Feed range capacity of each regulator shall be:
 - 1. 200-lb/24 hours for 150-lb cylinder
 - 2. 500-lb/24 hours for ton cylinder
 - C. Provide vacuum regulating body of PVC with Teflon and Hypalon diaphragms and Monel / Hasteloy C pressure components.
 - D. Provide filter assembly installed on each regulator.
 - E. Units shall have Chlorine Institute recommended yoking valves as standard manufacturer design. Yoking valves not meeting Chlorine Institute recommendations will not be considered.
- 2.04. REMOTE VACUUM SWITCHOVER UNIT
- A. Provide remote vacuum switchover unit designed to control and indicate the flow of gas under vacuum from two separate banks of cylinders.
 - B. Furnish remote vacuum non-isolating units to allow gas to continue to be withdrawn from the depleted supply after switchover.
 - C. Switchover shall have manual override.

- D. Unit shall be corrosion resistant PVC.

2.05 SELF CONTAINED BREATHING APPARATUS (SCBA)

- A. Provide MSA Work Mask II SCBA or equal with 30 minute rated fully wound composite II cylinder and black Hycar rubber medium Ultravue pressure-demand face piece as indicated on plans.
- B. Provide corrosion-resistant wall mounted case for air mask installed in a remote location as directed by the Engineer and as indicated on plans.
- C. Provide spare 30 minute rated cylinder.

2.06 STORAGE BUILDING

- A. Provide prefabricated FRP/GRP building to house the chlorination/sulfonation system as shown on the plans as manufactured by Intertec, Warminster Fiberglass or equal as shown on plans.
- B. Each unit to be sized as shown on plans.
- C. Sloping roof (2 inches vertical per foot horizontal) peak at center.
- D. Designed to withstand 125 mph wind load.
- E. Wall to be 1 1/4-inch thick FRP laminate.
- F. Provide removable cadmium plated lifting eyes in roof.
- G. Provide two 6-inch diameter screened vents with manual damper in each compartment.
- H. Provide 30 inch by 76-inch door typical to fiberglass construction for each compartment as shown on the Drawings. Door gasket to be neoprene rubber.
- I. Provide stainless steel piano hinge two-point padlock able locking latch for each door.
- J. Provide 12 inch by 12-inch safety glass in each door.
- K. Provide "DANGER" signs on door indicating type of gas present.
- L. Provide exhaust fan sized sized to provide a complete air change every three minutes for each compartment.
- M. Provide (incandescent or florescent) lamp in each compartment.
- N. Provide duplex two-toggle switchbox on outside of shelter adjacent to each door, one switch for lighting and the other for the fan.
- O. Provide duplex weatherproof 120-volt electrical outlet in each compartment.

- P. Provide 1500-watt portable heater with thermostat and tip over switch in each compartment.
- Q. Electrical wiring to be installed in rigid schedule 40 PVC conduit, except that flexible, liquid tight PVC conduit may be used for final tie-in at each piece of equipment. Provide 1 circuit breaker panel.
- R. Provide neoprene rubber gasket between floor flange and concrete slab. Bolt to slab with 1/4-inch expansion anchors at 24-inch centers maximum.
- S. Provide interior gas-tight partition wall dividing shelter into two compartments with dimensions as shown on the Drawings. One compartment shall house electrical, controls and operational equipment. The second shall house CL2/SO2 gas cylinders.
- T. Gas detection equipment as specified herein shall activate exhaust fan and alarm at preset levels.

2.07. ACCESSORIES

- A. Emergency Kits:
 - 1. Chlorine Specialties Emergency Repair Kit "A" for repair of 150-lb gas cylinders w/ option to include SO2 gaskets.
 - 2. Chlorine Specialties Emergency Repair Kit "B" for repair of ton gas cylinders with option to include SO2 gaskets.
- B. Chlorine test kit Hach CN66.
- C. Trunnions & Scales:
 - 1. 150-lb Cylinder - Provide scale designed to independently weigh two compressed gas cylinders including non-metallic base, restraining chains, and digital readouts. Net weight shall be adjustable through tare weight adjustment knobs. The scale shall be capable of handling cylinders 1 1/4 -inch or less in diameter, having a gross weight of 300 pounds or less. Scale shall have two contacts (min) capable of being tied to the autodialer to indicate low chlorine supply.
 - 2. Ton Cylinder - Provide trunnions and scales with digital readouts designed to weigh ton gas cylinders as shown on the plans. Net weight shall be adjustable through tare weight adjustment knobs. Scale shall have contacts to relay low gas supply to the autodialer.
- D. Provide stainless steel chains for spare and empty cylinders with Grinnel cadmium plated clamps and hangers as required.
- E. All tubing shall be HDPE.
- F. All gasket material shall be Viton or Hypalon.

2.08 GAS LEAK MONITOR

- A. Provide (1) gas leak detection unit with components housed in a NEMA 4X polystyrene enclosure(s) as indicated on plans.
- B. Systems to include central control unit with 4 separate, remote sensor-transmitters that may be separated by up to 1000 feet
 - (2) Chlorine Sensors
 - (2) Sulfur dioxide Sensors
- C. Control unit concentration output signal - isolated 4-20 ma DC.
- D. Detection range to be 0-10 ppm with low alarm level set at 2 ppm and high alarm level to be 8 ppm. Control unit to include high intensity LED visual alarm indicator as well as self-contained piezo-electric horn alarm with 85dB output.
- E. Unit to include three programmable alarm relays, 10A at 120VAC, 5A at 240VAC, resistive, SPDT configurable for normal / fail-safe, latching / non-latching and fast/slow operation. Alarm relay and indicator reset activated from front panel.
- F. Unit to have sensor alarm to indicate loss of sensor/transmitter input or failure of optional sensor Auto-test.
- G. Provide battery back up with 12VDC, 4 AMP HR sealed lead acid battery. Battery to be continuously and automatically recharged by power supply module located in control unit.
- H. Sensors to be fitted with integral electrochemical gas generator that automatically produces a specific gas sample to test the sensor response daily.

2.09 PIPING VALVES AND ACCESSORIES

- A. Pipe Materials - provide schedule 80 PVC piping and fitting rated for a minimum pressure of 400 psig at 73 degrees F.
- B. Joints - as far as practicable, all joints to be solvent weld socket type. Where threaded joints are necessary to transition to equipment, joints to be made using Teflon tape jointing material.
- C. Valves
 - 1. Ball Valves - Chemtrol Tru-union PVC Ball Valves, Viton fitted.
 - 2. Ball Check Valves - Chemtrol Tru-union PVC Ball Check Valves, Viton fitted.
 - 3. Diaphragm Check Valves - Plast-O-Matic Series CKM, Viton diaphragm.
 - 4. Solenoid Valves - ASCO Model 8210G4MO, normally closed brass solenoid valves.
- D. Water Pressure Gauges - Ametek, 3 1/2", rated 0-160 psi.
- E. Pipe Clamps - Grinnel split clamp type, Model 138R with Model 128R bases and 3/8" cadmium plated all thread rod. FRP strut and hanger.

- F. Basket Strainer - Hayward Simplex Basket Strainer with socket ends and removable basket having 1/32-inch diameter perforations.
- G. All tubing shall be HDPE.
- H. All gasket material shall be Viton or Hypalon.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install all equipment and connecting piping in accordance with manufacturer's recommendations.
- B. No form of energy shall be turned on to any part of the system prior to approval of factory authorized service representative.
- C. Clean all new piping prior to testing.
- D. After installation, and in the presence of the Engineer, test all pipelines for tightness in acceptable manner. Furnish suitable testing plugs or caps, all necessary pipe connections, test fluids, gauges or other equipment and all labor required.
- E. Remove or valve off from lines all instrumentation and appurtenant equipment, which is not capable of withstanding the test pressures.
- F. Pressurize chlorine supply system to 150 psig with dry air or nitrogen and test for leaks by application of soapy water to outside of all joints. After pressure testing all piping, gradually introduce chlorine gas and test the system for leaks as described below.
- G. Test for chlorine leaks with commercial 26 degree Baum Ammonia.
- H. After installation of equipment in the presence of the Engineer, operate each unit to demonstrate its ability to operate without leakage and to perform its specified functions satisfactorily.
- I. Have service technician test pacing and trimming system at 10, 50 and 80 percent of scale to demonstrate that chlorinator response to pacing and trimming signals is within manufacturer's published accuracy statement.
- J. Operate chlorinators over 2 hour period at varying rates to demonstrate that feed rates are within manufacturer's published range.

END OF SECTION

SECTION 11 328
PERFORATED PLATE FILTER SCREEN

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes requirements for furnishing one (1) fine screen with perforated filter panels and associated controls. Equipment shall be installed as indicated in the contract drawings, as specified herein, as recommended by the supplier and in compliance with all local, state and federal codes and regulations.
- B. Each fine screen shall be furnished with perforated filter panels, drive chain, sprockets and bearings, rotating self-adjusting cleaner brush, deflector roller, spray water system, drive motors, gear reducers, anchor bolts, controls and all accessories and appurtenances specified or otherwise required for a complete and properly operating installation.

1.02 MANUFACTURER

- A. The screening equipment specified in this section shall be the SAVÉCO® North America, Inc. FSM Perforated Filter Screen Model FRSIII 1300 x 75/6. Substitute equipment must be modified as necessary to provide the specified features and to meet the specified requirements.

1.03 REFERENCES

- A. The provided perforated model shall, as applicable, meet the requirements of the following industry standards:
 - 1. AISI (American Iron and Steel Institute)
 - 2. ANSI (American National Standards Institute)
 - 3. ABMA (American Bearing Manufacturers Association)
 - 4. AGMA (American Gear Manufacturers Association)
 - 5. NEMA (National Electrical Manufacturer's Association)
 - 6. NFPA (National Fire Protection Association)
 - 7. ASTM (American Society for Testing and Materials)
 - 8. WSC (American Welding Society Code)
 - 9. ASME (American Society of Mechanical Engineers)
 - 10. NEC (National Electrical Code)
 - 11. UL (Underwriters Laboratory Standards)

1.04 EXPERIENCE

- A. In order to establish a quality standard for the manufacture and production of the equipment, all manufacturers shall meet the requirements listed in this section.
- B. Manufacturer shall have a minimum of ten years of experience in producing substantially similar equipment and shall be able to show evidence of at least fifty (50) installations in satisfactory operation for at least five years.

- C. The minimum acceptable standards for the equipment shall conform to the project contract documents as outlined in the respective sections of the specifications and drawings.

1.05 SUBMITTALS

- A. The Manufacturer shall furnish the required number of submittals (and an electronic version if required) within 4 - 6 weeks of receipt of the order to verify compliance with the specification. The submittals shall include:
 - 1. Certified general arrangement drawings showing all important details including materials of construction, dimensions, loads on supporting structures, and anchor bolt locations.
 - 2. A list of all deviations from drawings and specifications.
 - 3. Descriptive literature, bulletins and/or catalogs of the equipment.
 - 4. Complete data on motors and gear reducers.
 - 5. Wiring diagrams and electrical schematics for all control equipment to be furnished.
 - 6. Describe the automatic adjusting cleaner brush.
 - 7. Describe method of checking and adjusting drive chain tension.
 - 8. Provide details of the area at the bottom of the screen to show how the screen will pick up large objects off the channel floor.
 - 9. Provide details of the bottom of the screen that shows the method employed to prevent buildup of grit and small stones beneath the screen and to prevent wear on the screen elements.
 - 10. Provide independent certified test data confirming screen SCR value with perforated panels of the same size as specified herewith. Testing shall confirm the percentage of all material captured by the screen as documented by the National Screen Evaluation Facility at Chester Lee Street in England by TRPM and Northumbrian Water. The documented report of the test which shows the result of screenings capture rate (SCR) must be provided with submittals.

1.06 WARRANTY

- A. All SAVÉCO North America equipment provided shall be covered against manufacturing defects in materials and workmanship during normal use and service for a period of one (1) year from date of start up as long as periodic maintenance procedures are followed and performed. Items specifically not covered by the warranty are consumable wear parts as identified in the O&M manual.
- B. The screens shall be unconditionally guaranteed to meet or exceed design criteria detailed in Part 2 of this specification.
- C. Lower bearing/bottom revolving guide disk with incorporated bearing shall be guaranteed for five (5) years.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. The following manufacturers are named to establish a standard of quality necessary for the Project:

1. SAVÉCO North America, Inc. – FSM Perforated Screen FRSIII.
2. Approved equal.

2.02 QUALITY ASSURANCE

- A. Equipment manufacturer shall be ISO 9001 certified.
- B. The Perforated Filter Screen will be fully assembled and run to confirm fit and function of the screen. A certificate of the shop run test shall be supplied with the shipping documents.
- C. The Perforated Filter Screen will be shipped to the site fully assembled, if possible, and dependent upon the height of the screen. Some ancillary components may be removed to prevent damage during shipment.
- D. Shop Surface Preparation/Coating: All weldments shall be cleaned and passivated using a full dip passivation process to remove weld spatter, slag and discoloration. Bearings, electrical devices, drive and wiper chains and sprockets, motor and gear reducer shall be provided with the manufacturer's standard coating system. Screen weldments not full dipped passivated, using spray on cleaning solutions, passivating welds only or bead blasting shall not be allowed.
- E. Definitions
 1. Screen Height: The height between the operating floor and the top of the perforated plate screens.
 2. Discharge Height: The height between the operating floor and the screenings discharge.
 3. Head Loss: Total difference in elevation of the water level upstream of the upstream screening elements and downstream of the downstream return elements.
 4. Percent Blinded: Percentage of submerged area of partially blinded perforations relative to total area of non-blinded perforations.
 5. Maximum Differential Head: Maximum difference in elevation of the water level upstream and downstream of the upstream screening elements that the screen will experience during emergency conditions (i.e. screen fully plugged).
 6. Screenings Capture Rate (SCR) / Efficiency: Percentage of all material captured by the screen as documented by the National Screen Evaluation Facility at Chester Lee Street in England by TRPM and Northumbrian Water. The documented report of the test which shows the result of screenings capture rate (SCR) must be provided with submittals.
 7. Screen Angle: Angle of screen frame incline from horizontal plane parallel with mounting floor.

2.03 PERFORMANCE REQUIREMENTS

- A. Perforated Filter Screens
 1. Solids will collect on a continuous belt of perforated filter panels perpendicular to the flow, elevating solids to the discharge point. The perforated filter panels shall be

cleaned by means of an automatic adjusting rotating cleaner brush. Screens that do not have an automatic adjusting rotating cleaner brush shall not be allowed.

2. The perforated filter panels shall be driven by drive sprockets secured to the main drive shaft.
3. Perforated plate screens shall be designed in accordance with the following performance and configuration requirements:
4. The minimum screening capture rate for 6 mm perforation must be 85%. This result must be confirmed by the National Screen Evaluation Facility at Chester Lee Street in England by TRPM and Northumbrian Water. The documented report of the test which shows the result of screenings capture rate (SCR) must be provided with submittals.

2.04 MATERIALS OF CONSTRUCTION

- A. All moving wetted parts, all wetted parts on which moving parts ride, all filter belt components under guiding, bearing, or driving loads shall be 304 stainless steel, wear resistant heat treated, high tensile, wear resistant steel, or UHMW-PE as noted below:
 1. The frame shall be minimum 4 mm thick type 304 stainless steel.
 2. The discharge chute, and all covers shall be type 304 stainless steel.
 3. The screen and brush drive shafts shall be type 304 stainless steel.
 4. The rotating deflector shall be from type 304 stainless steel.
 5. The lower sprocket stub shafts shall be from type 304 stainless steel.
 6. The upper and lower sprockets shall be type 304 stainless steel with only the wear area hardened.
 7. The screening elements shall be one piece curved from type 304 stainless steel and will not require upstream protection using coarse bar screens. Screens that require upstream protection shall not be permitted.
 8. The special designed heavy duty drive links will be from type 304 stainless steel.
 9. The side and bottom seals shall be replaceable contoured UHMW-PE with 304 stainless steel fasteners.
 10. The bottom seal between the lower end of the screen frame and the width of the filter panels shall be from Buna-N rubber and shall include a triple layer polyester brush with a 304L stainless steel adjustable holder.
 11. The screening element support rails shall be 304 stainless steel with UHMW-PE wear surface or equivalent.
 12. Spray bars from shall be 304 stainless steel.
 13. All fasteners shall be 304 stainless steel.
 14. All other appurtenances shall be of manufacturer's standard coated material.

2.05 EQUIPMENT DESIGN FEATURES

- A. General

1. The screen shall be designed to provide maximum solids filtration and thus maximize capture of debris and minimize rate of head loss increase through the screen. This shall be achieved by means of one piece perforated curved filter elements. The maximum perforated opening shall be 6 mm. The screen will be operated intermittently by means of differential head measurement.
2. The screen shall be mounted by fastening to the top of the channel. The screen mounting system shall be constructed of 304 stainless steel and complete as required to function in accordance with the specification. Routine service, repair or replacement of damaged parts, shall be possible with the screen in the channel.
3. Unit shall be designed so that maintenance of the drive mechanism can be accomplished at operating floor level. Screen elements shall be capable of removal at the operating level without taking the screens out of the channel or affecting the continuous or intermittent rotation of the screen.
4. The screen shall be factory assembled and tested prior to delivery and shall be delivered to the site fully assembled (other than the motor/reducer unit, discharge chute, and support legs). It shall be capable of being set in place and field erected by the contractor with minimal field assembly.
5. The influent screening system shall include a perforated plate screen and a washer/compactor system. The perforated plate screen shall be a self-contained screening system used to capture and transport wastewater debris to the washer/compactor system.
6. Influent screening system shall be designed for continuous and intermittent operation. The perforated plate screens shall be installed in the channel as shown on the Contract Drawings.
7. All components shall be amply proportioned for all stresses that may occur during manufacturing, transportation, erection, and operation.

B. Filter Screen

1. The one piece curved screening elements shall be nominal 1/8" thick and fixed by four fasteners to the heavy duty chain drive links having 7.87" pitch x 1.38" x 0.2" thick section which shall ride on 2" x 1.5" thick UHMW-PE supports located on the upstream and downstream sides of the screen. On every tenth screen panel a set of static, non-engaging 'finger' type lifters shall be attached to the lower edge of the panel, designed specifically to lift spherical and large size solids (stones, square lumber cans, bottles, rag clumps, etc.) from the bottom of the channel. Screens that use lifting ledge on top of the panel thereby preventing the removal of solids from the bottom of the channel floor will not be permitted. Screens which do not support the drive chains on the downstream side will not be approved.
2. A submerged stainless steel plate shall be provided at the base of the screen. The base of the screen shall be fitted with a rubber seal 10 mm thick directly followed by a polyester brush along the full length of the filter panel to prevent ingress of stones and grit and to prevent solids bypass.
3. Two (2) upper sprockets from 3/4-inch thick type 304 stainless steel with 7.87 inch pitch. Upper sprockets shall be split to allow removal without having to remove the drive shaft.
4. Two (2) revolving 3/4-inch thick lower guides with 7.87 inch pitch. Lower revolving guide bearings shall be slide bushing from bronze with a 316 stainless steel 3.15 inch

stub shaft. Complete unit sealed with stainless steel cover, O-rings and v-rings seals. Grease line from stainless steel brought to operating level. Ball or roller bearings or slide bushings made of plastic or ceramic shall not be accepted as a lower sprocket bearing.

5. To prevent deflection, the one-piece filter elements shall have a minimum thickness of 1/8" (nominal) and shall be made of curved stainless steel. This is required to ensure structural integrity and smooth operation. Engaging tines, fingers or engaging elements, which can bind or jam, will not be acceptable. Filter panels that are not curved shall not be acceptable. Filter panels with a flat face inclined and a horizontal ledge shall not be allowed.
6. The screening elements are to be of the engineered curved shaped so that they can be cleaned with optimum efficiency with an automatic adjusting rotating cleaner brush. Minimum diameter of rotating cleaner brush is 450 mm. The rotation direction of the brush drive must be in the opposite direction of the belt drive.
7. The rotating cleaner brush shall be nylon and have a minimum diameter of 450 mm and be self-adjusting with no manual or motorized adjuster mechanism. The motorized cleaner brush will automatically adjust as the brush wears during use. The automatic adjustment will maintain consistent cleaning efficiency at a SCR value of 85%. The distance between the cleaner brush and filter panels will be automatically controlled to ensure the distribution and magnitude of pressure is equal across the entire filter panel surface. Systems that use gas springs or struts to adjust brush shall not be permitted. Screens with rotating cleaner brushes requiring manual adjustment or adjustment with gas cylinders or a motor shall not be permitted.
8. The lifting fingers are located on each tenth filter plate. The lifting fingers must be located on the lower area of the filter element. Systems where these fingers are near the middle or top of the element are not permitted. They will be designed to remove spherical solids from the bottom of the channel, which may otherwise roll back off the screen face and accumulate thus creating a wear problem as the screen elements are moving through the solids as they ascend on the upstream side of the screen.
9. The screening elements must be sealed against the chain by means of special knuckle joint side plates attached to each perforated plate filter element. Maximum gaps between the screen panels and side frame is 1 mm. For wear resistance, the side plates must be made in stainless steel. Screening elements with plastic or fiberglass side seal plates shall not be allowed. Simple brush systems are not permitted. This is to ensure that small items are not floated past the sides of the screening elements.
10. A rotating deflector consisting of a 304 stainless steel tube roller wiper fabricated from 3.5 inches O.D. complete with 1.75 inches diameter stainless drive steel shafts at each end supported by two-hole flange bearings and auxiliary driven by screen drive unit. The roller wiper shall turn at max 20 rpm and function to seal the gap between the filter panels and discharge chute and to direct the heavier solids removed from the screen by the revolving brush cleaner into the screenings wash press inlet hopper. The rotating deflector prevents bypassing of solids into the downstream channel. Screens supplied with a brush scraper and/or a static deflector that is not self-cleaning shall not be permitted

C. Filter Screen Panels

1. The screen filtration belt shall be provided with one piece perforated curved elements, which limits the maximum opening in any direction to the perforated opening size detailed in Paragraph 2.03.A.3-Screen Panel Perforation Diameter. This

restricted opening profile prevents long thin materials from passing through the openings. Filter panels that are not curved shall not be acceptable. Filter panels with a flat face inclined and a horizontal ledge shall not be allowed.

2. No cleaning devices which cause trash to be pushed or dropped into the interior of the filtration belt will not be allowed.
3. The individual screening elements must not exert stresses on one another and the load transmission must be exclusively via chains. Systems which involve connecting the screen elements together with other or additional attachments are therefore not permissible because of stressing. Furthermore, the elements must not be able to overlap one another, which would create spaces in which material could collect.
4. Due to the risk of high differential levels on the screen, in the event of a power failure, excess solids load condition, mechanical breakdown etc. the screen shall be designed to withstand a maximum differential head of 5.0 ft. measured from the upstream water level to the downstream water level.
5. The horizontal space between each adjoining screen panels will not exceed 1mm +/- 10% at any point between any adjacent panels.
6. To control the buildup of biological slimes behind the screen panels, a 1-inch diameter internal spray water wash spray bar will be provided, manufactured from stainless steel with PVDF spray nozzles. The spray bar will be attached in the internal space between the rotating screen panels and the spray water will be directed to wash each screen panel as the panel moves past the spray nozzles. The spray bar will supply approximately 9 gpm per ft. width of screen panel at a pressure of 40 - 45 psi. The spray orifices will be non-plugging and suitable for use with treated effluent water. A minimum 1" NPT connection will be located on one side of the screen frame above the operating floor level and the water supply connection will include an inline strainer, manual operated ball valve, and solenoid valve suitable for attaching to the 1" NPT connection. Systems that require spray bars to assist with removing screenings from the filter panels shall not be allowed. The nozzle system for cleaning the belt must be located after the cleaning by the brush. Systems with a spray bar prior to the brush are not permitted.

D. Chain and Sprockets

1. The filter panel drive chains shall be equal in pitch to the upper and lower drive sprockets.
2. Chain shall be heavy-duty block chain, which is supported outside the frame by UHMW-PE, a hardwearing, high lubricity synthetic material. Chain link material shall be as Paragraph 2.05.A.8. Breaking load of the chain minimum 20,232 lbf (90 kN). Chain shall have no rollers. Chain shall have no metal to metal wear associated with running roller chain in the screen frame.
3. Each screen shall be provided with two identical drive sprockets from material as per Paragraph 2.05.A.6. Sprocket pitch and width shall match the heavy duty chain – 7.87-inches. The sprockets shall be mounted on a drive shaft from material as per Paragraph 2.05.A.3 mounted between grease-able bearings mounted on the external side of the frame.
4. Chain drive shaft bearings shall be four-hole flange mounted to a stainless steel plate. The bearings shall be grease lubricated. Chain tension adjustment is achieved via the take up screws attached to the flanged mounting plate. The take up screw shall be an

acme thread type from type 18-8 stainless steel. The bearing casing shall be made of paint coated cast iron. Units using a threaded rod shall not be allowed.

5. Chain guides shall be secured to the screen frame for the full height of travel. A guide track shall also be located at the bottom of screen to allow the chain to travel from a downward to an upward direction. The chain guides shall accurately guide the chain and filter panels. The chain guide tracks shall be as Paragraph 2.05.A.11.

E. Screen Drive Mechanism

1. Motor: TEFC geardrive inverter duty motor suitable for 460/3/60 electrical supply.
2. Gear Reducer:
 - a. Helical Worm type from SEW.
 - b. Hollow, shaft type.
 - c. Anti-friction bearings.
 - d. AGMA I rating.
3. All drive components shall be designed to operate the screen continuously under a calculated load resulting from the differential water level between the upstream and downstream sides of the screen.
4. Minimum filter panel speed shall be 10 fpm.

F. Brush Drive Mechanism

1. Motor: TEFC geared motor suitable for 460/3/60 electrical supply.
2. Gear Reducer:
 - a. Helical Worm type from SEW.
 - b. Hollow, shaft type.
 - c. Anti-friction bearings.
 - d. AGMA I rating.

G. Rotating Deflector Drive Mechanism:

1. Auxiliary driven from Screen drive. Screens that require a third motor for the rotary deflector shall not be allowed.

H. Screen Travel Speed:

1. Each screen shall have a travel speed that will quickly remove debris from the channel, and quickly return clean screen panels into the channel for further debris removal:
2. High travel speeds are critical for efficient debris removal as well as to limit the head loss across the screen since the percent blinding increases in direct proportion to the time the panel is exposed to the wastewater flow in the channel.
3. Screens shall have a two-speed (or VFD) drive capable of continuously operating at Peak Flow throughout up to a maximum screen travel speed of 23 feet per minute (FPM).

4. Two speed motor starter (or Drive motor VFD) for multiple speed control. **See Paragraph 2.06.A.4**

I. Discharge Chute/Hood:

1. A discharge chute/hood shall be provided that fully encloses the discharge section of the screen. The upper section of the discharge chute/hood shall be hinged to allow complete access the screen cleaner brush. The hinged hood shall be secured with quick closing clamps and supplied with two (2) gas cylinders from stainless steel to aid opening and closing
2. Discharge chute shall be from type 304 stainless steel.
3. Each screen discharge chute/hood shall direct screenings directly to the compactor or other device. Outlet shall extend down to the inlet of the compactor and shall be designed to match the screenings compactor inlet hopper with no water leaking or screenings dropping to the floor.

J. Frame Enclosures / Covers

1. The screen shall be provided with easily removable, sufficiently stiffened covers made of 18 gauge 304 stainless steel plates with edges on all sides.
2. Covers shall be provided on the upstream and downstream portion of the screen above the operating floor.
3. Covers shall be secured in place using quarter turn tool operated stainless steel cam latches.

2.06 ELECTRICAL CONTROLS AND DEVICES

- A. Control Panel: 480 volt primary control panel shall be provided with a type 304, stainless steel, NEMA 4X enclosure. Panel shall be suitable for wall mounting with the following electrical components to provide proper operation of the equipment.

1. Main disconnect with through door interlock handle.
2. Step down control transformer.
3. Branch circuit protection.
4. Screen drive motor VFD.
5. Brush motor starter (IEC) with overloads.
6. Emergency stop pushbutton.
7. Hand-Off-Auto selector switches for screen and brush drive.
8. Fast-Off-Slow switch for each screen drive motor.
9. Open – Close – Auto switch for screen wash water solenoid valve.
10. Hour meter for each motor.
11. Control power on, run and fault indicating lights.
12. Alarm reset pushbutton.
13. Allen Bradley Micro850 PLC
14. Allen Bradley Panelview Plus 800 series HMI with 4-inch display .

15. Run and alarm auxiliary contacts for use by the customer.

16. UL label.

- B. Local Emergency Stop Pushbutton: A local emergency stop pushbutton station will be provided in a NEMA 4X enclosure for field mounting at the screen unit.
- C. Motor Cut-out Switch: One (1) interlock switch will be provided, suitable for the area classification and mounted to the hinged hood.
- D. Solenoid Valve: One (1) solenoid valve shall be provided to control flow to the spray wash assembly. The brass body valve shall be 120 Volt, single phase, 60 Hz with a NEMA 4X housing.
- E. Ultrasonic level sensor
 - 1. Ultrasonic Differential Level Controller and Sensors – One (1) Pulsar Ultra-5 ultrasonic controller with one (1) upstream sensor and one (1) downstream sensor for screen start. The controller shall have 5 internal relays. Each sensor shall have a range of 1-20 ft and be supplied with a 33 ft integral cable and shall be suitable for installation in a Class I Division 1, Group D hazardous area, with stainless steel mounting bracket.

2.07 OPERATION, MONITORING, AND CONTROL

- A. Screen and Brush Hand Operation: In HAND position the operator shall be able to run the screen or brush assembly by selecting the respective HOA selector switch. Turning the screen selector switch to Off will stop the unit. Screen drive motor is interlocked with the brush motor. Brush motor must be on if the screen is in operation.
- B. Screen Automatic Operation: When the Screen and Brush are in AUTO position the screen shall be controlled by the water level sensors. Screen operation shall be started when the water level sensors monitor a certain water level difference, when the sensor senses high upstream water level, high differential, or when a certain time has passed since the last operation of the screen. When the upstream water level reaches its high level setting or when the high differential setpoint is reached, the Screen will run in high speed. When both the high level and high differential drop below their setpoints, the screen will decrease to low speed after the high speed off delay timer has expired.
- C. Wash water solenoid valve Operation: In HAND position the wash water solenoid valve will open. In the CLOSE position the wash water solenoid valve will close.
- D. Wash Water Automatic Operation. The wash water solenoid valve will open and close via a repeat cycle timer whenever the screen is in operation.
- E. Fault Conditions:
 - 1. Excessive motor power will trip the starter overload relays, immediately stop the drive or brush motor, and illuminate the alarm indicating light. This fault must be reset by depressing the associated motor starter overload reset internal to the control panel.

2. Momentary drive high torque will trip the screen motor load monitor, immediately stopping the screen drive motor, and illuminate the alarm indicating light. Pushing the reset pushbutton will reset this fault.

2.08 ANCHORAGE AND FASTENERS

- A. Anchor Bolts: All anchor bolts shall be a minimum of 1/2 inch diameter and made of type 304 stainless steel. The equipment supplier shall furnish all anchor bolts, nuts, and washers required for the equipment.
- B. Fasteners: All fasteners shall be type 304 stainless steel. The equipment supplier shall furnish all fasteners required for the assembly of the equipment.

PART 3 - EXECUTION

3.01 PREPARATION

- A. The mounting points of the channel shall be level and parallel and of proper size.
- B. Contractor shall verify all dimension in the field to ensure compliance of equipment dimensions with the drawings.

3.02 INSTALLATION

- A. The installation is the responsibility of the Purchaser. Complete installation procedures are included in the O&M manual shipped with the unit.

3.03 START UP/TRAINING/FIELD QUALITY CONTROL

- A. The initial start-up of the equipment will be performed by an authorized representative. The authorized representative will verify the proper operation and installation and provide training to the equipment operators. One (1) trip for a total of two (2) days is allotted.

3.04 ADJUSTING AND CLEANING

- A. Information on minor periodic adjustments and cleaning is contained in the Operating and Maintenance Manual.

END OF SECTION

1.0 GENERAL

1.01 SCOPE OF WORK

- A. This section includes Requirements for furnishing one (1) screenings wash press and associated controls. Equipment shall be installed as shown on the as indicated on the contract drawings and as specified herein, as recommended by the supplier and in compliance with all local, state and federal codes and regulations.
- B. Each screenings wash press will consist of a flange mounted gearmotor, spiral with separate thrust bearing, wash water spray system, stainless steel trough, wash zone, press zone, discharge piping, electrical controls, and all other appurtenances required or shown on the drawings.

1.02 MANUFACTURER

- A. The screenings wash press equipment specified in this section shall be the SAVÉCO® North America, Inc. FSM Screw Wash Press Model SPW300-1300. Substitute equipment must be modified as necessary to provide the specified features and to meet the specified requirements.

1.03 REFERENCES

- A. The provided Screw Wash Press Model shall, as applicable meet the requirements of the following industry standards:
 - AISI (American Iron and Steel Institute)
 - ANSI (American National Standards Institute)
 - ABMA (American Bearing Manufacturers Association)
 - AGMA (American Gear Manufacturers Association)
 - NEMA (National Electrical Manufacturer's Association)
 - NFPA (National Fire Protection Association)
 - ASTM (American Society for Testing and Materials)
 - WSC (American Welding Society Code)
 - ASME (American Society of Mechanical Engineers)
 - NEC (National Electrical Code)
 - UL (Underwriters Laboratory Standards)

1.04 EXPERIENCE

- A. In order to establish a quality standard for the manufacture and production of the equipment, all manufacturers shall meet the requirements listed in this section.
- B. Manufacturers shall have a minimum twenty five (25) years history of engineering and fabricating screenings wash presses. Documentation of at least ten (10) installations having been installed for a minimum of five (5) years shall be provided.
- C. The minimum acceptable standards for the equipment shall conform to the project contract documents as outlined in the respective sections of the specifications and drawings.

1.05 SUBMITTALS

- A. The Manufacturer shall furnish the required number of submittals (and an electronic version if required) within 4 – 6 weeks of receipt of the order to verify compliance with the specification. The submittals shall include:
 - 1. Certified general arrangement drawings showing all important details including materials of construction, dimensions, loads on supporting structures, and anchor bolt locations.
 - 2. A list of all deviations from drawings and specifications.
 - 3. Descriptive literature, bulletins and/or catalogs of the equipment.
 - 4. Complete data on motors and gear reducers.
 - 5. Wiring diagrams and electrical schematics for all control equipment to be furnished.

1.06 WARRANTY

- A. All SAVÉCO North America equipment provided shall be covered against manufacturing defects in materials and workmanship during normal use and service for a period of one (1) year from date of start up as long as periodic maintenance procedures are followed and performed. Items specifically not covered by the warranty are consumable wear parts as identified in the O&M manual.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. FSM Screw Wash Press Model SPW300 shall be as supplied by SAVÉCO North America, Inc.
- B. Approved equal.

2.02 QUALITY ASSURANCE

- A. Equipment manufacturer shall be ISO 9001 certified.
- B. The Screw Wash Press will be fully assembled and run tested to confirm fit and function of the wash press. A certificate of the shop run test shall be supplied with the shipping documents.
- C. The Screw Wash Press will be shipped to the site fully assembled, if possible, and dependent upon the height of the wash press. Some ancillary components may be removed in order to prevent damage during shipment.

2.03 DESIGN REQUIREMENTS

- A. General
 - 1. The shafted screw type screenings wash press shall be a complete assembly consisting of an inlet hopper between the filter screen and wash press. The shafted screw wash press shall be designed to receive and wash screenings, then reduce the volume and water content by means of a pressing zone. The unit's washing and compacting performance will be as documented in Paragraph 2.03. After the

compacting and dewatering process, the screenings shall be conveyed through the discharge transportation tube to the dumpster.

2. Screenings washers that use impellers and/or grinders to tear and shred fibrous screenings at the inlet to the compactor and therefore increase the amount of inert material returned to the plant shall not be allowed.
3. Refer to and comply with the performance requirements list in Paragraph 2.03.
4. The screw wash press shall be designed and built to withstand maximum possible forces exerted. All structural and functional parts shall be sized to prevent deflections or vibrations that may impair the screw wash press operations. All components of the screw wash press shall be made of type 304 stainless steel except the shaft screw which shall be from high strength steel with Hardox™ 400 flights throughout. Bearings, electrical devices, sprockets, motor and gear reducer shall be of the manufacturer's standard materials.
5. Shop Surface Preparation/Coating: All weldments shall be cleaned and passivated using a full dip passivation process to remove weld spatter, slag and discoloration. Bearings, electrical devices, drive and wiper chains and sprockets, motor and gear reducer shall be provided with the manufacturer's standard coating system. Screen weldments not full dipped passivated, using spray on cleaning solutions, passivating welds only or bead blasting shall not be allowed.
6. The screw wash press shall discharge dewatered screenings capable of passing the EPA Paint Filter Test as described in method 9095 of the EPA publication SW-486.

B. Screw Housing

1. The screw housing shall be constructed from 8mm (0.31 inch) thick type 304 stainless steel. The screw housing shall have support beams with U-profile, thickness of 5mm on each side. The screw housing shall be designed to support all required loads.
2. The interior of the screw housing shall incorporate with minimum of six (6) anti-rotation wear bars each fabricated from Hardox® 400 special high strength alloy steel and plated with hard-faced material with minimum Brinell Hardness of 400.
3. The bottom of the housing shall be provided with perforated drainage sections. Perforations shall be countersunk with maximum 6 mm in diameter. Units supplied with slotted or wedgewire drainage or compaction sections shall not be allowed. Perforations not countersunk shall not be allowed.
4. An inlet area length as specified in Paragraph 2.03, will receive incoming materials. A hopper constructed from type 304 stainless steel shall be provided by the manufacturer to direct solids to the inlet area of the screenings washer.

C. Shafted Screw

1. The screw will be constructed of high strength low alloy carbon steel and Hardox® 400 flights (minimum 400 Brinell), prime coated for protection during shipment. Screw OD shall be 300 mm (11.8 inches) with 12 mm (0.47 inch) thick flights welded to a minimum 100 mm (4 inch) diameter shaft. The final flight of the screw

shall be supplied dual thickness 24 mm (0.94 inch) for increased wear life. Screws that do not have the final flight from dual thickness (24 mm) Hardox® 400 will not be allowed.

2. A replaceable nylon brush reinforced with a stainless steel backer shall be attached to the screw flights in the drainage area with stainless steel clips and hardware. To reduce wear on the brush the design shall be such that the screw shall not be allowed to rest in the press housing. The screw shall be fully supported and cantilevered off the thrust bearing.

D. Thrust Bearing

1. An independent thrust bearing housing shall be flanged mounted to the drive and flanged mounted to the press body. The independent thrust bearing assembly shall be protected from the environment and located in a separately sealed area located inside the press body. The flange portion of the thrust bearing shall have a grease fitting centrally located for ease of maintenance.
2. The thrust bearing shall fully support the screw and handle the load created during compaction and reversal of the screw. The thrust bearing shall utilize an SKF roller bearing complete with double lip grease seals and O-rings. The mounting flange shall have an O-ring seal mounted in a machined groove to seal the housing against the press body. Designs that utilize the thrust bearing inside the gear reducer housing will not be acceptable.

E. Drain Pan

1. A drain pan shall be mounted to the bottom of the screw housing along the full length of the housing. The pan shall be sloped to the drain and it shall be provided with a flushing water connection. Drain connection shall be minimum 6 inch plain ended pipe. Flush connection shall be minimum 1 inch NPT connection.
2. The pan shall be secured in place with hardware and allow for easy removal. Drain pan shall be constructed of minimum 14-gauge 304 stainless steel.

F. Wash Water Manifold

1. The screenings washer shall be provided with a minimum of two (2) separate connections for injecting wash water into the screenings.
2. Wash water spray nozzles shall be capable of utilizing the screened plant effluent without clogging or fouling.
3. The wash zone shall include a spray wash system to wash organic residue from the screenings. The wash zone spray will consist of one (1) spray header with two (2) wash water injection points at 3 o'clock and 9 o'clock, two (2) brass spray nozzles, two (2) PRV's, one (1) ball valve and one (1) solenoid valve. The system will have an output of 16 gpm at 20-40 psi. The spray connection will be 1 inch NPT.

G. Inlet Hopper

1. The inlet hopper shall be designed to accept discharge screenings from the filter screen discharge chute. The hopper shall directly interface with the filter screen discharge with no solids or water bypass.
2. The inlet hopper shall be fabricated from minimum 12-gauge type 304 stainless steel.

H. Discharge Pipe

1. The discharge pipe shall be flanged and mounted to the press body by a minimum 17 inch diameter flange.
2. The discharge pipe shall be designed to transport the washed, dewatered, and compacted screenings to the discharge point without plugging.
3. The diameter of the discharge pipe shall increase in size to ease the transportation of the screenings.
4. For increased washing and compaction performance the discharge pipe will include a manually controlled back pressure device. The back pressure is manually generated by a stainless steel plate positioned by operating personnel. Access to the back pressure device is through a stainless steel access box fitted with a bolt in place hatch with handle. The access box is integral to the discharge pipe. Material of construction 304 stainless steel.
5. The discharge pipe elbow shall be fabricated from minimum 11-gauge type 304 stainless steel.
6. The discharge piping following the elbow shall be fabricated from minimum 12-gauge type 304 stainless steel.

I. Drive Assembly

1. The gear reducer shall be a flanged mounted directly to the thrust bearing housing and the compactor frame. Gear reducer shall be a helical gear type with hollow input shaft. The unit will be provided with a cast iron frame and be designed in accordance with AGMA recommendations for Class I service based on the horsepower required to operate the wash press. Units that do not bolt the gear reducer directly to the unit's frame will not be allowed.
2. The motor shall be TEFC. The motor shall be NEMA design code B and be direct coupled to the reducer.
3. Chain drives, belt drives, and hydraulic drives will not be accepted.

2.04 ELECTRICAL CONTROLS AND DEVICES

- A. In addition to the drive motor, the equipment supplier shall furnish all electrical items specifically called for in this specification section. The contractor shall supply all other electrical items, and interconnecting wiring of proper size, including all conduit and supports required to place the equipment into service.

1. The following components will be included in the associated screen panel to provide proper operation of the equipment:
 - a. Branch circuit protection.
 - b. Compactor motor starter (IEC) with overloads.
 - c. Hand-Off-Auto selector switches for the screw drive, and screenings spray wash water.
 - d. Motor load monitor for overload and over torque protection.
 - e. Hour meter for motor.
 - f. Run and fault indicating lights.
 - g. Run and alarm auxiliary contacts for use by the customer.
- B. Solenoid Valve: One (1) solenoid valve shall be provided to control flow to the spray wash assembly. The brass body valve shall be 120 Volt, single phase, 60 Hz with a NEMA 4X housing.

2.05 OPERATION, MONITORING, AND CONTROL

- A. Sequence of Operation
 1. HAND OPERATION: When HAND mode is selected, the spiral will run continuously. When spray wash HAND mode is selected, the spray wash will run continuously.
 2. INTERMITTENT AUTOMATIC OPERATION: The control panel will be equipped to control the wash cycle and screw movement. The wash cycle and the screw movement will be controlled independently through the use of timers and counters. The drive motor and spray wash will be controlled automatically when the selector switches are placed in the Auto position.
 - a. The press motor starts after an adjustable accumulated run time from the interlocked feeding equipment.
 - b. The wash water solenoid is open whenever the screw is in operation.
 - c. The washing solenoid closes and the press motor runs for an adjustable length of time, typically set at 30 seconds, to dewater and discharge the screenings.
 3. EMERGENCY STOP: The unit can be deactivated at any time by pressing either the control panel mounted or unit mounted Emergency Stop push buttons.
 4. FAULT CONDITIONS: Motor overload, high motor torque, or high motor current conditions will stop the motor and illuminate the fault light.

2.06 ANCHORAGE AND FASTENERS

- A. Anchor Bolts: All anchor bolts shall be a minimum of 1/2 inch diameter and made of type 304 stainless steel. The equipment supplier shall furnish all anchor bolts, nuts, and washers required for the equipment.
- B. Fasteners: All fasteners shall be type 304 stainless steel. The equipment supplier shall furnish all fasteners required for the assembly of the equipment.

MECHANICAL GENERAL PROVISIONS

PART 1 GENERAL

- 1.01. Except as modified in this section, General Conditions, Supplementary Conditions, applicable provisions of Division 1, General Requirements, and other provisions and requirement of the contract documents apply to work of Division 15 - Mechanical.
- 1.02. Applicable provisions of this section apply to all sections of Division 11 – Major Equipment and Division 15 - Mechanical.

PART 2 PRODUCTS

2.01. SUBSTITUTIONS

Substitution of products, materials, or methods must be requested of the Engineer in writing and approved by the Engineer in writing.

PART 3 EXECUTION

3.01. CONTRACT DRAWINGS

The drawings indicate certain information pertaining to surface and subsurface obstructions which has been taken from available drawings. Such information is not guaranteed, however, as to accuracy of location of complete information. Determine exact locations from field measurements.

3.02. SPACE REQUIREMENTS

Consider space limitations imposed by contiguous work in selection and location of equipment and material. Do not provide equipment or material which is not suitable in this respect.

3.03. OPENINGS

Framed, cast or masonry openings for ductwork, equipment and piping are specified under other divisions. However, drawings and layout work for exact size and location of all such openings are included under this division.

3.04. CONCEALED WORK

Where the word "concealed" is used in connection with insulating, painting, piping, ducts and the like, the word is understood to mean hidden from sight as in chases, furred spaces or suspended ceilings. "Exposed" is understood to mean open to view.

3.05. SERVICE

Adico LLC

Perform service work required during the guarantee period including lubrication of bearings. Perform service monthly, and provide the Owner with a written report. Cleaning of air filters and pipe strainers is not included.

3.06 NOISE AND VIBRATION

Select equipment to operate with minimum noise and vibration. If objectionable noise or vibration is produced or transmitted to or through the building structure by equipment, piping, ducts, or other parts of work, rectify such conditions without cost to Owner. If item of equipment is judged to produce objectionable noise or vibration, demonstrate without cost to the Owner that equipment performs within designated limits on the vibration chart included at end of the section.

3.07 ACCEPTABLE MANUFACTURERS

The acceptable manufacturers are listed in individual sections. Where two or more units of same type of class of equipment are required, provide units of a single manufacturer. Manufacturers' names specified under sections of Division 11 and 15 are used to establish standards of design, performance, quality and serviceability and not to limit competition.

PART 4 OPERATING AND MAINTENANCE INSTRUCTIONS

- A. Secure three copies of operating and maintenance instructions, service manuals, and part lists applicable to each item of equipment furnished. Deliver three bound sets of same for Owner's use. Delivery of required documents is a condition of final acceptance. Operation and maintenance instructions should include all nameplate data and design parameters. Clearly distinguish between information that pertains to the particular equipment and information which does not.
- B. Upon completion of work, and at a time designated by the Engineer, provide services of competent representative of the Contractor for period of at least 4 hours to instruct the Owner's representative in the operation and maintenance of the entire system.

5.0 OPERATING TESTS

After all mechanical systems have been completed and put into operation, subject each system to an operating test under design conditions to ensure proper sequence and operation throughout the range of operation. Make adjustments as required to ensure proper functioning of all systems. Special tests on individual systems are specified under individual sections.

6.0 LUBRICATION

- A. Provide a complete charge of the correct lubricant for each item of equipment requiring lubrication.
- B. Provide a complete and working charge of the proper refrigerant, free of contaminants, in each refrigerant system. After each piece of equipment has been in operation for a sufficient length of time, check the oil and modify for proper operation as required.

END OF SECTION

PIPING AND RELATED ITEMS

PART 1 GENERAL

1.01 SCOPE

This section provides requirements for furnishing and installing piping. Refer to related work specified in other sections to coordinate the complete installation.

1.02 MEASUREMENTS

Make measurements of previously installed construction before fabrication of connecting work, so that all work will fit properly.

1.03 PROJECT RECORD DOCUMENTS

Upon completion of all work, furnish as-built drawings showing location and principal details and modifications of piping systems as built.

1.04 SUBMITTALS

- A. Submit product data and shop drawings on each type of pipe, valves, fittings, and accessories in accordance with Section 01300.
- B. Provide product data for linings, coatings, and polyethylene wrap in accordance with Section 01300.

PART 2 PRODUCTS

2.01 PIPING

A. General.

- 1. Unless otherwise indicated, conform to applicable requirements of City of Houston Standard Specifications 02501.
- 2. Use Type 316 stainless steel bolts for submerged and below grade applications.
- 3. Ductile iron pipe and fittings shall be ceramic epoxy- lined with Protecto 401 or equal. Provide manufacturer's standard bituminous coating inside and outside of all ductile iron pipe and fittings except on above ground piping to be painted. Above ground piping shall be coated in accordance with Section 09878.
- 4. Furnish an expansion/contraction system Dependo-Lok or approved equal for all air headers to allow for 125°F temperature change. Dependo-Lok couplings shall be provided with one fixed end. Expansion joints shall be provided on all continuous lengths of header between two (2) restraining points and where shown on the plans.
- 5. Use flange insulating kits for connecting dissimilar metals including galvanized steel to ductile iron connections.

6. Where wall pipes are shown on the drawings, use Adeka Waterstop or approved equal to provide a water tight seal.
 7. At a minimum install thrust blocks or restrained joints at all locations shown on the drawings. Install additional thrust blocks or restrained joints as required to counter unbalanced thrust.
 8. Unless otherwise indicated, use long radius 90 degree bends for all gravity drain and scum lines.
 9. Use Class 52 ductile iron pipe below structures and pavement. Provide restrained push-on joints under all structures and pavement.
- B. Ductile Iron Pipe – Above Grade.
1. Where DI-2 is shown on the plans for ductile iron pipe installed above ground and inside the wet well, valve box, or dry well, use thickness Class 53 flanged end ductile pipe unless otherwise indicated.
- C. Ductile Iron Pipe – Below Grade.
1. Where DI-2 is shown on the plans for ductile iron pipe installed below ground, use thickness class 52 with push-on joints. No mechanical joints shall be allowed unless approved by the engineer.
- D. Galvanized Steel Pipe
1. Provide galvanized steel pipe of the type designated on the plans. Pipe designated as GS-1 on the Drawings shall be Schedule 40 steel pipe in conformance with ASTM A53 Grade B. Pipe designated as GS-2 on the Plans shall be standard weight galvanized steel.
 2. No field welding of galvanized steel piping shall be allowed. Provide expansion couplings or flanged connections to connect galvanized steel piping components.
 3. Galvanized steel pipe components shall be hot-dip galvanized after fabrication.
 4. Cold galvanize any damage to galvanized pipe.
 5. All above grade non-potable or potable water piping smaller than three inches diameter shall be GS-1.
- E. Polyvinyl Chloride (PVC) Pipe.
1. Provide PVC pipe in accordance with the designations shown on the plans.
 2. Pipe designated as PVC-1 shall be schedule 80 PVC.
 3. Pipe designated as PVC-2 shall be schedule 40 PVC.
 4. Pipe designated as PVC-3 shall be AWWA C900, Class 150, DR 18.
 5. Pipe designated as PVC-4 shall be ASTM D3034, SDR 26.
 6. Pipe designated PVC-5 shall be AWWA C905, Class 235. DR 18.

7. Pipe designated PVC-6 shall be ASTM F679, SDR 26.
8. Joints shall be solvent welded, screwed or flanged. All fittings shall be manufactured by the same company that manufactures the pipe, and rated for the same working pressure as the pipe or higher.
9. Gaskets for PVC pipe shall conform to ASTM F477. Gaskets for gravity PVC joints shall conform to ASTM F477 and ASTM 3212 or ASTM 3139.

F. Pipe Supports.

1. For vertical pipes larger than 3-inch diameter, provide at least one Type I concrete pipe support as shown on the plans mounted horizontally near the top of the wall. Place epoxy dowels into existing concrete walls where required to provide equivalent reinforcement.
2. Maximum spacing for all pipe supports shall be 10 feet.
3. Construct concrete pipe supports where shown on the plans and for piping with 9 inches or more clearance from the supporting surface, unless other indicated.
4. For piping with less than 9 inches clearance from the supporting surface and 3 inches or greater in diameter, provide roller stand Piping Technology and Products Figure 230 or approved equal.
5. Unless indicated otherwise, support pipe less than 3 inches diameter using Unistrut pipe clamp systems. Insulate above grade pipe per Section 15260.

2.02 FITTINGS

- A. Use fittings of same size as pipe they serve. Reducers are not permitted to facilitate an off-size fitting. Reducing bushings are also prohibited. Reduction in piping size will be made by reducing fittings unless otherwise noted on the plans. Fittings shall be lined and coated as specified for pipe they serve. Fittings for use with galvanized pipe shall be galvanized in accordance with ASTM A 153.
- B. Ductile Iron Fittings
 1. Unless otherwise indicated in the Drawings or Specifications, ductile iron fittings shall conform to requirements of City of Houston Standard Specification 02501.
 2. Use ASTM A 307, Grade B square head bolts and heavy hex nuts, ANSI B1.1 and ANSI B18.2 for above ground, non-submerged, flanged joints
 3. For ductile iron pipe installed above ground and inside wet wells, valve boxes, or dry wells, use flanged fittings conforming to ANSI/AWWA C115/A21.15.
 4. Unless otherwise indicated in the Drawings or Specifications, use restrained push-on fittings for all below ground applications underneath structures or slabs.

5. Unless otherwise indicated in the Drawings or Specifications or approved by the Engineer, mechanical joints shall only be used for below ground connections to existing piping, fittings, or valves with mechanical joints.

C. PVC Fittings

1. Unless otherwise indicated in the Drawings or Specifications, polyvinyl chloride fittings for gravity piping shall conform to requirements of City of Houston Standard Specification 02506.
2. Unless otherwise indicated in the Drawings or Specifications, fittings for PVC pressure piping shall be ductile iron in conformance with City of Houston Standard Specification 02501.
3. All PVC fittings shall be manufactured by the same company that manufactures the pipe and rated for the same working pressure as the pipe or higher.
4. All PVC pipe to be threaded shall be Schedule 80 or thicker. Joints in small diameter PVC pipe shall be solvent welded.

D. Mechanical Joint Fittings: Shall not be allowed unless approved by the Engineer.

- E. Welding Fittings. Welding fittings for use with welded steel pipe shall be forged steel fittings in accordance with ANSI B16.9, standard weight.

2.03 COUPLINGS

A. Flexible Couplings.

1. Flexible couplings shall be installed where shown on the drawings or elsewhere where allowed by the Engineer for the Contractor's convenience. Provide control units for all flexible couplings and expansion joints.
2. Couplings between structures shall be Dresser Style 38 or approved equal with a 7" middle ring that provides 4° of deflection.
3. Where flexible couplings are installed underground, Type 316 stainless steel bolts shall be used. The entire coupling shall be given a 20-mil coat of T.C. Mastic as manufactured by the Tape Coat Company, Inc., Bitumastic No. 50 as manufactured by Koppers Company, Inc., or equal.

B. Flanged Coupling Adapters

1. Provide control units for all flanged coupling adapters.
2. Flanged coupling adapter for pipe less than 14" in diameter shall be of the bolted compression type for joining plain end pipe to adjoining flange. Adapter shall consist of one flange body, follower ring, compression gasket, and all necessary bolting. Bolting pattern shall match adjacent mating flange. Bolts and nuts shall be made of a high grade, high strength steel. Flanged coupling adapters shall be Dresser Style 127 or approved equal. Provide control units for all flanged coupling adapters.
3. Flanged coupling adapters for pipes 14" in diameter and greater shall be of the bolted compression type for joining plain end pipe to adjoining flange. Adapter shall consist of one flange body, follower ring, compression gasket, and all

necessary bolting. Bolting pattern shall match adjacent mating flange. Bolts and nuts shall be made of a high grade, high strength steel. Flanged coupling adapters shall be Dresser Style 128 or approved equal.

4. Provide a dismantling joint for blower discharge piping Dresser Style 131 or approved equal.

C. Expansion Couplings

1. Furnish expansion couplings with one fixed end, Dependo-Lok or approved equal, for all headers to allow for 125°F temperature change. Expansion joints shall be provided on all continuous lengths of header between two (2) restraining points.

2.04 GASKETS

1. Provide and install transition gaskets or hub x hub adapter for a leak proof connection between different pipe classes.
2. Gaskets for flexible couplings shall be Buna-N.
3. All gaskets and seals on piping and valves for compressed air service shall be EPDM or equal rated for 250°F minimum.

2.05 JOINTS

- A. All above ground piping shall have flanged joints with stainless steel bolts, unless otherwise noted on the drawings.
- B. All below ground piping underneath a structure shall have restrained push-on joints as manufactured by Super-Lock Joint by Clow Corporation, Flex-Ring or Lok-Ring by American Iron Pipe Company, or TR-Flex or Field-Lok by U.S. Pipe and Foundry Company.
- C. All other below ground piping shall have push-on joints unless otherwise specified as manufactured by Joint Tyton by U.S. Pipe, Super Bell-Tite Joint by Clow Corporation, or Fastite by American Cast Iron Pipe Company. Air supply pipe joints shall be installed with heat resistant EPDM gaskets rated at 250° F. Submit gaskets for approval prior to installation.
- D. Maximum allowable deflection for push-on type joints shall be as follows:

<u>Size (in)</u>	<u>Deflection (degree)</u>
12	5
14, 16	4
18-36	3

PART 3 EXECUTION

3.01 JOINTS

- A. Threaded Joints. Make threaded joints using suitable joint compound applied to male threads only. Thoroughly ream field cuts. Make connections carefully so that thread engagement will be secured. Machine cut threads to American National taper pipe thread sizes. For screwed joints on PVC pipe, use Teflon tape.
- B. Welded Joints. Make welded joints as recommended by standards of the American Welding Society. Ensure complete penetration of deposited metal with base metal. The filler metal must be suitable for use with the base metal. The inside of fittings must be free from globules of weld metal which would restrict the flow or become loose. Do not use mitered joints.
- C. Flanged Joints. Accurately center and align flanged joints prior to the installation of bolts to prevent mechanical prestressing of flanges, pipe and equipment. Gaskets shall be 1/16-inch full face compressed asbestos conforming to ASTM D 1170-P1161A, except the gaskets for use with PVC flanges shall be full face neoprene 1/8 inch thick.

3.02 HANDLING

Handle pipe, fittings and accessories to ensure their installation in a sound, undamaged condition. Use equipment, tools and methods to prevent damage in unloading, hauling, and laying pipe and fittings. When using hooks in pipe ends, be sure that the contact surfaces are broad and well padded.

3.03 CUTTING

Cut pipe in a neat manner, without damage to the pipe or to the interior lining, if any. Make cuts smooth, straight, and at right angles to the pipe axis. Use mechanical pipe cutters of an approved type, except in locations where the use of mechanical cutters would be difficult or impracticable. In such locations, cut the pipe with diamond point chisels, saws, or other tools which will cut pipe without damaging impact or shock.

3.04 CLEANING

Thoroughly clean the interior of the pipe and fittings of foreign matter before installation. Keep the interior clean until the work has been accepted. Remove lumps, blisters, and excess coating from the exterior spigot and interior bell surfaces. Wire brush such surfaces clean until jointing is completed. Take every precaution to prevent foreign material from entering the pipe during installation. Do not place debris, tools, clothing or other materials in the pipe.

3.05 INSPECTION

During installation, while the pipe is suspended and hanging free, inspect each pipe and fitting for defects. Tap the pipe with a light hammer to detect cracks. Reject defective, damaged or unsound pipe and fittings and remove them from the site.

3.06 LAYING PIPE

- A. Protect the pipe from lateral displacement by means of pipe embedment material installed.
- B. Under no circumstances should pipe be laid in water. Do not lay pipe under unsuitable weather or trench conditions.
- C. Lay pipe with bell ends facing the direction of the laying except when making closures.
- D. Buried ductile iron pipe and fittings shall be polyethylene wrapped in accordance with AWWA C105. Polyethylene film shall be Class C.

3.07 JOINTING

- A. Push-on Joints. Follow instructions and recommendations of the pipe manufacturer, relative to gasket installation and other jointing operations. Lubricate joint surfaces with heavy vegetable soap solution immediately before joint is completed. Suitably bevel each spigot end to facilitate assembly.
- B. Mechanical Joints. Mechanical joints may be used only with the approval of the Engineer. If approved, carefully assemble mechanical joints in accordance with the manufacturer's recommendations. Lubricate joint surfaces with heavy vegetable soap solution immediately prior to installing gasket on spigot end. If seal is defective, disassemble the joint, thoroughly clean it, and reassemble the joint. Do not overtighten bolts to compensate for poor installation practice.
- C. Flanged Joints. When bolting, take care to ensure that there is no restraint on the opposite end of the pipe or fittings which would prevent uniform gasket compression or which would cause unnecessary stress in the flanges. Leave one flange free to move in any direction while flange bolts are being tightened. Tighten bolts gradually and at a uniform rate, in such manner that gasket compression is uniform over the entire area of gasket.
 - 1. Take special care when attaching suction and discharge piping to pumping equipment. Ensure that no stresses are transmitted to or imposed on the pump suction and discharge flanges by connection piping. Install and permanently support piping to provide accurate matching of bolt holes and uniform contact over the entire flange. In addition, leave pump connection piping free to move paralleled to its longitudinal center line while the bolts in pump connection flanges are tightened.
 - 2. Provide maximum flexibility and ease of alignment correction by taking advantage of the slack between the flange bolts and bolt holes for slight angular rotation of connecting flanges. Assemble pump connecting piping with gaskets in place, with only a portion of the flange bolts (no fewer than four per joint) installed. After final alignment and before final bolting, test pump connections for applied piping stresses by loosening flange bolts which, if piping is properly installed, should result in no movement of piping relative to the pump, or opening of the pump connection joints.

3.08 REACTION ANCHORAGE AND BLOCKING

- A. Install suitable reaction blocking, struts, anchors, clamps, joint harness or other adequate means for preventing movement of pipe caused by unbalanced internal liquid pressure. Pressure can be expected at unlugged tees, Y-branches and bends deflecting 1 1/4 degrees or more which are installed in piping subjected to internal hydrostatic heads in excess of fifteen feet in exposed piping or 30 feet in buried piping. Refer to lift station drawings.
1. In trenches, fittings must be provided with concrete thrust blocking between the fitting and solid, undisturbed ground in each case, except where solid ground blocking support is not available. At tops of slopes, anchor vertical angle bends with concrete of sufficient weight to resist hydraulic thrust to which pipe will be subjected at maximum pressures. Install the concrete block and anchors so that joints between the pipe and the fittings are accessible for repair. The bearing area of the concrete reaction block against the ground or the trench bank shall be as shown or as directed by the Engineer in each case. In the event that adequate support against undisturbed ground cannot be obtained, install metal harness anchorages consisting of steel rods or bolts across the joint and securely anchored to the pipe and fittings or other adequate anchorage facilities to provide necessary support. Should the lack of solid vertical excavation face be due to careless or otherwise improper trench excavation, no additional payment will be made for furnishing and installing metal harness anchorage in excess of contract value of concrete blocking replaced by such anchorages.
 2. Provide in locations other than trenches, as shown or directed, reaction blocking, struts, anchorages, or other supports for fittings installed in fills or exposed within structures.
 3. Adequately protect from corrosion steel clamps, rods, bolts, and other metal accessories used in reaction anchorages or joint harness where subject to submergence or contact with earth or other fill material and not encased in concrete. Apply not less than two heavy coats of coal-tar mastic coating material to clean, dry metal surfaces. Allow the first coat to become dry and hard before the second coat is applied.
- B. Substitution. In lieu of reaction anchorages and blocking for underground valves and fittings, use locking-type, push-on or mechanical joints such as Lok-Tyton or Lock-Type mechanical joints as manufactured by United States Pipe and Foundry Company. Equip Lok-Tyton joints with special Lok-Tyton gaskets. Groove the pipe in strict accordance with the manufacturer's recommendations.

3.09 PAINTING

Paint all metal surfaces in accordance with the section 09878 or as directed by the Engineer.

END OF SECTION

SECTION 15052 VALVES AND RELATED ITEMS

PART 1 GENERAL

1.01 SCOPE

This section provides requirements for furnishing and installing valves. Refer to related work specified in other sections to coordinate the complete installation.

1.02 MEASUREMENTS

Make measurements of previously installed construction before fabrication of connecting work, so that all work will fit properly.

1.03 SUBMITTALS

Product Data and Shop Drawings. Submit product data and shop drawings on each type of valves and accessories in accordance with General Conditions. Indicate alignment and grade, laying dimensions, fabrication fitting flange and special details.

PART 2 PRODUCTS

2.01 VALVE OPERATORS

- A. Unless otherwise shown or specified, each valve must be equipped with a manual operator.
- B. Manual operators on aboveground plug valves 6 inches or larger shall be geared operators.
- C. Manual operators on aboveground butterfly valves 8 inches or larger shall be geared operators.
- D. Geared operators shall be fully enclosed and shall be the traveling nut type, rack and pinion type, bevel type or worm gear type for valves 20 inches and smaller. The valve shaft shall extend from the valve to the operator. The space between the operator housing and the valve body shall be completely enclosed such that no moving parts are exposed to the soil or the elements. Operator housings for valves shall be oil-tight and watertight, and if buried, shall be specifically designed for buried service, and shall be factory packed with a suitable grease. The valve supplier shall install a valve position indicator on each operator housing.
- E. Worm gear operators shall be designed such that a torque in excess of 160 ft-lbs will not have to be applied to operate the valve at the most adverse condition for which the valve is designed. Traveling nut operators shall be designed such that a torque in excess of 100 ft-lbs will not have to be applied to operate the valve at the most adverse condition for which the valve is designed. Limit stops shall be installed on the input shaft of all manual

operators in the OPEN and CLOSED positions. The vertical axis of the operating nut shall not move as the valve is open or closed.

- F. Chainwheels. Any valve which is installed with operator located 6' or more above the floor and not required to be equipped with any other type of operator shall be provided with suitable chainwheel and operating chain. Each chainwheel-operated valve shall be equipped with a chain guide which will permit rapid and continuous handling of the operating chain and reasonable side pull on the chain. Operating chains shall be heavily plated with zinc and cadmium and shall be looped to extend to within 4 feet of the floor below the valve.
- G. Operating nuts shall be provided on all plug valves, on all valves which are to be operated through floor boxes, and where shown on the plans. All operating nuts shall comply with Section 20 of AWWA C500. Stem extensions of sufficient length to enable operation from ground or walkway level and stem guides shall be provided. A minimum of two operating wrenches for each valve shall be provided,
- H. Provide locking levers on butterfly valves designated for lever operation.
- I. Rotation. The direction of rotation of the wheel, nut or lever to open each valve shall be to the left (counterclockwise). Each valve body or operator shall have cast thereon the word OPEN and an arrow indicating the direction to open.

2.02 VALVES

A. Check Valves.

1. Check valves designated on the plans shall be of the type described in the table below.

Classification	Description
CV-1	Swing check with weighted lever and air cushion
CV-2	Swing check with weighted lever
CV-3	Swing check with flexible disk
CV-4	Swing check, silent type, wafer style
CV-5	Blower check valve, flanged end
CV-6	Blower check valve, wafer style

2. CV-1 – All valves designated on the plans as CV-1 shall have cast iron body and bronze faced disk with 125-lb ANSI flanged ends and shall conform to AWWA C508. Valves shall be rated at 175 psig. Valves shall be equipped with air cushion and outside lever and weight so constructed and so positioned that it can operate without interference by any piping, supports or equipment.
3. CV-2 -- All valves designated on the plans as CV-2 shall have cast iron body and bronze faced disk with 125-lb ANSI flanged ends and shall conform to AWWA C508. Valves shall be rated at 175 psig. Valves shall be equipped with and outside lever and weight so constructed and so positioned that it can operate without interference by any piping, supports or equipment.

4. CV-3 -- All valves designated on the plans as CV-3 shall have cast iron body and bronze faced disk with 125-lb ANSI flanged ends and shall conform to AWWA C508. Valves shall be rated at 175 psig. Valves shall have a BUNA-N disk, epoxy lining and flow area equivalent to 100 % of the pipe size. The valve seat shall be constructed at a maximum angle of 45°.
5. CV-4 -- Valves designated on the plans as CV-4 shall have cast iron body and bronze faced disk with 125-lb ANSI flanged ends and shall conform to AWWA C508. Valves shall be rated at 150 psig. Valves shall have stainless steel internal spring and guide pins.
6. CV-5 -- Valves designated on the plans as CV-5 shall have cast iron body, 316 stainless steel internal parts, and 125-lb ANSI flanged ends.
7. CV-6 -- Valves designated on the plans as CV-6 shall have cast iron body, 316 stainless steel internal parts, and shall be designed for mounting between 125-lb ANSI companion flanges.

B. Eccentric Plug Valves

1. Provide non-lubricated, eccentric plug valves of cast iron with resilient-faced plugs. Valve seat shall be 304 SS or have a welded-in overlay of not less than 90 percent nickel on all surfaces contacting the plug face. The stem bearing and bottom bearing shall be of phenolic backed teflon or Type 316 stainless steel. Port area of valve shall be not less than 80 percent of full pipe size. Valves shall open counterclockwise. Eccentric plug valves shall be designed for 175 psig working pressure for valves 12 inches and smaller and 150 psig otherwise. The plug shall be coated with a resilient material which is oil and grease resistant such as neoprene or Buna-N. Packing shall be Buna-N or equal. Valves three inches and larger shall be furnished with 125-pound ANSI flanged ends.
2. Plug valves designated on the plans shall be of the eccentric type and shall be as described in the table below.

Classification	Description
PV-1	Above ground with operating nut
PV-2	Above ground, geared, with operating nut
PV-3	Above ground, geared, with handwheel operator
PV-4	Above ground, geared, with chainwheel operator
PV-5	Below grade with buriable operating nut and stem extension
PV-6	Below grade, geared, with buriable operating nut and stem extension

C. Gate Valves.

1. Gate valves two and one-half inches in size and smaller shall be 125 psig SWP, bronze, rising stem, single wedge disc gate valves with screwed ends.

2. Gate valves 3 inches and larger shall conform to AWWA C500 and shall be 200 psig, iron body, bronze-mounted, Everdur stems, double disc, parallel seat, OS&Y gate valves. Gate valves 3 inches and larger for use with sewage shall conform to AWWA C509 and shall be 200 psig WWP, C.I. body, resilient wedge disc.
3. Gate valves shall open counterclockwise.
4. Knife gate valves shall be bonnetless valves with round port, resilient seat of neoprene or Buna-N, cast iron or steel wafer body and yoke with tapped bolt holes in flanges and with flanges faced and drilled to ANSI 125/150 pound standard. The valves shall have a pressure rating of 150 psig CWP.
5. All wetted parts of knife gate valves, including gate, seat rings, through the body and in the chests shall be of Type 304 stainless steel. The stem shall also be stainless steel and shall have double pitch threads. Valves shall have adjustable packing gland.

Classification	Description
GV-1	Gate valve, above ground, resilient wedge, handwheel operated, rising stem.
GV-2	Gate valve, above ground, resilient wedge, handwheel operated, non-rising stem.
GV-3	Gate valve, below ground, resilient wedge, with buriable nut and stem extension
GV-4	Gate valve, knife type, with lever actuator
GV-5	Gate valve, knife type, handwheel operated with stem extension, rising stem.

D. Ball Valves.

1. Plastic ball valves shall be full port with polyvinyl chloride (PVC) body and ball, ball seats of Teflon, and stem and body seals of viton. Valves shall be suitable for a working pressure of 150 psig, and shall have true union-type end connection.
2. Ball valves other than plastic or stainless steel shall be full port with bronze body, chrome plated brass ball and NPT female threads. Valves shall be rated for 150 psig.
3. Stainless steel ball valves shall be full port with 316 stainless steel body and ball and 304 stainless steel handle. Ends shall be NPT female threads. Valves shall be rated for 150 psig.
4. Ball valves designated on the plans shall be as described in the table below.

Classification	Description
BV-1	Bronze body with lever operator
BV-2	PVC body with tee handle

BV-3	316 stainless steel body with lever operator
------	--

E. Butterfly Valves:

1. Provide valves with cast iron body, bronze disc, and 316 stainless steel shaft. All portions of the shaft bearings shall be stainless steel, bronze, nylon, fiberglass and/or Teflon. For compressed air service, provide EPDM resilient seats for air temperature 250°F.
2. Seats shall be bonded to a rigid reinforced phenolic backup ring. The ring shall be retained but not bonded to the body to allow for field removal and replacement.
4. Butterfly valves designated on the plans shall be as described in the table below.

Classification	Description
BFV-1	Lever operator
BFV-2	Geared operator and handwheel
BFV-3	Geared operator with chainwheel

F. Globe Valves.

1. Globe valves shall be used where indicated on the drawings or specified. In general, unless otherwise shown or noted, all valves one-half inch and smaller on water or air lines shall be globe valves. Angle valves may be used in place of globe valves where convenient.
2. Globe valves three inches in size and smaller for ordinary service shall be 125 psig, bronze, rising stem, bronze disc globe valves with threaded ends.

G. Hose Bibbs.

1. Hose bibbs shall be bronze, angle pattern globe-type valves with renewable composition disc and American Standard hose coupling threads on outlet.
2. Provide a brass vacuum breaker with stainless steel internal parts and rubber diaphragm on each hose bibb.

H. Telescoping Valves.

1. Valves designated on the plans as TV-1 shall be manufactured from seamless or welded stainless steel tube. Connecting bails and hardware shall be 304 stainless steel. Minimum wall thickness for tube shall be 1/8 inch. Tube will be of sufficient length to provide adjustment between the elevations as shown on the plans.

2. A cast iron or stainless steel companion flange will be provided by the telescoping valve manufacturer along with a neoprene or Buna-N gasket of such dimension as to provide a friction seal around the sliding tube.
3. Provide seal flange to match riser tube.
4. Stems shall be manufactured from solid Type 304 stainless steel rod and shall have Acme type threads for adjusting the tube height. The stem shall be fastened to the tube bail by welding or threaded stainless steel hardware.
5. Lifts shall be rack and pinion . Stainless steel anchor bolts shall be provided for all pedestals.

I. Mud Valves

1. Valves designated on the plans as MV-1 shall be mud valves with cast iron body with bronze seats. Provide 304 stainless steel stem with bronze stem nut. All assembly and mounting bolts to be 316 stainless steel. Valve will be operated with a handwheel lift. Provide stem guides and wall brackets to make a complete and operable unit as required by valve manufacturer.

L. Sewage and Air Vacuum Valves

1. Operation. Allow for unrestricted venting or re-entry of air through it during filling or draining of the force main. Valve design is to prevent water column separation or pipeline collapse due to vacuum.
2. Materials: Elongated body, cover and baffle shall be cast iron, ASTM A48, Class 30. Provide one upper and one lower stainless steel float, connected by stainless steel float guide.
3. Baffle Design. Internal baffle shall be fitted with a guide bearing. It shall retain the Buna-N seat in place.
4. Appurtenances. All internals shall be removable through the top cover. Provide blow-off valves, quick disconnect couplings, minimum 6 feet of hose and flanged gate sheet of valve.
5. Valves shall be APCO Series 400 SAVV sewage air and vacuum valve or equal.

2.03. ACCESSORIES

1. Valve boxes. Provide buried valves with cast iron valve boxes of the extension sleeve type suitable for depth of cover over pipe as shown. Furnish valve boxes at least 5 inches in diameter, 3/16 inch thick, with suitable cast iron bases and covers. Coat all parts of valve boxes, bases and covers by dipping hot bituminous varnish. Provide Mueller H-10360, two piece screw type with base, top section and cover as required, or an approved equal.

2. Extension stems. Extension stems and stem guides shall be furnished and installed on all buried valves, basin drain valves, and other valves where shown, specified or required. They shall be fabricated from solid 304 stainless steel shafting not smaller in diameter than the stem of the valve. Stem couplings shall be both threaded and keyed to the coupled stems and shall be of approved design and construction. Pipe couplings are not acceptable.
3. Operating Stands. Provide fabricated or cast iron operating stands in locations shown on drawings. Support handwheel or lever approximately 36 inches above floor. Handwheel diameter will not be less than 8 inches. Provide sleeve made for opening in floor beneath each operating stand. Provide suitable thrust bearing in each operating stand to carry weight of extension stem.

PART 3 EXECUTION

3.01 SETTING VALVES AND VALVE BOXES

- A. Prior to installing valves, remove foreign matter from within the valves. Inspect the valves in open and closed position to verify that all parts are in satisfactory working condition.
- B. Install valves and valve boxes where shown or as located by the Owner. Set valves plumb and as detailed on the drawings. Center valve boxes on valves. Locate valves away from roads or streets. Carefully tamp earth around each valve box for a minimum radius of 4 feet, or to undisturbed trench face if less than 4 feet.

3.02 UNDERGROUND VALVE INSTALLATION

- A. Each valve which is installed in direct contact with earth backfill shall be provided with a valve box of such type and design that surface loads, impact and shock will not be transmitted through the box to the valve.
- B. Valves and valve boxes shall be set plumb. Each valve box shall be provided with a valve box of such type and design that surface loads, impact and shock will not be transmitted through the box to the valve.
- C. Each valve shall be inspected before installation to ensure that all foreign substances have been removed from within the valve body, and shall be opened and closed to see that all parts are in good condition. Geared valves shall be inspected to see that the gears are properly lubricated.
- D. Extension stems for buried valves shall extend to within 6 inches of the surface of the ground. Each extension stem shall be connected to the valve operator with a suitable universal joint type coupling. All connections shall be pinned. Each extension stem shall be provided with spacers which will center the stem in a valve box having an inside diameter of 5 ½ inches, and shall be equipped with a standard AWWA wrench nut as described in Section 20 of AWWA C500.

3.03 CONNECTING UNIONS

Adico LLC

- A. Provide union or flanged connection within 2 feet of each threaded end valve unless valve can be otherwise easily removed from piping.

3.04 PAINTING

Paint all metal surfaces in accordance with the specification on protective coatings or as directed by the Engineer.

END OF SECTION

SECTION 15 140

PIPE HANGERS, SUPPORTS, AND RESTRAINTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pipe and equipment hangers, supports, and associated anchors.
- B. Equipment bases and supports.
- C. Sleeves and seals.

1.02 REFERENCES

- A. ANSI/ASME B31.1 - Power Piping, Sections 120 and 121 of ASME B31.1.

1.03 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Section 01330 - Submittal Procedures and Section 15010 - Basic Mechanical Materials and Methods.
- B. As a minimum, submit the following items:
 - 1. A layout of the systems including location on fixed and movable joints.
 - 2. Details of design and fabrication of joints.
 - 3. Details of support brackets, cradles, pads, thrust resisting elements, and other supporting elements.
 - 4. Other pertinent elements necessary for a complete installation.
 - 5. Design calculations for submitted items.

PART 2 PRODUCTS

2.01 HANGERS AND SUPPORTS

- A. For uninsulated lines 2 inches and less and for drainage and downspout lines provide hangers which are adjustable swivel ring type fabricated of malleable iron.
- B. For uninsulated lines larger than 2 inches and for insulated lines, except drainage and downspout piping, provide adjustable clevis type hangers. Size hangers to allow insulation to extend unbroken through the hanger.

- C. Fabricate hangers installed in valve vaults, wet wells, and other below grade areas of cadmium plated or stainless steel.

2.02. INSERTS

- A. Make inserts for individual hangers of galvanized malleable iron; include removable nuts held in place by V-type teeth on the insert body and nut. Make continuous-slotted channel inserts of galvanized steel with integral anchors at 6-inch centers. Provide factory finished steel snap-on cover plates on channel inserts between support attachments.

2.03 EXPANSION BOLTS

- A. Use expansion bolts for support which are stainless steel wedge type. Do not use expansion bolt anchors with lead.

2.04 PIPE SADDLES

- A. Fabricate pipe saddles of hot dip galvanized steel. Saddles for supporting pipe from the floor shall be at least 9 inches in length and as wide as the outside diameter of the pipe. Make a bearing support of 120 degrees. Mount saddles on concrete pads at least 2-inches high.

2.05 FRAMING HANGERS

- A. Use factory fabricated metal framing systems with factory applied primer paint as framing for wall type hangers, trapeze hangers, and tunnel stanchions. Attach supports to structures with inserts for new concrete, with surface mounting methods for masonry or existing concrete, and with welding or clamps for structural steel. Make pipe supports fabricated on the site of structural steel members with raw edges ground and dressed. Rest floor supports in areas with uncovered concrete floors on concrete pads not less than 2 inches high.

2.06 KNEE BRACES

- A. Knee braces shall be galvanized welded steel unless otherwise indicated on the Drawings. Knee braces shall be bolted to concrete wall with stainless steel anchoring bolts, Hilti Kwik-Bolt, Molly Parabolt, or approved equal.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Hang piping inside structures supported from the floor or racked adjacent to walls.
- B. Provide inserts cast in concrete walls or slabs for hanging and supporting pipe. If materials not galvanized or cadmium plated, paint them with primer before installation.
- C. Design, fabricate, and install support components in general conformance with Sections 120 and 121 of ANSI B31.1, Power Piping, except as modified in this Section.

3.02 PIPE HANGERS AND SUPPORTS

- A. Support, brace, and anchor interior piping to prevent movement in any direction because of pressure, temperature, flow, or water hammer, except at properly located expansion joints and fittings.
- B. Provide two pipe guides on each side of expansion joints at which pipe movement occurs. The first guide shall be not more than 4-pipe diameters from the joint and the second not more than 14 diameters. Provide additional guides as required to maintain pipe alignment, spaced as required for the pipe size, fluid pressure and temperature inside the pipe, and as recommended by the expansion joint manufacturer or as shown.
- C. Maximum support spacing and hanger rod sizes for metal pipe containing liquids are as follows:

<u>Nominal Pipe Size (Inches)</u>	<u>Support Spacing (Feet)</u>	<u>Rod Diameter in Inches</u>	
		<u>One Rod</u>	<u>Two Rods</u>
1 and Smaller	7	3/8	3/8
1-1/4 and 1-1/2	8	3/8	3/8
2	10	3/8	3/8
2-1/2	11	1/2	3/8
3	12	1/2	3/8
4 and 5	14	1/2	3/8
6 and 8	17	1/2	3/8
10	17	5/8	1/2
12	17	3/4	1/2
14	17	3/4	5/8
16	17	7/8	5/8
18 and 20	17	1	3/4
24	17	1-1/8	7/8

- D. For valves 4 inches and larger in unburied horizontal lines support the valve on both sides when located within 18 inches of the valve or meter. Provide additional supports where required so that piping loads do not place damaging stresses on supports, valves, and equipment. Where necessary, block up pipe at supports to permit installation of insulation.
- E. Support unburied horizontal runs of rubber hose and non-metallic pipe for the entire length by means of troughs consisting of structural steel channels or angles supported at not more than 10-foot intervals.
- F. Support piping not included in the foregoing tabulation as indicated or in accordance with the pipe manufacturer's recommendations, if not indicated.
- G. Anchor buried pressure pipe at each fitting causing a change in direction of 10 degrees or more. Concrete thrust blocks or other restraining devices in any satisfactory combination may be used. Submit the details of the method proposed for use, together with design calculations, to the City Engineer before installation.

END OF SECTION

SECTION 15260

PIPING INSULATION

PART 1 GENERAL

1.01 SUMMARY

This Section includes the furnishing and installation of insulation for water piping, chemical piping, instrument tubing containing water, and piping subject to condensation.

1.02 SUBMITTALS

Submit bulletins and certified data describing material to be used for insulation. Include manufacturer's printed installation instructions.

1.03 DELIVERY, STORAGE, AND HANDLING

All insulation components to be delivered, stored, and handled per manufacturer's printed instructions.

1.04 ACCEPTABLE MANUFACTURERS

A. Insulation

Owens Corning Fiberglass, Knauf Fiber Glass, or Certainteed

B. Exterior Service Weather Jacket

Premetco or Childers Products Co.

PART 2 PRODUCTS

2.01 MATERIALS AND/OR EQUIPMENT

A. General: All insulation system components to be asbestos free.

B. Pipe Insulation: Molded heavy density one-piece insulation made from inorganic glass fibers bonded with a thermo-setting resin. Insulation to include an all service jacket (ASJ) with vapor barrier, a self sealing lap (SSL) for longitudinal joint, and similar factory furnished butt joint sealing strip. Minimum insulation thickness to be 1-inch for pipes 2-inch and smaller, 2 inches for lines 2-1/2 inches and larger.

C. Weather Jacket: All exterior insulation to be protected by minimum 0.016-inch thick aluminum jacket with laminated vapor barrier of polyethylene-Kraft paper thermally bonded to the inside surface. Valves, fittings, and flanges to have equal jacketing and moisture barrier protection.

D. Vapor Barrier Sealant: Non-shrinking permanently flexible vapor barrier sealant, Childers CP-70 or equal.

- E. Strapping: Stainless steel bands, minimum 0.020-inches thick by 3/4-inches wide with 0.034-inch thick wing seals.

PART 3 EXECUTION

3.01 GENERAL

- A. Pipes and tubing 4 inches and smaller shall be insulated and jacketed when exposed to outside temperatures. All hot water lines 1/2 inch and larger shall insulated.
- B. Furnish all accessories required to complete the work.

3.02 INSTALLATION

- A. Install insulation after piping has been installed, tested, and painted. Install in a neat manner, following manufacturer's printed instructions. All fittings and valves shall be carefully insulated and sealed. All joints shall be completely waterproof. Use only workman skilled in this trade.
- B. Pipe Insulation: Butt all joints firmly together and secure self seal lap in accordance with manufacturer's recommendations. Ends of pipe insulation shall be sealed with vapor barrier sealant at all fittings, valves, and intervals not exceeding 21 feet on straight run pipe.
- C. Valves and Fittings: Preformed insulation and fitting covers to be used where possible. Where necessary, segments of pipe insulation to be carefully fitted, secured by 20 gauge corrosion resistant wire, and finished with vapor barrier sealant, so as not to interfere with operation of valve actuator.
- D. Weather Jacket: Piping, valves, and fittings to be protected by preformed aluminum jacketing with vapor barrier installed in accordance with manufacturer's recommendations. All joints shall be made watertight with sealant.
- E. Termination: Insulation to extend 6-inches below finish grade and terminate flush with all walls and slabs. All termination points to be completely waterproof.

END OF SECTION

SECTION 26 05 19

600-VOLT POWER CABLE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Specifications for 600-Volt power cable.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM B3: Soft or Annealed Copper Wires.
 - 2. ASTM B8: Concentric-Lay-Stranded Copper Conductors, Hard, Medium Hard, Soft.
 - 3. ASTM B33: Tinned Soft or Annealed Copper Wire for Electrical Purposes.
- B. Institute of Electrical and Electronics Engineers (IEEE), IEEE 383-2.5: IEEE Standard for Type Test of Class IE Electric Cables, Field Splices, and Connections for Nuclear Power Generating Stations.
- C. Insulated Cable Engineers Association (ICEA):
 - 1. ICEA S-61-402: Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy (NEMA WC-5).
 - 2. ICEA S-66-524: Cross-Linked-Thermosetting-Polyethylene-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy (NEMA WC-7).
 - 3. ICEA S-68-516: Ethylene-Propylene-Rubber-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy (NEMA WC-8).
- D. Underwriters' Laboratories (UL):
 - 1. UL 44: Rubber Insulated Wires and Cables.
 - 2. UL 83: Thermoplastic Insulated Wire and Cables.
- E. National Fire Protection Association (NFPA), No. 70 - National Electrical Code (NEC), Chapter No.3 - Wiring Methods and Materials.

1.03 SUBMITTALS

- A. Submit six sets of the following required items, with each set being in a binder:
 - 1. Completed engineer's data sheets
 - 2. Completed manufacturer's data sheets
 - 3. Manufacturer's cut sheets, catalog data
 - 4. Installation, terminating and splicing procedure
 - 5. Instruction for handling and storage
 - 6. Dimensions and weight
 - 7. Conformance certificate

1.04 QUALITY ASSURANCE

A. Tests:

1. Cable shall be tested at the factory to confirm that the cable complies with requirements of Part 6 of ICEA S-61-402, S-66-524 or S-68-516. Refer to data sheet for additional test requirements.
2. Where applicable, the cable shall meet the requirements of the vertical tray flame test as described in IEEE 383-2.5

1.05 DELIVERY STORAGE AND HANDLING

- A. Ship cable on manufacturer's standard reel sizes unless otherwise specified. Where cut lengths are specified, mark reel footage accordingly. Each reel shall contain one continuous length of cable. Reels shall be of the type specified on the data sheets. Provide impact protection by wood lagging or suitable barrier across the traverse of the reel. Provide moisture protection by manufacturer's standard procedure or heat shrinkable self-sealing end caps applied to both ends of the cable.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURES

- A. American Insulated Wire Company
- B. Cablec Continental Cables Company
- C. General Cable Company
- D. Okonite Company
- E. Pirelli Cable Corporation
- F. Rome Cable Corporation
- G. Triangle Wire and Cable, Inc.

2.02 MATERIALS AND EQUIPMENT

- A. Design: Provide cable with the following design characteristic. Cable shall be UL 44 or UL 83 listed, rated 600 Volts and certified for continuous operation at the temperature as specified on the 600 Volt Power Cable Data Sheets while installed in underground duct, conduit, or cable tray. Cables shall be single-conductor or multi-conductor (with ground) as specified on the data sheets.
- B. Conductors: Provide conductors which are Class B, concentric stranded, annealed copper coated, unless otherwise specified on the data sheets, with physical and electrical properties conforming to ASTM B3, B8 or B33 and Part 2 of ICEA S-61-402, S-66-524, or S-68-516. The number and size of conductors supplied in each cable shall correspond to the quantities specified on the data sheets.
- C. Insulation: Insulate each conductor as specified on the 600 Volt Power Cable Data Sheets to meet the requirements of Part 3 of ICEA S-61-402, S-66-524 or S-68-516. The insulation thickness shall match the dimensions listed in Section 3.2, Table 3-1 of ICEA S-61-402, S-66-524 or S-68-516, as specified on the data sheets.
- D. Jacket:

1. When power cables are to be enclosed in conduit, ducts or in other raceway systems, multiconductor power cables shall be of the non-metallic type and shall be covered by an overall nonmetallic jacket as specified on the Data Sheets, which complies with the requirements of Section 4.4 of ICEA S-66-524 or S-68-516, Section 4.3 of ICEA S-61-402, or Table 21-5 of Part 21 of UL 83.
 2. Single-conductor cables shall have a jacket thickness which meets the requirements of Table 4-4 of Part 4 of ICEA S-66-524, Table 4-2 of Part 4 of ICEA S-68-516, or Table 4-2 or 4-6 of Part 4 of ICEA S-61-402. Multi-conductor cables shall have a jacket thickness, which complies with Table 4-7 of Part 4 of ICEA S-66-524, Table 4-2 of Part 4 of ICEA S-68-516, Table 4-5 of Part 4 of ICEA S-68-516, or Table 4-6 of Part 4 of ICEA S-61-402, unless otherwise specified on the data sheets.
- E. **Aarmor:** When power cables are to be exposed in a cable tray, cable channel or other cable support systems, the multiconductor power cables shall be protected by an interlocked metal armor made of galvanized steel which meets the requirements of paragraph 4.5 of ICEA S-68-516 or S-66-524 unless otherwise specified on the data sheets. An over-all jacket shall be provided as specified in the data sheets.
- F. **Cable Marking:** Print cable marking information on the overall cable jacket at 2-foot intervals. Use a permanent printing method color with a sharply contrasting the jacket color. Identify individual conductors as specified on the data sheets in conformance with Part 5 of ICEA S-61-402, S-66-524, and S-68-516.

PART 3 EXECUTION

3.01 PREPARATION

- A. Complete cable raceway systems, underground duct banks, and cable support systems before installing cables.
- B. Verify sizing of raceways and pullboxes to ensure proper accommodation for the cables.
- C. Check the length of the cable raceway system against the length of cable on the selected reel.
- D. Do not install or work on PVC insulated or jacketed cables in temperatures below 32 degrees F.

3.02 INSTALLATION

- A. **Cable in Conduit and Duct bank:**
 1. Clean conduits of all foreign matter before cables are pulled.
 2. Install cables in accordance with the manufacturer's instructions and the National Electrical Code (NEC), Chapter 3 - Wiring Methods and Materials. Do not exceed maximum wire tension, maximum insulation pressure and minimum bending radius.
 3. Pull cables into conduits using adequate lubrication to reduce friction. Lubricants must not be harmful to the conductor insulation.
- B. **Cable in Tray:**
 1. Install medium voltage (5kV and 15kV) and 600V cables in separate trays or separated cables by a barrier in a single tray in accordance with NEC 318-6(f).

2. Install cables in trays in a neat and orderly manner. Tie cables to the tray rungs at approximate 15-foot intervals by use of cable ties.
3. Only one layer of 3-conductor No. 4/0 AWG and larger 600-volt power cables are allowed in a cable tray per NEC 318-9(a).
4. Using cable ties, make a triplex of single conductors used for 3-phase systems. Install in cable tray in accordance with NEC 318-10.

C. Preparation for Termination:

1. Make up 600-Volt power cable terminations and splices with heat shrinkable sleeves and seals.
2. Use crimp-on terminal lugs and connectors for all sizes of conductors.
3. Use crimp-on lugs with long barrel and two-hole tongues, except in places where terminations space is limited.

D. Tests:

1. Before connecting the cables, test insulation integrity.
2. Use a 500Vdc megohmmeter and perform the cable insulation test in accordance with the operating instructions.

E. Termination:

1. After the 600-Volt cable has been tested with satisfactory results, terminate the cable at both ends to designated terminal points.
2. Tighten connection bolts with a torque wrench to specified torque levels.

END OF SECTION

DATA SHEET 1 of 3

1. IDENTIFICATION

2. CLIENT _____ MANUFACTURER _____

3. PROJECT _____ MODEL NO. _____

4. JOB NO. _____ SIZE _____

5. PLANT LOCATION _____ SERIAL NO. _____

6. ITEM NO. _____ INQUIRY NO. _____

7. SERVICE _____ P.O. NO. _____

8. QUANTITY REQUIRED _____

9. _____

10. OPERATING DATA

111. VOLTAGE _____ FREQUENCY _____ AMBIENT TEMP (°C) _____

122. INSTALLATION ENVIRONMENT _____

133. _____

144. CONSTRUCTION

15. CONDUCTORS

16. SIZE (AWG or MCM): _____

177. ARRANGEMENT: _____ SINGLE CONDUCTOR _____ OTHER _____

18. _____ MULTI-CONDUCTOR _____ NO. OF CONDUCTORS _____

19. MATERIAL: _____ COPPER _____ ALUMINUM

_____ TINNED COPPER

18. _____ JACKETED _____ NON-JACKETED

191. _____ GROUND WIRES IN INTERSTICES: _____ COPPER

_____ ALUMINUM

202. ASTM STANDARD: _____

213. SPECIAL REQUIREMENTS: _____

224. _____

235. _____

24. INSULATION

27. TYPE: _____ CROSS-LINKED-THERMOSETTING-POLYETHYLENE

_____ CHLOROSULFONATED POLYETHYLENE

25. _____ POLYVINYL CHLORIDE _____ ETHYLENE-PROPYLENE RUBBER

29. _____ POLYETHYLENE _____ OTHER

260. COLOR: _____

271. TEMPERATURE RATING: _____ 60°C - 75°C (WET-DRY) _____ 75°C - 90°C (WET-DRY)

282. _____ 90°C (WET-DRY) _____ OTHER _____

293. INSULATING RATING: _____ 100% _ 133% _ 173% _____ OTHER _____

304. ICEA STANDARD: _____

315. SPECIAL REQUIREMENTS: _____

326. _____

37. _____

33. JACKET

34. TYPE: _____ POLYVINYL CHLORIDE _____ POLYETHYLENE

35. _____ HEAVY DUTY NEOPRENE

_____ CHLOROSULFONATED POLYETHYLENE

36. _____ NYLON _____ OTHER: _____

37. COLOR: _____ BLACK _____ OTHER: _____

38. ICEA STANDARD: _____

39. SPECIAL REQUIREMENTS: _____

40. _____

ITEM NO. _____

DATA SHEET 2 of 3

1. ARMORING

2. TYPE: _____ INTERLOCKED (POSITIVE) _____ OTHER _____

3. MATERIAL: _____ GALVANIZED STEEL _____ ALUMINUM _____

4. _____ OTHER _____

5. COVERING: _____ POLYVINYL CHLORIDE _____ OTHER _____

6. COLOR: _____ BLACK _____ OTHER _____

7. ICEA STANDARD: _____

8. SPECIAL REQUIREMENTS: _____

9. _____

10. MARKING

11. CONDUCTOR IDENTIFICATION _____

12. SINGLE CONDUCTOR: _____

13. MULTI-CONDUCTOR: _____

14. CABLE MARKING

15. REQUIRED: _____ MANUFACTURER _____ CONDUCTOR SIZE _____

16. _____ NO. OF CONDUCTORS _____ VOLTAGE RATING _____

17. _____ UL LABEL _____ NEC TYPE _____

18. _____ TEMPERATURE RATING _____ MO/YR OF MANUFACTURE _____

19. _____ OTHER _____

20. _____

21. TESTING

22. _____ PHYSICAL _____ FLAME TESTS (PER IEEE 383 - 2.5) _____

23. _____

24. _____ ELECTRICAL _____ OTHER TESTS _____

25. _____ MEGGER _____

26. _____ OTHER _____

27. _____

28. _____

29. QUALITY ASSURANCE

30. _____ NO ADDITIONAL REQUIREMENTS _____ ATTACHED SPECIFICATION _____

31. _____

32. PACKAGING

32. _____ DOMESTIC _____ EXPORT _____

33. _____

34. SHIPPING

35. REEL TYPE: _____ RETURNABLE _____ NON-RETURNABLE _____ LENGTH PER REEL _____

36. _____

37. ADDITIONAL REQUIREMENTS: _____

38. _____

39. _____

40. _____

41. _____

42. _____

43. _____

44. _____

45. _____

46. _____

49. _____

ITEM NO. _____

DATA SHEET 3 of 3

1.	MANUFACTURER DATA	
2.	CABLE DIMENSION (O.D. IN.) _____	SHIPPING TIME _____
3.	CABLE CROSS-SECTIONAL AREA _____	OTHER _____
4.	CABLE WEIGHT (LBS/FT) _____	_____
5.	CABLE MIN BENDING RADIUS _____	_____
6.	TENSILE STRENGTH _____	_____
7.	GROSS WEIGHT/REEL (LBS) _____	_____
8.	TOTAL CUBIC FEET/REEL _____	_____
9.	SHORT CIRCUIT WITHSTAND CURVES _____	_____
10.		
11.	NOTES	
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		
21.		
22.		
23.		
24.		
25.		
26.		
27.		
28.		
29.		
30.		
31.		
32.		
33.		
34.		
35.		
36.		
37.		
38.		
39.		
40.		
41.		
42.		
43.		
44.		
45.		
46.		
47.		
48.		
49.		

ITEM NO. _____

SECTION 26 05 26

GROUNDING AND BONDING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Grounding electrodes and conductors
- B. Equipment grounding conductors
- C. Bonding
- D. Power system grounding
- E. Communication system grounding
- F. Electrical equipment and raceway grounding and bonding
- G. Control equipment grounding

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM B3: Soft or Annealed Copper Wires
 - 2. ASTM B8: Concentric-Lay-Stranded Copper Conductors, Hard, Medium Hard, Soft
 - 3. ASTM B33: Tinned Soft or Annealed Copper Wire for Electrical Purposes
- B. Institute of Electrical and Electronics Engineers (IEEE):
 - 1. IEEE 142-82: Recommended Practice for Grounding of Industrial and Commercial Power Systems
 - 2. IEEE 383-2.5: IEEE Standard for Type Test of Class IE Electric Cables, Field Splices, and Connections for Nuclear Power Generating Stations.
- C. Underwriters' Laboratories (UL):
 - 1. UL 83: Thermoplastic Insulated Wire and Cables
 - 2. UL 467: Grounding and Bonding Equipment
- D. National Fire Protection Association (NFPA), NFPA No. 70 - National Electrical Code (NEC), Article No. 250 - Grounding.

1.03 SUBMITTALS

- A. Submit six sets of the following required items, with each set being in a binder:
 - 1. Manufacturer's cut sheets and catalog data
 - 2. Installation, terminating and splicing procedure
 - 3. Instruction for handling and storage
 - 4. Dimensions and weight

1.04 QUALITY ASSURANCE

A. Tests:

1. Use insulated cable conforming to requirements of the vertical tray flame test as described in IEEE 383-2.5.
2. Test grounding system in the field in accordance with procedures outlined in Part 3 - Execution.

1.05 DELIVERY, STORAGE AND HANDLING

- ##### A.
- Ship grounding cable on manufacturer's standard reel sizes unless otherwise specified. Where cut lengths are specified, mark reel footage accordingly. Each reel shall contain one continuous length of cable. Provide impact protection by wood lagging or suitable barrier across the traverse of the reel. Pack and crate other materials specified to withstand normal abuse during shipping, handling and storage.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Cable:

1. American Insulated Wire Company
2. Cablec Continental Cables Company
3. General Cable Company
4. Okonite Company
5. Pirelli Cable Corporation
6. Rome Cable Corporation
7. Triangle Wire and Cable, Inc.

B. Ground Rods and Connectors:

1. Blackburn
2. Copperweld
3. Thomas & Betts

C. Exothermic Connections:

1. Burndy Corporation (Therm-O-Weld)
2. Erico Products (Cadweld)

D. Grounding Connectors:

1. Burndy Corporation
2. O.Z. Gedney
3. Thomas & Betts

2.02 MATERIALS AND EQUIPMENT

A. Design:

1. Provide grounding cable and materials with the following characteristics:
 - a. Use a grounding system designed in accordance with NEC Article No. 250 - Grounding, and the IEEE 142-82 - Recommended Practice for Grounding of Industrial and Commercial Power Systems.

B. Materials:

1. Use grounding conductors, bare or insulated, which are manufactured and tested in accordance with applicable standards ASTM B3, ASTM B8 and ASTM B33.
2. Provide a main ground loop of No. 4/0 AWG, Class C stranded, bare copper cable. Small groups of isolated equipment may be grounded by a No. 2 AWG minimum insulated conductor connected to the main loop. Generally, taps shall be sized as follows:
 - a. Main ground loop or grid: #4/0 minimum
 - b. Switchgear, motor control centers and power transformers: #4/0
 - c. Motors 200 hp and above: #4/0
 - d. Power panels - AC and DC: #2/0
 - e. Control panels and consoles: #2
 - f. Building columns: #4/0
 - g. Fencing posts: #2/0
3. Where single conductor insulated grounding conductors are called for, use 600-volt insulation. Use ground conductors identified with green insulation or green tape marking.
4. Supply identifying ribbon which is PVC tape, 3 inches wide, red color, permanently imprinted with "CAUTION BURIED ELECTRIC LINE BELOW" in black letters as specified in Section 26 05 53, Electrical Identification.
5. Utilize flexible copper braid across hinged chain link or fence gates to bond the movable portion to the grounded fence post.

PART 3 EXECUTION

3.01 PREPARATION

- A. Complete site preparation and soil compaction before trenching and driving ground rods for the underground grid.
- B. Verify from Drawings the exact location of stub-up points for grounding of equipment, fences and building or steel structures.

3.02 CONSTRUCTION CRITERIA

- A. Install the main ground loop at a depth of at least 30 inches below earth surface. Connect the ground loop to ground rods and to tap connections to form a complete system as indicated on the electrical Drawings. The Contractor shall give special attention to the grounding of service equipment, structures and fences to comply with the NEC, local authorities and the serving utility company.
- B. Electrical equipment, buildings, tanks, and other structures and equipment shall be grounded as indicated on the Drawings. Where ground rods are required, the rods shall be 10 feet long, 3/4-inch diameter, copper-clad steel ground rods. Rods shall be driven vertically, and the top of the rods shall be a minimum of 18 inches below finished grade, or as specified on the Drawings.
- C. Local pushbutton and selector switch stations, two-wire control devices, disconnect switches, lighting transformers, panelboards, operator panels, benchboards, and the enclosures of other electrical apparatus shall be grounded through an equipment grounding conductor run with the power supply or control circuit conductors or shall be grounded as shown on the Drawings.
- D. Ground medium voltage motors, in addition to the grounding conductors in the motor feeder cable, with a separate No. 4/0 AWG cable to motor frame.
- E. Motors having power supplied by multiconductor cable shall be grounded by a separate grounding conductor in the cable and where supplied by single conductor cable in conduit by a grounding conductor pulled in the conduit. Connect ground conductors to the ground bus in the motor control center and to the ground terminal provided in the motor conduit box.
- F. Do not ground the insulated bearing pedestals of large motors.
- G. Connect ladder-type cable trays to the grounding electrode system.
- H. Install a warning ribbon approximately 12 inches below finished grade directly above the ground grid.
- I. Connect fence posts of chain link and metal fences to the main ground loop at least every 50 feet.

3.03 INSTALLATION

- A. Equipment Grounding:
 - 1. Make grounding connections to surfaces, which are dry and cleaned of paint, rust, oxides, scales, grease and dirt to ensure good conductivity. Clean copper and galvanized steel to remove oxide before making welds or connections.
 - 2. Use the exothermic welding process for below-grade grounding connections, except at ground rods. Use mechanical connectors or thermal connections for above-grade grounding connections as shown on the Drawings.
 - 3. Make grounding connections to electrical equipment, vessels, mechanical equipment and ground rods in accordance with the Drawings.

4. Ground tanks and vessels by making connections to integral structural supports or to existing grounding lugs or pads, and not to the body of the tank or vessel.
5. Leave ground connections to equipment visible for inspection. Protect them with PVC non-metallic conduit as indicated on the Drawings.
6. Make connections to motor frames and ground buses with lugs attached to the equipment by means of bolts. Do not use motor anchor bolts or equipment housing for fastening lugs of grounding cable.
7. Where the wiring for lighting systems consists of single conductor cables in conduit, provide each conduit with an equipment-grounding conductor. Use a grounding conductor with green colored insulation and ground equipment in the lighting system.

B. Raceway and Support Systems Grounding:

1. Install raceway, cable rack or tray and conduit so that it is bonded together and permanently grounded to the equipment ground bus, according to the Drawings. Connection to conduit may be grounding bushing or ground clamp.
2. Install raceway at low voltage motor control centers or other low voltage control equipment so that it is bonded and grounded, except that any conduit which is effectively grounded to the sheet metal enclosure by bonding bushing or hubs need not be otherwise bonded.
3. Where a grounding conductor is run in or on a cable tray, bond the grounding conductor to each section of cable tray with a cable tray ground clamp.
4. Where only grounding conductor is installed in a metal conduit, bond both ends of the conduit to the grounding conductor.
5. Provide flexible "jumpers" around raceway expansion joints. Use copper bonding straps for steel conduit. Install jumpers across cable tray joints, which have been parted to allow for expansion and any hinged cable tray connections.

C. Fences and Gates:

1. Ground fences, fence posts and gates to the underground grid as shown on the Drawings.

D. Power System Grounding:

1. Solidly ground the secondary neutral of the main power supply transformer either to the ground grid or through an impedance. See Drawings for details.
2. Solidly ground the neutral of lighting, instrument and control transformers.

E. Cable Armor and Shields:

1. For shielded control cable, terminate and ground the shield at one end only, preferably at the control panel end for instrument and communication cable and at the supply end for electronic power cables. Maintain shield continuity by jumpering the ground shield across connection point where it is broken at junction boxes, or other splice points. Insulate these points from ground.
2. Connect the ground wire in power cable assemblies at each terminal point to a ground bus, if available, or to the equipment enclosure. Do not carry these ground wires through a "doughnut" current transformer (CT) used for ground fault relaying; do carry ground leads from stress cones through CTs. Ground power cable armor and shield at each terminal point.

F. Test Wells:

1. Provide access (test wells) for testing the ground grid system at one or several ground rod locations. Make test wells of a pipe surrounding the rod and connections with a cover placed on top at grade level. See Drawings for details.
2. Install a test well at the service entrance pole to serve as the service entrance-grounding electrode.

G. Test:

1. Perform ground resistance tests after underground installation and connections to building steel are complete, unless otherwise noted on applicable Drawings.
2. Make tests at each ground test well using a "fall of potential" test method. Each ground test well shall not exceed a maximum resistance of 5 ohms. Where measured values exceed this figure, install additional ground rods as required to reduce the resistance to the specified limit.

H. Inspection:

1. Inspection of the grounding system by the Engineer and the local Code Inspector must take place before the grid trenches are backfilled.

END OF SECTION

SECTION 26 05 27

GROUNDING

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:

1. Solid grounding of electrical systems and equipment.
2. Basic requirements for grounding for protection of life, equipment, circuits, and systems.
3. Grounding requirements specified in this Section may be supplemented in other sections of these Specifications.

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. B3-90 - Standard Specification for Soft or Annealed Copper Wire.
2. B8-90 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft.
3. B33-91 - Standard Specification for Tinned Soft or Annealed Copper Wire for Electrical Purposes.

B. National Fire Protection Association (NFPA):

1. NFPA 78-89 - Lightning Protection Code.

C. Underwriter's Laboratories (UL)

1. 467 84 - UL Standard for Safety Grounding and Bonding Equipment.

1.03 SUBMITTALS

A. Submit all products covered under this specification for Engineer's approval.

B. Test Results:

1. Report of field tests and observations certified by Contractor.

1.04 QUALITY ASSURANCE

A. Items provided under this section shall be listed OR labeled by UL or other Nationally Recognized Testing Laboratory (NRTL).

1. Term "NRTL" shall be as defined in OSHA Regulation 1910.7.
2. Terms "listed" and "labeled" shall be as defined in National Electrical Code, Article 100.

B. Regulatory Requirements:

1. National Electrical Code (NEC): Components and installation shall comply with National Fire Protection Association (NFPA) 70.

PART 2 PRODUCTS

2.01 GROUNDING AND BONDING PRODUCTS

- A. Products: Of types indicated and of sizes and ratings to comply with current NEC. Where types, sizes, ratings, and quantities indicated are in excess of current NEC requirements, more stringent requirements and greater size, rating, and quantity indications govern.
- B. Conductor Materials: Copper.

2.02 WIRE AND CABLE CONDUCTORS

- A. Comply with Section 16120. Conform to NEC Table 8, except as otherwise indicated, for conductor properties, including stranding.
- B. Equipment Grounding Conductor: Green insulated.
- C. Grounding Electrode Conductor: Stranded cable.
- D. Bare Copper Conductors:
 1. Solid Conductors: ASTM B3.
 2. Assembly of Stranded Conductors: ASTM B8.
 3. Tinned Conductors: ASTM B33.

2.03 MISCELLANEOUS CONDUCTORS

- A. Ground Bus: Bare annealed copper bars of rectangular cross section.
- B. Braided Bonding Jumpers: Copper tape, braided No. 30 gage bare copper wire, terminated with copper ferrules.
- C. Bonding Strap Conductor/Connectors: Soft copper, 0.05 in. thick and 2 in. wide, except as indicated.

2.04 CONNECTOR PRODUCTS

- A. General: Listed and labeled as grounding connectors for materials used.
- B. Pressure Connectors: High-conductivity-plated units.
- C. Bolted Clamps: Heavy-duty units listed for application.
- D. Exothermic Welded Connections: Provide in kit form and select for specific types, sizes, and combinations of conductors and other items to be connected.

2.05 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel with high-strength steel core and electrolytic-grade copper outer sheath, molten welded to core.
 - 1. Size: 3/4 inch by 10 feet unless otherwise indicated.
- B. Plate Electrodes: Copper plates, minimum 0.10 in. thick, size as indicated.

PART 3 EXECUTION

3.01 APPLICATION

- A. Equipment Grounding Conductor Application: Comply with NEC Article 250 for sizes and quantities of equipment grounding conductors, except where larger sizes or more conductors are indicated.
 - 1. Install separate insulated equipment grounding conductors with circuit conductors.
 - a. Raceway may be used as equipment ground conductor where feasible in non-hazardous areas and permitted by current NEC for lighting circuits and receptacle circuits.
 - b. Install insulated equipment ground conductor in nonmetallic raceways unless designated for telephone or data cables.
- B. Underground Conductors: Bare, tinned, stranded copper except as otherwise indicated.
- C. Signal and Communications: For telephone, alarm, instrumentation and communication systems, provide #4 AWG minimum green insulated copper conductor in raceway from grounding electrode system to each terminal cabinet or central equipment location.
- D. Ground separately derived systems required by NEC to be grounded in accordance with NEC paragraph 250-26.
- E. Metal Poles Supporting Outdoor Lighting Fixtures: Ground pole to grounding electrode as indicated in addition to separate equipment grounding conductor run with supply branch circuit.

3.02 INSTALLATION

- A. General: Ground electrical systems and equipment in accordance with current NEC requirements except where Drawings or Specifications exceed NEC requirements.
- B. Ground Rods:
 - 1. Locate minimum of one-rod length from each other and at least same distance from any other grounding electrode.
 - 2. Interconnect ground rods with bare conductors buried at least 24 in. below grade.
 - 3. Connect bare-cable ground conductors to ground rods by means of exothermic welds except as otherwise indicated.
 - 4. Make connections without damaging copper coating or exposing steel.
 - 5. Use 3/4-inch by 10-ft. ground rods except as otherwise indicated.

3.03 CONNECTIONS

- A. General: Make connections to minimize possibility of galvanic action or electrolysis. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
 - 1. Use electroplated or hot-tin-coated materials to assure high conductivity and make contact points closer in order of galvanic series.
 - 2. Make connections with clean bare metal at points of contact.
 - 3. Aluminum to steel connections: stainless steel separators and mechanical clamps.
 - 4. Aluminum to galvanized steel connections: tin-plated copper jumpers and mechanical clamps.
 - 5. Coat and seal connections involving dissimilar metals with inert material such as red lead paint to prevent future penetration of moisture to contact surfaces.
- B. Exothermic Welded Connections:
 - 1. Use for connections to structural steel and for underground connections except those at test wells.
 - 2. Install at connections to ground rods and plate electrodes.
 - 3. Comply with manufacturer's written recommendations.
 - 4. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable.
- C. Terminations:
 - 1. Terminate insulated equipment grounding conductors for feeders and branch circuits with pressure-type grounding lugs.
 - 2. Where metallic raceways terminate at metallic housings without mechanical and electrical connection to housing, terminate each conduit with grounding bushing.
 - 3. Connect grounding bushings with bare grounding conductor to ground bus in housing.
 - 4. Bond electrically noncontinuous conduits at both entrances and exits with grounding bushings and bare grounding conductors.
- D. Tighten grounding and bonding connectors and terminals, including screws and bolts, in accordance with manufacturer's published torque tightening values for connectors and bolts. Where manufacturer's torquing requirements are not indicated, tighten connections to comply with torque tightening values specified in UL 486A and UL 486B.
- E. Connections at Test Wells: Use compression-type connectors on conductors and make bolted-and clamped-type connections between conductors and ground rods.
- F. Compression-Type Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by manufacturer of connectors. Provide embossing die code or other standard method to make visible indication that connector has been adequately compressed on ground conductor.

- G. Moisture Protection: Where insulated ground conductors are connected to ground rods or ground buses, insulate entire area of connection and seal against moisture penetration of insulation and cable.

3.04 FIELD QUALITY CONTROL

A. Test:

1. Subject completed grounding system to megger test at each location where maximum ground resistance level is specified, at service disconnect enclosure ground terminal, and at ground test wells.
2. Measure ground resistance without soil being moistened by any means other than natural precipitation or natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.

B. Ground/resistance maximum values shall be as follows:

1. Equipment rated 500 kVA and less: 10 Ohms.
2. Equipment rated 500 kVA to 1000 kVA: 5 Ohms.
3. Equipment rated over 1000 kVA: 3 Ohms.

C. Deficiencies: Where ground resistances exceed specified values, notify Engineer, and if directed by Engineer, modify grounding system to reduce resistance values. Where measures are directed that exceed those indicated, provisions of Contract covering changes will apply.

D. Report: Prepare test reports, certified by testing organization, of ground resistance at each test location. Include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

3.05 RESTORATION

- A. Restore surface features at areas disturbed by excavation and reestablish original grades except as otherwise indicated.
- B. Where sod has been removed, replace it as soon as possible after backfilling is completed.
- C. Restore areas disturbed by trenching, storing of dirt, cable laying, and other Work to their original condition.
- D. Include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, or mulching.
- E. Restore disturbed paving as indicated.

END OF SECTION

SECTION 26 05 30

BASIC MATERIALS AND METHODS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Raceway Systems
2. Wire, Cables and Connectors
3. Wiring Devices
4. Motor Starters
5. Motor and Circuit Disconnects
6. Fuses
7. Panelboards
8. Transformers

1.02 RELATED SECTIONS

- ###### A. Division 26 - Electrical Specifications that apply to the requirements of this project.

1.03 SUBMITTALS

- ###### A. Submit all products covered under this section for Engineer's approval.

B. Product Data:

1. Submit for disconnects, motor starters, panelboards, circuit breakers, overcurrent protective devices, transformers, and mini-power centers.
2. Product data sheets with printed installation instructions.

C. Shop Drawings:

1. Submit for motor starters.
2. Show enclosure dimensions, nameplate nomenclature, electrical ratings, and thermal unit schedule.
3. Wiring diagrams and schematics.

- ###### D. Approval of equipment supplied in this section is contingent upon Contractor verification of available fault current from electric utility.

1. Notify Engineer if available fault current is higher than specified equipment.

E. Operation and Maintenance (O&M) Data:

1. Maintenance data for materials and products for inclusion in Operating and Maintenance Manual.

1.04 QUALITY ASSURANCE

- A. Items provided under this section shall be listed or labeled by UL or other Nationally Recognized Testing Laboratory (NRTL).
 - 1. Term "NRTL" shall be as defined in OSHA Regulation 1910.7.
 - 2. Terms "listed" and "labeled" shall be as defined in National Electrical Code, Article 100.
- B. Regulatory Requirements:
 - 1. National Electrical Code (NEC): Components and installation shall comply with National Fire Protection Association (NFPA) 70.
- C. Where materials or installation methods in this section conflict with other sections, those particular sections shall have precedence unless otherwise indicated.

PART 2 PRODUCTS

2.01 RACEWAY SYSTEMS

- A. Rigid galvanized steel conduits (RGS):
 - 1. Manufacturers:
 - a. Allied Steel
 - b. Wheatland
 - c. Omega
 - d. Columbia
 - 2. Manufacturer's standard lengths and size.
 - 3. Protected inside and out by hot dipped galvanized or electro-galvanized coating.
- B. Polyvinyl chloride conduit (PVC):
 - 1. Manufacturers:
 - a. Carlon
 - b. Genova
 - c. Certainted
 - 2. Standard lengths and sizes.
 - 3. Schedule 40 or 80, heavy wall rigid plastic (PVC) conduit manufactured to NEMA TC2 standards, UL listed, and as required by current NEC.
 - 4. Rated for 90C cable.

C. PVC coated rigid galvanized steel conduit (PVC-RGS):

1. Manufacturers:
 - a. Perma-Coat Plastics, Inc.
 - b. Robroy Industries
2. NEMA RN1.
3. Rigid galvanized steel conduit with PVC coating.
4. Full weight 40-mil thick PVC coating, bonding to galvanized metal shall be stronger than plastic tensile strength.

D. Flexible conduit:

1. Manufacturers:
 - a. Triangle PWC, Inc.
 - b. Flexsteel
 - c. Anaconda
 - d. American Flexible Conduit
2. Galvanized flexible steel.
3. Standard conduit sizes.
4. Minimum Size: ½-in.

E. Liquidtight flexible conduit:

1. Manufacturers:
 - a. O-Z/Gedney Company
 - b. Flex-Guard, Inc.
 - c. Anaconda
 - d. American Flexible Conduit
 - e. Liquidtight
2. Galvanized flexible steel.
3. Standard conduit sizes.
4. Minimum Size: ½-in.
5. Heavy wall PVC jacket.

F. Fittings:

1. Manufacturers:
 - a. Appleton Electric Company
 - b. Steel City, American Electric
 - c. Oz-Gedney Company
2. Steel or malleable iron, zinc galvanized or cadmium plated.

3. Do not use set screw or indenter type fittings.
4. Do not use aluminum or die cast fitting.
5. GRS Connectors and Couplings:
 - a. Threaded
 - b. Insulated throat
 - c. Gland compression type
 - d. Rain and concrete type
6. Flexible Conduit Connectors and Couplings:
 - a. Threaded
 - b. Grounding type
 - c. Insulated throat
 - d. Gland compression type
7. Liquidtight Flexible Conduit Fittings:
 - a. Liquidtight
 - b. Threaded
 - c. Grounding type
 - d. Insulated throat
 - e. Gland compression type
8. Expansion Joints:
 - a. Conduit expansion fittings complete with copper bonding jumper, Crouse-Hinds Type XJ.
 - b. Conduit expansion/deflection fittings with copper bonding jumper, Crouse-Hinds Type XD.
9. Seals:
 - a. Wall entrance, Appleton Type FSK or FSC.
10. Drain Fittings:
 - a. Automatic Drain Breather.
 - 1) Explosionproof.
 - a) Safe for Class I, Groups C and D.
 - 2) Capable of passing minimum 25cc water/min and minimum 0.05 cu ft air/min at atmospheric pressure.

- b. Condensate Drain:
 - 1) Conduit outlet body, Type T.
 - 2) Threaded, galvanized plug with 3/16-in. drilled holed through plug.

11. Hazardous Areas:

- a. Explosionproof.
- b. Horizontal seal fittings, Crouse-Hinds Type EYS.
- c. Vertical seal fittings, Crouse-Hinds Type EYD.
- d. Vertical seal fittings shall have drain plug.

12. Conduit Connectors: Watertight as manufactured by Myers Hubs, or equal.

G. Boxes:

1. Manufacturers:

a. Interior Outlet Boxes:

- 1) Appleton Electric Company
- 2) Raco
- 3) Steel City, American Electric
- 4) Eaton Crouse-Hinds
- 5) Hubbell

b. Weatherproof Outlet Boxes:

- 1) Appleton Electric Company
- 2) Crouse-Hinds Company
- 3) O-Z/Gedney Company
- 4) Perfect-Line, American Electric

c. Junction and Pull Boxes:

- 1) Hoffman (Pentair)
- 2) Weigmann (Hubbell)
- 3) Eaton Crouse-Hinds

d. Outlet Boxes - Flush Mounted:

- 1) Wall Outlets: Square corner, galvanized masonry type with internally mounted ears or 4-in. sq. with raised cover having square corners and internally mounted ears.
- 2) Ceiling Lighting Fixture Outlet Boxes: 4-in. sq. galvanized box with raised cover set flush with finished surface, complete with 3/8-in. fixture stud.

e. Outlet Boxes - Surface Mounted:

- 1) General Use: 4-in. sq. with raised device cover.
- 2) Weatherproof: Cast galvanized with threaded hub.

- 3) Hazardous Locations: Cast galvanized approved for classification of area.

f. Junction and Pull Boxes:

- 1) Fabricate from code gauge galvanized steel, with covers held in place by corrosion resistant machine screws.
- 2) Size as required by code for number of conduits and conductors entering and leaving box.
- 3) Provide with welded seams where applicable, and equip with corrosion resistant nuts, bolts, screws, and washers.
- 4) Finish with rust inhibiting primer.

2.02 WIRES, CABLES, AND CONNECTORS

A. Manufacturers:

1. Wire and Cable:

- a. Collier
- b. Southwire
- c. Rome Cable
- d. Houston Wire and Cable
- e. Beldon
- f. Dekoron

2. Connectors:

- a. Burndy
- b. Thomas and Betts
- c. Blackburn, American Electric

B. Copper wire only.

C. 600V insulation (ASTM standard compounds) and color-code conductors for low voltage (secondary feeders and branch circuits) as required by current NEC.

1. Type THWN Stranded: Single conductor No. 14 AWG minimum for branch circuit and feeder conductors size No. 8 AWG and smaller.
2. Type XHHW Stranded: Single conductor for branch circuits, feeders, and service conductors larger than No. 8 AWG.
3. Provide grounding conductor when run with circuit conductors with same insulation as circuit conductors.
4. Type UE Stranded: Single conductor for under-ground direct burial.

5. Type THWN Stranded: Single conductor No. 12 AWG minimum for 120V control wiring and No. 14 AWG minimum for graphic indication, nonshielded instrumentation and other control wiring operating at less than 120V, unless otherwise indicated.
 - a. Provide high-density polyethylene jacketed multi-wire cable assemblies in underground conduit or duct.
 6. Polyethylene insulated, tinned copper (19 by 27) stranding, No. 16 AWG, two conductors cabled with aluminum polyester electrostatic shielding, stranded tinned copper drain wire, and chrome vinyl outer jacket for interference sensitive instrumentation wiring.
 - a. Additional high-density neoprene jacket on cables installed below ground and in duct encasements.
 7. Vinyl insulated, tinned copper, solid, twisted pair, cabled conductors and silver gray vinyl jacket for telephone inter-communications.
 - a. Up to 4 conductors/cable, 22 AWG solid wire.
 - b. Over 4 conductors/cable, 24 AWG solid wire.
 - c. Provide high-density polyethylene jacketed multi-wire cable assemblies in underground conduit or duct.
 8. Power cables for VFD circuits shall be shielded power cable type specifically made for VFD circuits.
 - a. Conductors: Class B stranded, uncoated annealed copper conforming to ASTM B-3 and B-8
 - b. Insulation: Each conductor is insulated with black Crosslinked Polyethylene (XLP) conforming to UL Standard 44 for Type RHH/RHW-2.
 - c. Color Coding: Each conductor is black and printed with its conductor number in accordance with ICEA Method 4.
 - d. Ground Wires: Three Class B stranded, un-coated annealed copper conforming to ASTM B-3 and B-8.
 - e. Cable Assembly: The three conductors and three ground wires are cabled with non-hygroscopic fillers.
 - f. Shield: A 5 mil un-coated copper tape is helically wrapped over the twisted assembly with a 50% (nominal) overlap. The shield shall be in contact with the ground wire.
 - f. Outer Jacket: A black, flame retardant Polyvinyl Chloride (PVC) jacket meeting the requirements of UL Standard 1277 is applied.
- D. Joints, Taps, and Splices:
1. Joints, Taps, and Splices in Conductors No. 10 AWG and Smaller: UL listed compression spring-type solderless connectors with plastic cover.

2. Joints, Taps, and Splices in Conductors No. 8 AWG and Larger: Solderless two or four-bolt compression type connectors of type that will not loosen under vibration or normal strains.
3. Terminations: Compression-type crimp lugs.

2.03 WIRING DEVICES

A. Manufacturers:

1. Arrow-Hart, Inc.
2. Hubbell Wiring Device Division
3. Pass and Seymour, Inc.
4. Appleton Electric Company
5. Sierra Electric
6. Crouse-Hinds Company

B. Fabricated Devices:

1. Factory fabricated, specification grade wiring devices in type, color, and electrical rating for service indicated.
2. Wiring devices of one manufacturer.

C. Switches:

1. General Use Lighting Switches: 20-amp toggle, equal to Hubbell No. 1221-I series.
2. Switches controlling equipment, operation of which is not evident from switch position, shall include flush neon pilot light in conjunction with proper switch. Each switch shall be complete with engraved plate to identify equipment being controlled (white letters on black, 1/8-in. high minimum).

D. Receptacles:

1. General use duplex receptacles: NEMA No. 5-20R, grounding type, 20-amp Hubbell No. 5362 Specification Grade.
2. Special purpose receptacles.

E. Ground-fault circuit interrupter receptacles (GFCI):

1. Ratings: 120-Vac, 20-amp.
2. Tripping Requirement: UL Class A.
3. Construction:
 - a. Shallow depth.
 - b. Line and load terminal screws.
 - c. Noise suppression.
 - d. Feed through.
 - e. Standard duplex wall plates shall fit.
 - f. NEMA 5-20R configuration.
4. Meet requirements of UL 943 ground-fault circuit interrupters.

F. Wiring Device Plates and Covers:

1. Wall plates for wiring devices with ganging and cut outs as indicated, provided with metal screws for securing plates to devices, screw heads colored to match finish of plate.
2. Plates for Flush Mounted Devices: Equal to Sierra P line specifications grade Type No. 430 brushed stainless steel or color as selected by Owner.
3. Telephone outlet configuration to match telephone outlet jack or cable.
4. Device plates for surface mounted Type FS or FD boxes to be Type FSK galvanized steel.
5. Device plates for surface mounted, 4-in. sq. boxed to be ½-in. raised galvanized steel covers.
6. Weatherproof plates and covers for exterior devices or devices in damp locations to be galvanized gray cast malleable with gasketed, lift cover plate.

G. Explosion-proof Devices:

1. Wiring devices for use in hazardous areas shall be explosion-proof approved for Class I, Division 1, Group D areas.
2. Receptacles: Appleton Cat. No. EFS B175-2023M, Crouse-Hinds Cat. No. ENR 21201 or equal NEMA 5-20R.
3. Plugs: Match receptacles. Furnish 1 plug for each receptacle installed.
4. Switches: Appleton EFS series, Crouse-Hinds EDS series or equal.

2.04 MOTOR STARTERS

A. Manufacturers:

1. Allen Bradley
2. Eaton/Cutler-Hammer
3. Furnas Electric Controls
4. Siemens
5. Square D
6. Westinghouse

B. Manual Starters:

1. Minimum short circuit withstand rating in combination with motor circuit protective device shall be 10,000 symmetrical amps, unless indicated otherwise.

C. Manual Motor Starter Construction:

1. Quick make and break toggle action.
2. Double break silver alloy contacts.
3. 1 piece melting alloy type thermal overload units (solid-state overload relays to be used if shown on the drawings).
4. Starter inoperative unless thermal unit in position.
5. Padlock provision.

6. Pilot light.
7. NEMA standards for size and hp rating.

D. Magnetic Starters:

1. Minimum short circuit withstand rating in combination with motor circuit protective device shall be 22,000 symmetrical amps or as otherwise indicated.

E. Magnetic Motor Starter Construction:

1. Mounted in vertical position, gravity dropout.
2. Double break silver alloy contacts.
3. Molded coil.
4. Contacts and/or coil replacement without removing starter from enclosure or power wiring from starter.
5. Straight through wiring.
6. Overload Relay:

- a. 1 piece thermal unit construction.
- b. One melting alloy type overload relay per phase, manually reset.
- c. Interchangeable thermal units.
- d. Thermal units must be in place to operate starter.
- e. Replaceable overload relay circuit contacts.
- f. Trip at 6 times LRC in 20 sec.
- g. Solid-state overload relays to be used in place of traditional overloads if shown on the drawings.

7. Overload relay submersible pumps and hermetically sealed motors:

- a. Same as above except trip at 6 times LRC in 3 to 5 sec.

8. NEMA standards for size and hp rating.

9. NEMA Size 1 minimum.

F. 2-Speed Motor Starters - (Where Applicable):

1. Provide separate winding type with two 3-pole starters unless otherwise specified.
2. For remote 2-stage thermostat control, provide cutout of low speed signal on high speed operation.

G. Reduced Voltage Motor Starter Construction - (Where Applicable):

1. Closed transition autotransformer type, 2-coil construction with 50%, 65%, and 80% starting voltage taps.

H. Combination Starter - (Where Applicable):

1. Combination Starters:
 - a. Motor circuit protector type.
 - b. Three-pole, three-phase NEMA size as indicated with three melting alloy overload relays (solid-state overload relays to be used if shown on the drawings)

c. Hand-Off-Auto selector switch.

I. Control Circuits:

1. Voltage not to exceed 120V.
2. Control transformer mounted in starter enclosure.
3. Fuses on one secondary line.
4. One secondary line grounded.
5. Transformer sized for device, accessories connected thereto, and 25% extra capacity minimum.

J. Controls:

1. Reset button mounted in enclosure cover.
2. Heavy duty, oil-tight green push to test pilot lights mounted in enclosure cover when indicated.
3. Heavy duty, oil-tight pushbuttons and selector switches mounted in enclosure when indicated.
4. 6-digit type elapsed time meters in tenths of hr mounted in enclosure cover when indicated.

K. Enclosures:

1. Manual Starters:
 - a. General-purpose flush mounted in finished areas.
 - b. NEMA 1-in unfinished areas.
 - c. NEMA 4 outdoors and wet locations.
2. Magnetic Starters:
 - a. NEMA 12 indoors.
 - b. NEMA 4 outdoors and wet locations.

2.05 MOTOR AND CIRCUIT DISCONNECTS

A. Manufacturers:

1. Eaton/Cutler-Hammer
2. Square D
3. Westinghouse

B. Enclosed Circuit Breaker Construction:

1. Dual cover interlock.
2. External trip indication.
3. Provisions for control circuit interlock.
4. Padlock provisions for padlock in Off position.
5. Handle attached to box, not cover.
6. Handle position indicates On, Off or Tripped.
7. Provisions for insulated or groundable neutral.

C. Permanent Trip Circuit Breakers:

1. Thermal and magnetic protection.
2. Magnetic protection only in combination with motor starters and motor circuit protectors (MCP).
3. Single magnetic trip adjustment.
4. Single-handle common trip, 2 and 3-poles (handle ties not acceptable).
5. Push to trip test button.
6. Bolt on type.
7. Quick make and break toggle action.
8. Handle trip indication.
9. Handle position indication, On, Off, and Tripped centered.
10. UL listed for type of wire specified.
11. UL listed short circuit rating (integrated equipment rating).
 - a. Up to 240V: 10,000 RMS symmetrical amp minimum.
 - b. Up to 480V: 14,000 RMS symmetrical amp minimum.

D. Safety Switches:

1. NEMA heavy duty Type HD.
2. Dual cover interlock.
3. Visible blades.
4. Provisions for control circuit interlock.
5. Pin type hinges.
6. Tin-plated current carrying parts.
7. Quick make and break operator mechanism.
8. Handle attached to box, not cover.
9. Handle position indication, On in up position and Off in down position.
10. Padlock provisions for up to 3 padlocks in Off position.
11. UL listed lugs for type and size of wire specified.
12. Spring reinforced fuse clips for Class R fuses.
13. Provisions for insulated or groundable neutral.
14. UL listed short circuit rating 200,000 RMS amp with Class R fuses.

E. Enclosures:

1. Indoor: NEMA 12 code gauge steel with rust inhibiting primer and baked enamel finish.
2. Outdoor: NEMA 4 code gauge zinc coated steel with baked enamel finish.

2.06 FUSES

A. Manufacturers:

1. Bussmann
2. Gould Shawmut
3. Littlefuse

B. 250-V Fuses:

1. Class RK 1, 1 end rejection or to fit mountings specified, 1/10 to 600-amps, 200,000-amp interrupting rating.

- a. Bussmann Low-Peak. LPN-R, dual element, time delay with short circuit protection for motor, transformer, welder, feeder, and main service protection.

C. 600-V Fuses:

- 1. Class RK1, 1 end rejection or to fit mountings specified, 1/10 to 600-amps, 200,000-amp interrupting rating.
 - a. Bussmann Low-Peak: LPS-R, dual element, time delay with short circuit protection for motor, transformer, welder, feeder and main service protection.
- 2. Class L, bolt in, 601 to 6,000-amps, 200,000-amp interrupting rating.
 - a. Bussmann HI-CAP: KRP-C, time delay for overload and short circuit protection for motor, transformer, feeder, and main service protection.
- 3. Class CC, fast acting, single element, 1/10 to 30-amps, 200,000-amp interrupting rating.
 - a. Bussmann Limitron: KTK-R, UL listed for motor control circuits, lighting ballasts, control transformers, and street lighting fixtures.

D. Spare Fuses:

- 1. 10%, minimum of 3, of each type and rating of installed fuses.

E. Spare Fuse Cabinet:

- 1. Cabinet: Wall-mounted, 18ga minimum steel unit with full-length, recessed piano-hinged door with key coded cam lock and pull.
- 2. Size: Provide for orderly storage of spare fuses of this project plus 15% spare capacity, minimum.
- 3. Finish: Gray baked enamel.
- 4. Cabinet Door: Bear legend in stenciled 1 ½-in. high letters, "Spare Fuses".

2.07 PANELBOARDS

A. Manufacturers:

- 1. Eaton/Cutler-Hammer
- 2. Square D
- 3. Westinghouse

B. Panelboard Ratings:

- 1. UL listed short circuit rating (integral equipment rating):
 - a. Up to 240V: 10,000 RMS symmetrical amp minimum.
 - b. Up to 480V: 14,000 RMS symmetrical amp minimum.

C. Panelboard Construction:

1. Main breaker or main lugs only, per panelboard schedule.
2. Molded case circuit breakers.
3. Terminals:
 - a. UL listed for type of wire specified.
 - b. Anti-turn solderless compression type.
4. Bussing:
 - a. Distributed phase sequence type.
 - b. 225-amps, 98% conductivity hard drawn copper or as shown on panelboard schedule.
 - c. Copper.
 - d. Mounting hardware behind usable space.
5. Gutters adequate for wire size used, 4-in. minimum.
6. Boxes:
 - a. Code gauge galvanized steel.
 - b. Without knockouts.
7. Fronts:
 - a. Rust inhibiting primer, baked enamel finish.
 - b. Dead front safety type.
 - c. Concealed hinges.
 - d. Flush stainless steel cylinder tumbler type locks with spring loaded door pulls.
 - e. Circuit Directory:
 - 1) Suitable for complete descriptions.
 - 2) Clear plastic cover.
 - 3) Typewritten card.
8. Special features as indicated.
9. Engraved laminated nameplate:
 - a. Stock melamine plastic laminate.
 - b. Legend in black letters on white face and punched for mechanical fasteners.
 - c. Except as otherwise indicated, provide single line of text, with ½-in. high lettering on 1 ½-in. high label (2-in. high where two lines are required). Text shall match terminology and numbering of Contract Documents and Shop Drawings.

D. Panelboard Circuit Breakers:

1. Thermal and magnetic protection.
2. Single-handle common trip, 2 and 3-poles (handle ties not acceptable).
3. Bolt on type unless otherwise specified.
4. Quick make and break toggle action.

5. Handle trip indication.
6. Handle position indication, On, Off, and Tripped centered.
7. UL listed for type of wire specified.
8. UL listed short circuit rating (integrated equipment rating).
 - a. Up to 240V: 10,000 RMS symmetrical amp minimum.
 - b. Up to 480V: 14,000 RMS symmetrical amp minimum.
9. UL SWDL switching duty on 120V circuits for switched circuits.
10. Switch neutral common trip per NEC 514-5 for fuel pumps.

2.08 TRANSFORMERS

A. Manufacturers:

1. Eaton/Cutler-Hammer
2. Square D
3. Westinghouse

B. Materials and Equipment:

1. Distribution Dry-type, air-cooled.
2. Insulation:
 - a. Below 30kVA: Class F or better, having 115°C rise, average maximum over 40°C ambient temperature.
 - b. 30kVA and Above: Class H or better, having 150°C rise, average maximum over 40°C ambient temperature.
3. Copper windings.
4. Cores: High grade, non-aging, sheet silicone steel laminations having core-plating insulation on both sides of each lamination.
5. Terminal boards.
6. Taps: Two 2 1/2% taps above and below.
7. Overload Capacity: Not less than 10% for intermittent operation.
8. Size: kVA as indicated.
9. Transformers shall be quiet type for installation in areas of low ambient noise levels. Maximum sound levels shall not exceed NEMA standards.
10. Cabinets: Sheet steel, phosphatized having one prime coat and two finish coats of baked enamel.
 - a. Wall mounting brackets through 75kVA when indicated as wall mounted.

11. Nameplate: Metal nameplate listing manufacturer's name, serial number, type, class, kVA voltage, frequency, and showing internal wiring diagram.
12. Comply with 2016 DOE Standards.

2.09 MINI-POWER CENTER (Where Applicable)

A. Manufacturers:

1. Westinghouse
2. Square D
3. Or equal

B. Materials and Equipment:

1. UL listed, 10,000 AIC rated.
2. NEMA 3R enclosure with padlock provision.
3. 240V, 30A, 2-pole single phase primary main circuit breaker.
4. 5kVA 240-120/240V encapsulated core and coil assembly.
5. 240V, 25A, 2-pole single phase secondary main circuit breaker.
6. 4-20A single pole branch circuit breakers.
7. Neutral bar grounded to case.
8. Ground bar with terminals.

PART 3 EXECUTION

3.01 GENERAL

- A. Install products in accordance with current NEC, manufacturer's instructions, applicable standards, and recognized industry practices to ensure products serve intended function.

3.02 RACEWAY SYSTEMS

- A. Complete conduit installation prior to installing cables.
- B. Unless specifically indicated otherwise, use rigid galvanized steel conduit for general wiring.
- C. Provide watertight conduit system where installed in wet places, underground or where buried in masonry or concrete.
- D. Use PVC coated rigid steel conduit when conduit is run below slabs on grade or in earth, unless otherwise specified.
 1. Exterior underground conduit shall be minimum of 1-in., buried at depth of not less than 24-in. below grade.
 2. Provide conduits or ducts terminating below grade with means to prevent entry of dirt or moisture.
- E. Use rigid galvanized steel conduit.

- F. Conduit shall be run concealed except exposed surface conduit may be installed where concealment found to be impractical or impossible, and only with approval of Engineer.
- G. Continuous from outlet to outlet and from outlets to cabinets, junction or pull boxes.
- H. Enter and secure to boxes ensuring electrical continuity from point of service to outlets.
- I. Conduit runs extending through areas of different temperature or atmospheric conditions or partly indoors and partly outdoors shall be sealed, drained, and installed in manner preventing drainage of condensed or entrapped moisture into cabinets, motors or equipment enclosures.
- J. Run conduits within concrete structures parallel to each other and spaced on center of at least three times conduit trade dia with minimum 2-in. concrete covering.
- K. Route conduit runs above suspended acoustical ceilings not interfering with tile panel removals.
- L. Secure conduit in-place with not less than 1 malleable corrosionproof alloy strap or hanger, 8-ft of conduit.
 - 1. Do not use perforated strapping.
- M. Connections to Motors and Equipment Subject to Vibration:
 - 1. Flexible steel conduit not over 3-ft long or where exposed in mechanical and utility areas and not subjected to moisture, dirt, and fumes.
 - 2. Liquidtight flexible conduit not over 3-ft long where exposed in finished areas or where subject to moisture, dirt, fumes, oil, corrosive atmosphere, exposed or concealed, with connectors to ensure liquidtight, permanently grounded connection. Locate where least subject to physical abuse.
- N. Use double locknuts and insulated bushings with threads fully engaged.
- O. Connectors at fixture bodies and boxes shall be rigidly secured with galvanized lock nut and bushing.
- P. Cap conduits after installation to prevent entry of debris.
- Q. Use explosionproof fittings and seals in hazardous areas in accordance with current NEC.
- R. Install conduit expansion fittings complete with bonding jumper in following locations.
 - 1. Conduit runs crossing structural expansion joint.
 - 2. Conduit runs attached to two separate structures.
 - 3. Conduit runs where movement perpendicular to axis of conduit may be encountered.
- S. Install 4-ft 0-in. to 6-ft 0-in. flexible steel conduit drops from independent junction box mounted above ceiling and accessible from below ceiling to recessed ceiling mounted equipment. Allow for positioning of equipment to tile increments.

T. Multi-outlet raceway system:

1. Mount to surface with approved support clips.
2. Do not pinch wires.
3. Remove metal burrs and sharp edges.
4. Install in accordance with manufacturer's recommendations.

U. Provide watertight hubs for conduit entrances into exterior panels.

3.03 BOXES

A. Install knockout closures to cap unused knockout holes where blanks have been removed.

B. Locate boxes to ensure accessibility of electrical wiring.

C. Secure boxes rigidly to surface or solidly embed boxes in concrete or masonry. Do not support from conduit.

D. Do not burn holes, use knockout punches or saw.

E. Provide outlet box accessories as required for each installation such as mounting brackets, fixture studs, cable clamps, and metal straps for supporting outlet boxes compatible with outlet boxes being used and meeting requirements of individual wiring situations.

F. Verify exact location of outlets.

G. Minor modification in location of outlets and equipment is considered incidental up to distance of 10-ft with no additional compensation, provided notification of modification is given prior to roughing in of outlet.

H. Flush outlets shall have edges or plaster flush with finished wall or ceiling surfaces so plates can be drawn tightly to wall or ceiling surfaces.

I. Mounting height as follows:

1. Switches: 48-in. above floor.
2. AC Receptacles and Telephone Outlets: 12-in. above floor or 6-in. above counters, counter back-splashes, and baseboard radiators in finished areas, 48-in. above floor in unfinished areas.
3. Wall Bracket Lighting Fixtures: 8-in. above mirrors or 6-ft 6-in. above floor.
4. Pushbuttons: 48-in. above floor.
5. Motor Starters and Disconnect Switches: 60-in. above floor.
6. Thermostats: 60-in. above floor.
7. Bells and Horns: 8-ft 0-in. above floor.
8. Clocks: 8-ft 0-in. above floor.

- J. Do not install boxes back to back or through wall. Offset outlet boxes on opposite sides of wall, minimum 12-in.
- K. Where emergency switches occur adjacent to normal light switches, install in separate boxes in accordance with current NEC and device plate color coding separation.
- L. Lighting Fixture Outlet Boxes:
 - 1. Securely mount with approved type bar hangers spanning structural members to support weight of fixture.
 - 2. Do not support from conduit.
 - 3. Equip with 3/8-in. fixture stud and tapped fixture ears.
- M. Floor boxes:
 - 1. Adjust box to align with finish floor.
 - 2. Install in accordance with manufacturer's recommendations.
- N. Fire rated through floor fittings:
 - 1. Spacing and location as indicated.
 - 2. Install in accordance with manufacturer's instructions.

3.04 WIRE AND CABLE

- A. Run wire and cable in conduit unless otherwise indicated.
- B. On branch circuits, use standard colors.
- C. Each tap, joint or splice in conductors No. 8 AWG and larger shall be taped with 2 half-lap layers of vinyl plastic electrical tape and finish wrap of color coding tape, where required by code.
- D. Run ground wire with power circuits; conduit shall not be grounding path.
- E. Provide separate conduit systems for the following:
 - 1. Exit lights.
 - 2. Line voltage control.
 - 3. Low voltage control.
 - 4. Shielded instrumentation.
 - 5. Telephone and sound system.
 - 6. Utility telephone cables.
 - 7. As required by current NEC.
- F. Where power cables and instrument/signal cables enter and pass through same manhole, handhole or distribution box, steel barrier or steel conduit separation shall be maintained to avoid magnetic interaction between power cables and instrumentation conductors. In manholes and handholes, provide Type C conduit outlet body with 3/16-in. holes drilled in bottom for drainage.

- G. Run instrumentation cable into control cabinets or MCC only if terminated therein.
- H. Terminate control, instrumentation, and communication cables on terminal strips in separate terminal cabinets located near conduit entrances of buildings.
- I. Color Coding: Conductors for lighting and power wiring as indicated below.

<u>Phase</u>	<u>120/240V 1 Phase</u>	<u>240/120V 3 Phase</u>	<u>480/277V 3 Phase</u>
A	Black	Black	Brown
B	Red	Orange	Purple
C		Blue	Yellow
Travelers	Pink	Pink	Red
Neutral	White	White	Gray
Ground	Green	Green	Green

- J. Color coding for intrinsically safe systems shall be light blue.

3.05 JOINTS, TAPS, AND SPLICES

- A. Where pre-insulated spring connectors are used for motor and equipment connections, tape connector to wire to prevent loosening under vibration.
- B. Each tap, joint or splice in conductors No. 8 AWG and larger shall be taped with two half-lap layers of vinyl plastic electrical tape and finish wrap of color coding tape where required by code.
- C. Cable splices shall be made only in manholes, handholes, wireways, distribution boxes, and junction boxes.

3.06 WIRING DEVICES

- A. Do not install devices until wiring is complete.
- B. Do not use terminals on wiring devices (hot or neutral) for feed-through connections, looped or otherwise. Make circuit connections by using wire connectors and pigtails.
- C. Install gasket plates for devices or system components having light emitting features such as switch with pilot light and dome lights. Where installed on rough textured surfaces, seal with black self-adhesive polyfoam.
- D. Ground receptacles with insulated green ground wire from device ground screw to bolted outlet box connection.
- E. Install GFCI receptacles as required by current NEC.

3.07 MOTOR STARTERS

- A. Examine area to receive motor starters to ensure adequate clearance for starter installation.
- B. Install on equipment rack in MCC or anchor firmly to wall or structural surface.

3.08 MOTOR AND CIRCUIT DISCONNECTS (Where Applicable)

- A. Locate disconnect switches as required by current NEC.
- B. Provide control circuit interlock as required by current NEC.
- C. Overcurrent protective devices:
 - 1. Install fuses just prior to energizing equipment.
 - 2. Locate circuit breakers.

3.09 PANELBOARDS

- A. Flush or surface mount.
- B. Support panel cabinets independently to structure with no weight bearing on conduits.
- C. Install recessed panelboards to allow cover to be drawn tight against wall to provide neat appearance.
- D. Install panelboards so top breaker is not higher than 6-ft 0-in. above floor.
- E. Adjacent panel cabinets shall be same size and mounted in horizontal alignment.
- F. Install typewritten directory in each panelboard, accurately indicating rooms or equipment being served after final circuit changes have been made to balance circuit loads.
- G. Install two spare 1-in. conduits from top of each flush mounted panelboard to area above ceiling for future use. On flush mounted panelboards located on first and higher level floors, provide two spare 1-in. conduits from bottom of panelboard to ceiling area of floor below for future use.

3.10 TRANSFORMER

- A. Install wall mounted transformers on prefabricated brackets designed for that purpose.
- B. Install floor mounted transformers on 4-in. high concrete housekeeping pads.
- C. Tighten bus connections and mechanical fasteners.
- D. Adjust voltage taps for required system voltage and check grounding requirements.

3.11 MINI-POWER CENTERS (Where Applicable)

- A. Install on prefabricated brackets designed for the purpose.
- B. Tighten bus connections and mechanical fasteners.
- C. Adjust voltage taps for required system voltage and check grounding requirements.

3.12 FIELD QUALITY CONTROL

- A. Control Circuits, Branch Circuits, Feeders, Motor Circuits, and Transformers:
 - 1. Megger check of phase-to-phase and phase-to-ground insulation levels:
 - a. Do not megger check solid state equipment.
 - 2. Continuity.
 - 3. Short circuit.

4. Operational check.

B. Wiring Devices.

1. Test receptacles with Hubbell 5200, Woodhead 1750 or equal tester for correct polarity, proper ground connection, and wiring faults.

3.13 ADJUSTMENT AND CLEANING

A. Motor Starters and Disconnects:

1. Adjust covers and operating mechanisms for free mechanical movement.
2. Tighten wire and cable connections.
3. Verify overcurrent protection thermal unit size with motor nameplate to provide proper operation and compliance with current NEC.
4. Clean interior of enclosures.
5. Touch up scratched or marred surfaces to match original finish.

B. Circuit Breakers:

1. Adjustable settings shall be set to provide selective coordination, proper operation, and compliance with current NEC.

END OF SECTION

SECTION 26 05 33

RACEWAYS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:

1. Raceways:

- a. Rigid galvanized steel conduit (RGS).
- b. PVC coated rigid galvanized steel conduit (PVC-RGS)
- c. Liquidtight flexible metal conduit (LFMC).
- d. Rigid nonmetallic polyvinyl chloride conduit (PVC).
- e. Wireway (WW).

1.02 DEFINITIONS

A. Underfloor Conduits.

1. Conduits which run underground within perimeter of building walls under building floor. This may consist of one conduit, or several conduits grouped together.

B. Duct Bank Conduits

1. Conduits which run under ground outside perimeter of building walls. This may consist of one conduit, or several conduits grouped together.

C. Underground Conduits

1. Underground conduits are both under floor conduits and duct bank conduits.

1.03 SUBMITTALS

A. Submit all products covered under this specification for Engineer's approval.

B. Submittals are not required if Contractor supplies materials or equipment of specified or named manufacturers. If Contractor proposes substitutions to material or equipment of specified or named manufacturers, submittals identified below are required.

1.04 QUALITY ASSURANCE

A. Items provided under this section shall be listed or labeled by UL or other Nationally Recognized Testing Laboratory (NRTL).

1. Term "NRTL" shall be as defined in OSHA Regulation 1910.7.
2. Terms "listed" and "labeled" shall be as defined in National Electrical Code, Article 100.

B. Regulatory Requirements:

1. National Electrical Code: Components and installation shall comply with NFPA 70.

C. Comply with NECA "Standard of Installation."

PART 2 PRODUCTS

2.01 METAL CONDUIT AND TUBING

- A. Galvanized Rigid Steel Conduit: ANSI C80.1.
- B. Liquidtight Flexible Metal Conduit: Flexible steel conduit with PVC jacket.
- C. Rigid galvanized steel conduit with PVC coating.

2.02 NONMETALLIC CONDUIT

- A. Rigid Nonmetallic Polyvinyl Chloride (PVC) Conduit: NEMA TC 2, Schedule 40 or 80 PVC.
- B. PVC Conduit Fittings: NEMA TC 3; match to conduit type and material.

2.03 FITTINGS

- A. Fittings for steel conduits:
 1. Cast aluminum or malleable iron with galvanized finish.
 2. Synthetic inserts for sealing or insulation as required.
 3. Comply with ANSI C80.4.
 4. Comply with NEMA FB 1, compatible with conduit materials.
- B. Conduit bodies:
 1. Malleable iron with galvanized finish.
- C. Fittings for liquidtight flexible metal conduit.
 1. Insulated throat type.
 2. One piece sealing "O" rings with connectors when entering boxes or enclosures.

2.04 WIREWAYS

- A. Material: Sheet metal sized and shaped as indicated.
- B. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireway as required for complete system.
- C. Select features where not otherwise indicated, as required to complete wiring system and to comply with current NEC.

D. Wireway Covers:

1. Hinged type for dry locations.
2. Bolted cover with gasket for wet locations.

E. Finish: Manufacturer's standard enamel finish unless other wise noted.

2.05 RACEWAY/DUCT SEALING COMPOUND

- A. Non-hardening, putty-like consistency workable at temperatures as low as 35 F.
- B. Compound shall not slump at temperature of 300 F and shall readily adhere to clean surfaces of plastic ducts, metallic conduits, conduit coatings, concrete, masonry, lead, cable sheaths, cable jackets, insulation materials, and common metals.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine surfaces to receive raceways, wireways, and fittings for compliance with installation tolerances and other conditions affecting performance of raceway system.
- B. Coordinate layout and installation of raceway and boxes with other construction elements to ensure adequate headroom, working clearance, and access.

3.02 WIRING METHODS

- A. Outdoors, Damp or Wet Locations: Use following wiring methods unless otherwise noted on Drawings:
1. Exposed: Galvanized rigid steel.
 2. Concealed: Galvanized rigid steel.
 3. Underground Power, Single Run: Rigid nonmetallic (PVC) conduit.
 - a. Concrete encased except for area lighting branch circuits or as otherwise noted on Drawings.
 4. Underground Power, Grouped: Rigid nonmetallic (PVC) conduit.
 - a. Concrete encased.
 5. Underground Shielded Instrumentation Cables, Single Run or Grouped: Galvanized rigid steel.
 - a. Concrete encased.
 6. Connection to Vibrating Equipment (including transformers and hydraulic, pneumatic, or electric solenoid or motor-driven equipment): Liquidtight flexible metal conduit.

- B. Indoor Dry Locations: Use following wiring methods unless otherwise noted.
 - 1. Connection to Vibrating Equipment (including transformers and hydraulic, pneumatic, or electric solenoid or motor-driven equipment): Liquid tight flexible metal conduit.
 - 2. Exposed: Galvanized rigid steel conduit.
 - 3. Concealed: Steel Conduit
- C. Unless specifically indicated otherwise on Drawings, use galvanized rigid steel for general wiring.
- D. Encase galvanized rigid steel conduits installed underground in at least 3-in. of concrete. PVC conduit may be used without encasing in concrete for under floor conduit or where specifically indicated on Drawings.
 - 1. Underground conduit shall be minimum of 1-in., buried at depth of not less than 24-in. below grade.
 - 2. Provide conduits or ducts terminating below grade with means to prevent entry of dirt and moisture.
- E. Raceways Embedded in Slabs: Install in middle third of slab thickness where practical, and leave at least 1-inch (25-mm) concrete cover.
 - 1. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement.
 - 2. Space raceways laterally to prevent voids in concrete.
 - 3. Run conduit larger than 1-in. trade size parallel to or at right angles to main reinforcement and spaced on center of at least 3 times conduit trade dia. with minimum 2-in. concrete covering.
 - 4. When at right angles to reinforcement, place conduit close to slab support.

3.03 INSTALLATION

- A. Install raceways level and square and at proper elevations. Provide adequate headroom.
- B. Complete raceway installation before starting conductor installation.
- C. Support raceway with approved methods.
- D. Use temporary closures to prevent foreign matter from entering raceway.
- E. Run concealed raceways with minimum of bends in shortest practical distance considering type of building construction and obstructions, except as otherwise indicated.
- F. Install exposed raceways parallel to or at right angles to nearby surfaces or structural members, and follow surface contours as much as practical.

1. Mount exposed horizontal runs as high above floor as possible, and in no case lower than 7-feet above floors, walkways, or platforms in passage areas.
 2. Run parallel or banked raceways together, on common supports where practical.
 3. Make bends in parallel or banked runs from same centerline to make bends parallel. Use factory elbows only where they can be installed parallel; otherwise, provide field bends for parallel raceways.
- G. Join raceways with fittings designed and approved for purpose and make joints tight.
1. Make raceway terminations tight. Use bonding bushings or wedges at connections subject to vibration. Use bonding jumpers where joints cannot be made tight.
 2. Use insulating bushings to protect conductors.
- H. Tighten set screws of threadless fittings with suitable tool.
- I. Terminations: Where raceways are terminated with locknuts and bushings, align raceway to enter squarely, and install the locknuts with dished part against the box. Use two locknuts, one inside and one outside the box. Use insulating bushings. Provide insulated grounding bushings to terminate ground wire.
- J. Where terminating in threaded hubs, screw raceway or fitting tight into the hub so the end bears against the wire protection shoulder. Where chase nipples are used, align the raceway so the coupling is square to box, and tighten chase nipple so no threads are exposed.
- K. Install pull wires in empty raceways. Use monofilament plastic line having not less than 200-lb (90-kg) tensile strength. Leave not less than 12-inches (300-mm) of slack at each end of pull wire.
- L. Telephone and Signal System Raceways 2-Inch Trade Size and Smaller: In addition to above requirements, install in maximum lengths of 150-feet (45-m) and with maximum of two 90-deg bends or equivalent. Install pull or junction boxes where necessary to comply with these requirements.
- M. PVC Externally Coated Galvanized Rigid Steel Conduit: Use only fittings approved for use with that material. Patch nicks and scrapes in PVC coating after installing conduit.
- 3.04 CONDUIT STUB-UPS
- A. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portion of bends is not visible above finished slab.
- B. Transition under floor conduit to galvanized rigid steel conduit, before rising above floor. Wrap with plastic tape to provide 40-mil thick cover to height of 6-in. above floor.
- C. Stub-Up Connections: Extend conduits for connection to freestanding equipment with an adjustable top or coupling threaded inside for plugs, and set flush with finished floor. Extend conductors to equipment with rigid steel conduit; flexible metal conduit may be used starting at 6-inches (150-mm) above floor. Where equipment connections are not made under this Contract, install screwdriver-operated threaded flush plugs, flush with floor.

3.05 CONDUIT BENDS

- A. Make bends and offsets so inside diameter is not reduced. Unless otherwise indicated, keep legs of bend in same plane and straight legs of offsets parallel.

3.06 FLEXIBLE CONNECTIONS

- A. Terminate conduits at motor terminal boxes, motor operated valve stations or pipe-mounted instruments and other equipment subject to vibration with maximum of 3-feet (915-mm) liquidtight flexible metal conduit, unless other wise shown on Drawings.
- B. Use liquidtight flexible conduit in all locations.
- C. Install separate ground conductor inside flexible conduit connections.

3.07 GROUNDING

- A. Provide grounding connections for raceway, boxes, and components as indicated and instructed by manufacturer. Tighten connectors and terminals, including screws and bolts, according to equipment manufacturer's published torque-tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals according to tightening torques specified in UL 486A.
- B. Ground in accordance with Section 26 05 27.

3.08 PROTECTION

- A. Provide final protection and maintain conditions, in manner acceptable to manufacturer and Installer, to ensure that coatings, finishes, and cabinets are without damage or deterioration at Substantial Completion.
 - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
 - 2. Repair damage to PVC or paint finishes with matching touch-up coating recommended by manufacturer.

3.09 CLEANING

- A. Upon completion of installation of system, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish, including chips, scratches, and abrasions.

END OF SECTION

SECTION 26 05 34

DEVICE, PULL AND JUNCTION BOXES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Specifications for device, pull, and junction boxes.

1.02 REFERENCES

- A. American National Standards Institute/National Electrical Manufacturers Association (ANSI/NEMA).
 - 1. FB1 - Fittings and Support for Conduits and Cable Assemblies
 - 2. 250 - Enclosures for Electrical Equipment (1000 volts maximum)
- B. American National Standards Institute/National Fire Protection Association (ANSI/NFPA), NFPA70 - National Electrical Code (NEC) - Article 370 - Outlet Device, Pull and Junction Boxes, Conduit Bodies and Fittings.
- C. Underwriters Laboratories (UL):
 - 1. 50 - Safety Cabinets and Boxes
 - 2. 508 - Safety Industrial Control Equipment
 - 3. 514B - Safety Fittings for Conduit and Outlet Boxes
 - 4. 886 - Safety Outlet Boxes and Fittings for Use in Hazardous Areas

1.03 SUBMITTALS

- A. Submit all products covered under this specification for Engineer's approval.
- B. Manufacturer's cut sheets, catalog data
- C. Instruction for handling and storage
 - 1. Installation instructions
 - 2. Dimensions and weights

1.04 DELIVERY, STORAGE AND HANDLING

- A. Pack and crate boxes to permit ease of handling and to provide protection from damage during shipping, handling and storage.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Cast Device Boxes (including HDG type and PVC-coated type)

1. Appleton Electric Company
2. Eaton Crouse-Hinds
3. Killark Electric Manufacturing Company

B. Stainless steel Boxes

1. Hoffman (Pentair)
2. Eaton Crouse-Hinds
3. Weigmann (Hubbell)

2.02 MATERIALS AND EQUIPMENT

A. Boxes

1. Provide UL-approved boxes designed and manufactured to house electrical devices like receptacles and switches, and in conformance with NEMA FB1 and NEC Article 370.
2. Supply boxes that are hot-dip galvanized (HDG) on cast iron suitable for corrosive and wet atmosphere.
3. When stated on the drawings, supply boxes that are PVC-coated on cast iron suitable for corrosive and wet atmosphere in lieu of HDG type.
4. Boxes with a width or height greater than 12 inches shall utilize a hinged cover.

B. Hardware

1. Mounting Hardware: Stainless steel
2. Conduit Connectors: Watertight as manufactured by Myers Hubs, or equal.

PART 3 EXECUTION

3.01 PREPARATION

- #### A.
- Review the drawings and determine how many boxes of each kind are required and check if supplied quantity is sufficient.

3.02 INSTALLATION

- #### A.
- Boxes described in this specification shall be used both in dry and wet, corrosive areas, both inside and outside locations.
- #### B.
- Install boxes in accordance with NEC Article 370 in locations indicated on the Drawings.
- #### C.
- Install junction and pull boxes in readily accessible places to facilitate wire pulls, maintenance and

repair.

- D. Plug unused conduit openings.
- E. Make conduit connections to sheet metal boxes with watertight conduit connectors.

END OF SECTION

SECTION 26 05 35

CONDUIT, FITTINGS AND BODIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Specification for conduit, fittings and bodies.

1.02 REFERENCES

- A. American National Standards Institute (ANSI):
 - 1. ANSI C80.1: Rigid Steel Conduit - Zinc Coated.
 - 2. ANSI C80.4: Fittings for Rigid Metal Conduit.
- B. Federal Specifications:
 - 1. W-C-58C: Conduit Outlet Boxes, Bodies Aluminum and Malleable Iron.
 - 2. W-C-1094: Conduit and Conduit Fittings Plastic, Rigid.
 - 3. WW-C-566C: Flexible Metal Conduit.
 - 4. WW-C-581D: Coatings on Steel Conduit.
- C. National Electrical Manufacturers Association (NEMA):
 - 1. NEMA RN1: Polyvinyl-Chloride Externally Coated Galvanized Rigid Steel Conduit and Electrical Metallic Tubing.
 - 2. NEMA TC2: Electrical Plastic Tubing (EPT) and Conduit (EPC-40 and EPC-80).
 - 3. NEMA TC3: PVC Fittings for Use with Rigid PVC Conduit and Tubing.
- D. National Fire Protection Association (NFPA), ANSI/NFPA 70 - National Electrical Code (NEC).
- E. Underwriters' Laboratories (UL):
 - 1. UL 1: Flexible Metal Electrical Conduit.
 - 2. UL 6: Rigid Metal Electrical Conduit.
 - 3. UL 514B: Fittings for Conduit and Outlet Boxes.
 - 4. UL 651: Schedule 40 and 80 Rigid PVC Conduit.
 - 5. UL 651A: Type EB and A Rigid PVC Conduit and HDPE Conduit.
 - 6. UL 886: Electrical Outlet Boxes and Fittings for Use in Hazardous Locations.

1.03 SUBMITTALS

- A. Submit six sets of the following required items, with each set being in a binder:.
 - 1. Manufacturer's cut sheets, catalog data, with selected products clearly marked.
 - 2. Installation, terminating and splicing procedure.

3. Instruction for handling and storage.
4. Dimensions and weight.

1.04 QUALITY ASSURANCE

A. Tests:

1. Rigid steel conduit shall pass the bending, ductility, and thickness of zinc coating tests described by ANSI C80.1.
2. Flexible conduit shall pass the tension, flexibility, impact, and zinc-coating test described by UL 1.
3. Nonmetallic conduit and fittings shall pass the test requirements of NEMA TC2, UL 651 and 651A and Federal Specification W-C-1094A.

1.05 DELIVERY STORAGE AND HANDLING

- A. Package conduit in 10-foot bundles maximum with conduit and coupling thread protectors suitable for indoor and outdoor storage. Package fittings in manufacturer's standard quantities and packaging suitable for indoor storage. Package plastic-coated rigid conduit, fittings, and bodies in such a manner as to protect the coating from damage during shipment and storage.
- B. Store conduit above ground on racks to prevent corrosion and entrance of debris.
- C. Protect plastic conduit from sunlight.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Rigid Steel Conduit:

1. Allied Tube and Conduit
2. Triangle Wire and Cable, Inc.
3. Wheatland Tube Company

B. PVC Coated Steel Conduit:

1. Occidental Coating Company (O-Cal Blue)
2. Robroy Industries, Inc. (Rob-Roy Red)

C. PVC Rigid Conduit:

1. Cantex
2. Carlon Industries, Inc.
3. Robroy Industries, Inc.

D. Conduit Fittings and Bodies:

1. Appleton Electric
2. Crouse-Hinds
3. Killark Electric Manufacturing Company
4. O-Z/Gedney

E. Liquidtight Flexible Conduit:

1. Anamet, Inc.
2. Electriflex Company
3. Triangle Wire and Cable, Inc.

2.02 MATERIALS AND EQUIPMENT

A. Design Conditions:

1. Use electrical conduit, fittings, and bodies designed for service in areas as specified within this section to form a continuous support system for power, control, and instrument cables.

B. Conduit and Fittings:

1. Rigid Steel Conduit and Fittings:

- a. Rigid steel conduit, rigid steel conduit bends, nipples, and bodies shall be hot-dipped galvanized and shall comply with the latest ANSI C80.1, UL 6, Federal Specification WW-C-581D, and NEC Article 346-15.
- b. Mild steel tubing shall be used for conduit, nipples, and couplings, and shall be free of defects on both the inner and outer surfaces.
- c. Fittings, bodies, and covers for rigid steel conduit shall be steel or cast-iron and shall comply with ANSI C80.4, UL 514B, and Federal Specification W-C-58C.

2. PVC-Coated Rigid Steel Conduit and Fittings:

- a. PVC-coated conduit, fittings, bodies, and covers shall conform to NEMA RN1 (Type A). Rigid steel galvanized conduit and fittings before coating shall conform to Federal Specification WW-C-581D, ANSI C80.1, and UL 6. Conduit bodies shall conform to UL 514B and Federal Specification W-C-58C. Provide sufficient coating for touch up after installation.
- b. PVC-coated couplings shall be of the ribbed type.
- c. Conduit covers shall have encapsulated stainless steel thumbscrews.
- d. Conduits and covers shall be of malleable iron or ferrous material before coating.
- e. PVC coating shall be a minimum of 2-mil thickness on the interior of the conduit and the interior of fittings, conduits, covers and bodies.

3. Flexible and Liquidtight Flexible Metal Conduit and Fittings:
 - a. Use liquidtight flexible metal conduit manufactured in accordance with UL 1 and Federal Specification WW-C-566C.
 - b. Fittings used with liquidtight flexible metal conduit shall be the PVC- coated type and of such design as to thoroughly ground the conduit to the fittings, and through it to the box or enclosure to which it is attached.
 - c. Flexible couplings and fittings for use in hazardous areas shall comply with UL 886, NEC Article 501-4 (a&b), and Federal Specification W-C-586C.
4. PVC Conduit and Fittings. Use PVC conduit, bends, and fittings, which comply with NEMA TC2, W-C-A, and NEC Article 347-17 for above ground and underground installation. Conduit shall be schedule 80, unless noted otherwise in other specifications.

PART 3 EXECUTION

3.01 PREPARATION

- A. Confirm submittal of shop drawing with conduit and conduit fitting sizes, types and routing shown.
- B. Ensure that the conduit system to be installed is sized properly for the cable and wire requirements.
- C. Verify the actual physical conduit route and prepare the conduit support system.
- D. Verify the equipment locations to which the conduit will be connected and determine detail requirements for connections.

3.02 INSTALLATION

- A. Install PVC-coated conduits in all outdoor locations at wastewater facilities, inside valve vaults, in wet well slabs, in corrosive and wet environments.
- B. Install rigid galvanized steel (RGS) conduits in dry inside locations and in all outdoor locations for water facilities.
- C. Install PVC conduits in duct banks. For stub-ups, use PVC-coated rigid steel elbows or rigid steel elbows as applicable in A and B above.
- D. Run exposed conduit parallel or perpendicular to walls, ceilings or main structural members. Group multiple conduits together where possible. Do not install conduit where it interferes with the use of passageways, doorways, overhead cranes, monorails, equipment removal areas or working areas. In no case shall conduit routing present a safety hazard or interfere with normal plant operating and maintenance procedures. Maintain a minimum overhead clearance of 8'-0" in passageways.

- E. Installation and support of conduit shall be from steel or concrete structures. Furnish necessary conduit straps, clamps, fittings and support for the conduit in accordance with the standard details and consistent with the grade and type of conduit being installed.
- F. Identify conduit at termination points like MCC, light fixtures, control panels, receptacles, and junction boxes.
- G. Not more than 3 equivalent 90-degree bends will be permitted between outlets. Provide bonded expansion fittings at building expansion joints.
- H. Install conduit runs so that they are mechanically secure, mechanically protected from physical harm, electrically continuous, and neat in appearance. The interiors of conduit shall provide clean, smooth raceways through which conductors may be drawn without damage to the insulation. Make threaded connections wrench tight.
- I. Cut conduit square with a power saw or a rotary type conduit cutter designed to leave a flat face. Do not use plumbing pipe cutters for cutting conduit. Ream the cut ends of conduit with a reamer, designed for the purpose to eliminate rough edges and burrs. Cut threads with standard conduit dies providing 3/4-inch taper per foot, allowing the proper length so that joints and terminals may be made up tight and the ends of the conduit not deformed. Keep dies sharp and use a good quality threading oil continuously during the threading operation. Remove metal cuttings and oil from the conduit ends after the threads are cut and paint threads before connections are made. Use zinc rich, brush-on compound on the threads of steel conduit before connections are made. Use only tools specifically made for bending and installing PVC-coated or PVC conduit when installing these materials.
- J. Use strap wrenches only to tighten joints in plastic coated rigid steel conduit. Replace all conduit and fittings with damage to the plastic coating, such as cuts, nicks and threader chuck jaw marks.
- K. Make up changes in direction of conduit using elbows or fittings. Do not use pull boxes to make direction changes unless specifically designated otherwise.
- L. Field fabricated bends shall be free of indentations or elliptical sections. The radius of the bend shall not be less than 6 times the smallest diameter of the raceway.
- M. Protect all conduit terminations from mechanical injury. Prevent the entry of moisture and foreign matter into the conduit system by properly capping terminations.
- N. Avoid trapped runs of conduit, if possible. When they are necessary, provide drainage using a "tee" conduit equipped with a drain. Conduit is likely to pass through areas with a temperature differential of 20 degrees F or more. Seal penetrations with a proper seal fitting at the wall or barrier between such areas. For conduit passing through walls separating pressurized areas from non-pressurized areas, install sealing fittings at the wall on the non-pressurized side.
- O. Fit conduit crossing building or structure expansion joints with approved expansion fittings, except that fittings will not be required when conduit crossing an expansion joint is supported on trapeze hangers in such a way that at no time will the conduit be under stress due to expansion. Install bonding jumpers around expansion joint fittings.

- P. Where conduit terminates in sheet metal enclosures and where no threaded hubs are provided, fit the conduit with double locknuts and bushings. Sheet metal enclosures located outside or in any other wet, damp or corrosive areas shall be furnished with threaded hubs. Restrict side penetrations to the lower one third of the enclosure.
- Q. Provide flexible metallic conduit where necessary to allow for movement or to localize sound or vibration, at transformers, at motors and any other rotating equipment unless otherwise indicated.
- R. Seal openings or holes where conduits pass through walls or floors. When conduits are passing through a firewall or fire-rated floor into different rooms, cabinets, or enclosures, use a fire-rated seal. Certain walls require environmental (airtight) seals; seal as shown.
- S. Install explosion-proof seals in conduit runs crossing or entering a hazardous classified area. Install type CSBE removable sealing fittings to seal pump cables in the wet well and at the first junction box outside the well.
- T. Unless otherwise indicated install expansion fittings every 300 feet within a straight conduit run and where conduit crosses building expansion joints, using bonding straps to ensure ground continuity.
- U. Parallel runs of conduit may be supported by structural steel racks. When two or more racks are arranged one above the other, provide vertical separation of not less than 12 inches between racks. Space conduits on the racks at least enough to provide 1/4-inch clearance between hubs on adjacent conduits at terminations and to allow room for fittings.
- V. Fill conduit racks no more than 75 percent of their capacity, providing usable space for future conduit. To ensure this, conduits leaving the rack horizontally shall be offset up or down so those future conduits may be installed in the space remaining. Construct conduit racks to permit access for wire or cable pulling at all pull points, even when future conduits are added to fill the racks.
- W. Where conduit racks are supported on rods from beam clamps or by some other non-rigid suspension system, install rigid supports at no more than 50-foot intervals to give lateral stability to the rack.
- X. Conduit racks or hangers must in no way interfere with machinery (or its operation), piping, structural members, process equipment, or access to anticipated future equipment. Refer to architectural, structural and equipment layout to ensure that this requirement is met. Label high voltage conduit with the circuit phase-to-phase voltage by means of a firmly attached tag or label of approved design at each conduit termination, on each side of walls or barriers pierced and at intervals not exceeding 200 feet along the entire length of the conduit.
- Y. Support conduit sizes 2 inches and larger at spacings not exceeding 10 feet and conduit sizes 1-1/2 inches and smaller at spacings not exceeding 8 feet.
- Z. The means of fastening conduit to supports shall be: by one hole malleable iron conduit straps secured by wood screws to wood and by bolts with expansion anchors to concrete or masonry; by "Korn" clamps or U-bolts to other surfaces. Use "clamp backs" when strapping conduits to walls, column faces, or other such surfaces.

- AA. Support conduit runs with conduit clamps, hangers, straps and metal framing channel attached to structural steel members. Conduits of 1-1/2 inch size or less may be supported by one-hole conduit straps on concrete, tile or steel work, but for larger size conduit, use 2-hole straps. Use clamps of galvanized malleable iron for rigid galvanized conduit and PVC-coated or stainless steel for PVC-coated conduit. Metal framing channel straps used for PVC-coated conduit shall be type 3/16 stainless steel.
- BB. Install conduits supported from building walls with at least 1/4-inch clearance from the wall to prevent the accumulation of dirt and moisture behind conduit.
- CC. Size and space embedded conduits in structural slabs in accordance with the Uniform Building Code. Conduits should occupy no more than one-third the thickness of the slab and should not be closer than 3 times the largest diameter on center without additional reinforcement.

END OF SECTION

SECTION 26 05 43

UNDERGROUND DUCT BANKS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Underground electrical duct banks.

1.02 REFERENCES

- A. National Fire Protection Association (NFPA). No. 70 - National Electrical Code (NEC) Appendix B.

1.03 SUBMITTALS

- A. Submit six sets within binders of all products covered under this specification, including catalog cut sheets of the ducts and spacers, for Engineer's approval.
- B. Submit a plan showing duct bank routing including conduits, width, depth, and cover of duct banks. Not required for lift station only projects.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Have duct spacers and associated hardware packed and crated to avoid damage during shipment and handling.
- B. Clearly mark packages or crates stating that the material is for electrical duct banks only.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Thomas and Betts
- B. Underground Devices Inc.
- C. Walker Division, Butler Manufacturing Company

2.02 MATERIALS AND EQUIPMENT

- A. Conduit: Construct ducts using schedule 40 rigid PVC conduit. Refer to Section 26 05 35 - Conduit, Fittings and Bodies.
- B. Spacers: Secure conduit with non-magnetic, universal, interlocking-type spacers for both horizontal and vertical duct arrangements on 2" and larger conduit.
- C. Concrete: Use steel reinforced, red concrete as duct encasement.

PART 3 EXECUTION

3.01 PREPARATION

- A. Verify from field survey that the location of ductbanks does not interfere with any existing or new underground facilities.
- B. Verify that materials are on site in proper condition and that sufficient quantity is on hand for the work.
- C. Verify that trenches are in the correct places and prepared with sufficient depth and width to accommodate the ductbanks, reinforcing rod, and concrete.
- D. Be prepared for inspection of the duct banks before reinforcing rod is installed.
- E. Before pouring concrete, verify that the ducts are free of debris and properly installed in the support and spacer systems and that the ducts are properly fitted together and firmly held in place by the hold down hardware.
- F. Provide 24-hour notice to Engineer and the Local Code Inspector for cover-up inspection before pouring electrical conduit ductbanks.

3.02 INSTALLATION

- A. Use the size and types of conduit as indicated for the various duct banks required for the project.
- B. Make duct bank installations and penetrations through foundation walls watertight.
- C. Assemble duct banks using saddles, spacers and separators. Position separators to provide 2-inch minimum concrete separation between the outer surfaces of the conduits.
- D. Provide a 3-inch minimum concrete covering on both sides, top and bottom of concrete envelopes around conduits. Add red dye at the rate of 5 pounds per cubic yard to concrete used for envelopes for easy identification during subsequent excavation.
- E. Firmly fix ducts in place during pouring of concrete. Carefully spade the concrete to ensure filling of spaces between ducts.
- F. Make bends with sweeps of radius not less than 6 times the smallest diameter of the raceway.
- G. Make a transition from non-metallic to metallic rigid conduit where duct banks enter structures or turn upward for continuation above grade.
- H. Reinforce duct banks throughout:
 - 1. Unless otherwise noted, reinforce with No. 5 longitudinal steel bars placed at each corner and along each face at a maximum parallel spacing of 12 inches on centers, and No. 3 tie-bars transversely placed as required for stability of longitudinal bars.
 - 2. Maintain a minimum clearance of 2 inches from bars to the edge of the concrete encasement.

- I. Where ducts enter structures such as handholes, manholes, pullboxes, or buildings, terminate the ducts in suitable end bells, insulated L-bushings, Meyers hubs or couplings on steel conduits. Tag conduit entering pull boxes. Identify as designated in cable and conduit schedule.
- J. Do not backfill with material containing large rock, paving materials, cinders, large or sharply angular substances, corrosive material, or other materials which can damage or prevent adequate compaction of fill.
- K. After completion of the duct bank and prior to pulling cable, pull a mandrel, not less than 12 inches long and with a cross section approximately one-fourth inch less than the inside cross section of the duct, through each duct. Then pull a rag swab or sponge through to remove any particles of earth, sand or gravel that may have been left in the duct. Repull the rag or sponge swab until the swab emerges clean.
- L. Use polyester braided rope to pull conductors into PVC conduit. Do not use nylon or wire cable for this purpose.
- M. Install a warning ribbon approximately 12 inches below finished grade over underground duct banks. Refer to Section 26 05 53 - Electrical Identification.
- N. For manholes and pull boxes below grade and greater than 5 feet wide, install wire racks to support cables properly around the perimeter and keep them dry.

END OF SECTION

SECTION 26 05 44

UNDERGROUND DUCTS AND PULL BOXES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Ducts
2. Duct banks
3. Pull Boxes

1.02 REFERENCES

A. American National Standards Institute (ANSI):

1. C2-93 - National Electrical Safety Code.

1.03 DEFINITIONS

A. Duct: General term for electrical conduit and other raceway, either metallic or nonmetallic, specified for use underground, embedded in earth or concrete.

B. Duct Bank: Group of two or more ducts in continuous run between two points.

C. Underfloor Conduits.

1. Conduits which run underground within perimeter of building walls under building floor. This may consist of one conduit, or several conduits grouped together.

D. Duct Bank Conduits

1. Conduits which run under ground outside perimeter of building walls may consist of 1 conduit, or several conduits grouped together.

E. Underground Conduits

1. Underground conduits are both underfloor conduits and duct bank conduits.

F. Pull boxes: Below-the-surface enclosure in connection with ducts into which people reach, but do not enter, for purpose of installing, operating, or maintaining equipment or wiring.

1.04 SUBMITTALS

A. Submit six sets within binders of all products covered under this specification for Engineer's approval.

B. Submittals are not required if Contractor supplies materials or equipment of specified or named manufacturers. If Contractor proposes substitutions to material or equipment of specified or named manufacturers, submittals identified below are required.

1. Product data.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturers of precast pull boxes shall be firms regularly engaged in manufacturing factory-fabricated pull boxes, of types and sizes required, whose products have been in satisfactory use in similar service for not less than 3 yrs.
- B. Items provided under this section shall be listed or labeled by UL or other Nationally Recognized Testing Laboratory (NRTL).
 1. Term "NRTL" shall be as defined in OSHA Regulation 1910.7.
 2. Terms "listed" and "labeled" shall be as defined in National Electrical Code, Article 100.
- C. Regulatory Requirements:
 1. National Electrical Code (NEC): Components and installation shall comply with National Fire Protection Association (NFPA) 70.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store precast concrete units at site as recommended by manufacturer to prevent physical damage. Arrange so identification markings are visible.
- B. Lift and support precast concrete units only at designated lifting or supporting points.

1.07 SEQUENCING AND SCHEDULING

- A. Coordination of Work:
 1. Coordinate layout and installation of pull boxes with final arrangement of ducts as influenced by actual final location of other utilities in field.
 2. Coordinate elevations of duct and raceway entrances into pull boxes with final profiles of ducts and raceways as determined by coordination with other utilities, underground obstructions, and buildings.
 3. Establish locations and elevations to suit field conditions and assure duct banks run drain to pull boxes, or as shown on Drawings.

PART 2 PRODUCTS

2.01 DUCTS AND FITTINGS

- A. Conform to Raceways, Section 26 05 33.

2.02 DUCT BANK ACCESSORIES

- A. Duct Supports: Rigid PVC spacers selected to provide minimum duct spacings and concrete cover depths indicated, while rigidly supporting ducts during concreting.

2.03 PULL BOXES AND ACCESSORIES

- A. Frames and Covers: Cast iron conforming to ANSI C2, Rule 323. Furnish with cast-in legend, "Electric" or "Signal" as appropriate. Cover-to-frame bearing surfaces machined.
- B. Sump Frame and Grate: Comply with FS RR-F-621, Type VII for frame, Type I for cover.
- C. Pulling Eyes in Walls: Eyebolt with rebar fastening insert. 2-in. dia eye, 1-in. by 4-in. long bolt. Working load embedded in 6-in., 4,000 psi concrete: 13,000-lbs. minimum tension.

2.04 MASONRY (Not Applicable)

2.05 PRECAST MANHOLES AND HANDHOLES (Not Applicable)

2.06 RACEWAY/DUCT SEALING COMPOUND

- A. Compound:
 - 1. Non-hardening, putty-like consistency workable at temperatures as low as 35 F.
 - 2. Compound shall not slump at temperature of 300 F and shall readily adhere to clean surfaces of plastic ducts, metallic conduits, conduit coatings, concrete, masonry, lead, cable sheaths, cable jackets, insulation materials, and common metals.

PART 3 EXECUTION

3.01 WIRING METHOD

- A. General: Install ducts for wiring runs indicated. Provide sizes as indicated.

3.02 EXCAVATION AND BACKFILL

- A. Excavation: Cut trenches neatly and uniformly, and slope uniformly to required pitch.

3.03 INSTALLATION OF DUCTS

- A. Slope: Pitch ducts to drain towards manholes and handholes and away from buildings and equipment, unless otherwise shown on Drawings. Minimum slope shall be 4-in. in 100-ft. Where necessary to achieve this between manholes, slope ducts from high point in run to drain in both directions.
- B. Curves and Bends: Use manufactured elbows for stub-ups at equipment and at building entrances. For other curves and bends, except as otherwise indicated, use manufactured long sweep bends with minimum radius of 25ft. in both horizontal and vertical directions.

- C. Make joints in ducts and fittings watertight in accordance with manufacturer's instructions. Stagger couplings so those of adjacent ducts do not lie in same plane.
 - D. Concrete-Encased Ducts: Support on plastic separators coordinated with duct size and required duct spacing, and install in accordance with following:
 - 1. Separator Installation: Space separators close enough to prevent sagging and deforming of ducts, and secure separators to earth and to ducts to prevent floating during concreting. Do not use tie wires or reinforcing steel in such way as to form conductive or magnetic loops around ducts or duct groups.
 - 2. Reinforcing: Reinforce duct banks. Size and arrange reinforcing steel as indicated on Drawings.
 - 3. Concreting: Spade concrete carefully during pours to prevent voids under and between conduits and at exterior surface of envelope. Do not use power-driven agitating equipment unless specifically designed for duct bank application. Pour each run of envelope between manholes or other terminations in one continuous operation unless approved by Engineer. Where more than one pour is necessary, terminate each pour in vertical plane and continue duct bank reinforcing minimum of 18-in. beyond termination of pour.
 - 4. Forms: Walls of trench may be used to form side walls of duct bank provided soil is self-supporting and concrete envelope can be poured without soil inclusions. Use forms where soil is not self-supporting.
 - 5. Minimum Clearances: As Indicated on Drawings.
 - 6. Depth: Except as otherwise indicated, top of duct bank shall be 24-in. below finished grade, minimum, in non-traffic areas, and 30 in. below finished grade, minimum, in vehicular traffic areas.
 - E. Stub-ups: Duct stub-ups to equipment shall be galvanized rigid steel. For equipment mounted on outdoor concrete pads, steel conduit shall extend minimum of 5-ft. away from edge of pad. Install insulated grounding bushings on terminations. Couple steel conduits to ducts with adapters designed for purpose and encased concrete.
 - F. Sealing: For ducts to be wired in this Project, provide temporary closure at terminations. For spare ducts, seal bore of ducts at terminations. Use sealing compound and plugs as required to withstand 15 psi minimum hydrostatic pressure.
 - G. Pulling Cord: Provide 100-lb test nylon cord in ducts including spares.
 - H. Marker Tape: Provide plastic marker tape over ducts at 12 in. below finished grade.
- 3.04 INSTALLATION OF PULL BOXES, GENERAL
- A. General:
 - 1. Provide pull boxes of sizes, shapes, and locations as indicated.

2. Determine final elevation of ducts as influenced by possible adjustments in other utilities and surface features and discovery of underground obstructions before installing pull boxes. Obtain Engineer's approval for pull boxes installation adjustments necessitated by obstructions.
3. Install units plumb and level and with orientation and depth coordinated with arrangement of connecting ducts to minimize bends and deflections required for proper entrances.

B. Elevation:

1. Pull Boxes: Install flush with grade.

- C. Drainage: Install drains in bottom of units where indicated. Arrange to coordinate with drainage provisions as indicated or specified.

3.05 CLEANING AND RESTORATION

- A. Clean Ducts: Clean full length of ducts with a round bristle brush with dia ½-in. greater than internal diameter of duct.
- B. Clean Pull Boxes: Clean internal surfaces of manholes including sump. Remove foreign material.

3.06 RESTORATION

- A. Restore surface features at areas disturbed by excavation and reestablish original grades except as otherwise indicated.
- B. Where sod has been removed, replace it as soon as possible after backfilling is completed.
- C. Restore all areas disturbed by trenching, storing of dirt, cable laying, and other work to their original condition.
- D. Include necessary top soiling, fertilizing, liming, seeding, sodding, sprigging, or mulching.
- E. Restore disturbed paving as indicated.

END OF SECTION

SECTION 26 05 53

ELECTRICAL IDENTIFICATION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Identification of electrical materials, equipment, and installations.

1.02 SUBMITTALS

A. Submit all products covered under this specification for Engineer's approval.

B. Product Data:

1. Submit for each type of product specified.

C. Samples:

1. Submit for each color, lettering style, and or graphic representation required for identification materials, samples of labels and signs.

D. Miscellaneous:

1. Schedule of identification nomenclature to be used for identification signs and labels.

1.03 QUALITY ASSURANCE

A. Regulatory Requirements:

1. National Electrical Code: Components and installation shall comply with NFPA 70.

B. Comply with ANSI C2.

PART 2 PRODUCTS

2.01 RACEWAY AND CABLE LABELS

A. Manufacturer's Standard Products:

1. Where more than one type is listed for specified application, selection is Installer's option, but provide single type for each application category. Use colors prescribed by ANSI A13.1, NFPA 70, or as specified elsewhere.

B. Conform to ANSI A13.1, Table 3, for minimum size of letters for legend and minimum length of color field for each raceway or cable size.

1. Color: Black legend on orange field.
2. Legend: Indicates voltage.

C. Adhesive Labels:

1. Preprinted, flexible, self-adhesive vinyl. Legend is over-laminated with clear, wear and chemical resistant coating.

D. Pre-tensioned, Wraparound Plastic Sleeves:

1. Flexible, preprinted, color-coded, acrylic bands sized to suit diameter of line it identifies and arranged to stay in place by pre-tensioned gripping action when placed in position.

E. Colored Adhesive Tape:

1. Self-adhesive vinyl tape not less than 3-mils thick by 1 to 2-in. wide (0.08-mm thick by 25 to 51-mm wide).

F. Underground Line Warning Tape:

1. Permanent, bright-colored, continuous printed, vinyl tape with following features:
 - a. Size: Not less than 6-in. wide by 4-mils thick (152-mm wide by 0.102-mm thick).
 - b. Compounded for permanent direct burial service.
 - c. Embedded continuous metallic strip or core.
 - d. Printed Legend: Indicates type of underground line.

G. Tape Markers:

1. Vinyl or vinyl cloth, self-adhesive, wraparound type with preprinted numbers and letters.

H. Aluminum, Wraparound Marker Bands:

1. Bands cut from 0.014-in. (0.4-mm) thick aluminum sheet, with stamped or embossed legend, and fitted with slots or ears for permanently securing around wire or cable jacket or around groups of conductors.

I. Plasticized Card Stock Tags:

1. Vinyl cloth with preprinted and field printed legends. Orange background, except as otherwise indicated, with eyelet for fastener.

J. Aluminum Faced Card Stock Tags:

1. Wear resistant, 18-point minimum card stock faced on both sides with embossable aluminum sheet, 0.002-in. (0.05-mm) thick, laminated with moisture resistant acrylic adhesive, and punched for fastener. Preprinted legends suit each application.

K. Brass or Aluminum Tags:

1. Metal tags with stamped legend, punched for fastener. Dimensions: 2 by 2-in. (51 by 51-mm) by 0.05-in. (1.3-mm).

2.02 ENGRAVED NAMEPLATES AND SIGNS

A. Manufacturer's Standard Products:

1. Where more than one type is listed for specified application, selection is Installer's option, but provide single type for each application category. Use colors prescribed by ANSI A13.1, NFPA 70, or as specified elsewhere.

B. Engraving stock, melamine plastic laminate, 1/16-in. (1.6-mm) minimum thick for signs up to 20-sq. in. (129-sq. cm), 1/8-in. (3.2-mm) thick for larger sizes.

1. Engraved Legend: Black letters on white face.
2. Punched for mechanical fasteners.

C. Baked Enamel Signs for Interior Use:

1. Preprinted aluminum signs, punched for fasteners, with colors, legend, and size as indicated or as otherwise required for application. 1/4-in. (6.4-mm) grommets in corners for mounting.

D. Exterior, Metal Backed, Butyrate Signs:

1. Wear resistant, non-fading, preprinted, cellulose acetate butyrate signs with 0.0396-in. (1-mm), galvanized steel backing, with colors, legend, and size appropriate to application. 1/4-in. (6.4-mm) grommets in corners for mounting.

E. Fasteners for Plastic Laminated and Metal Signs:

1. Self-tapping stainless steel screws or No. 10/32 stainless steel machine screws, with nuts, flat washers and lock washers.

2.03 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Cable Ties:

1. Fungus inert, self-extinguishing, 1 piece, self-locking, Type 6/6 nylon cable ties with following features:
 - a. Minimum Width: 3/16-in. (5-mm).
 - b. Tensile Strength: 50-lb (22.3 kg) minimum.
 - c. Temperature Range: Minus 40 to 185°F (Minus 4 to 85°C).
 - d. Color: As indicated where used for color-coding.

B. Paint:

1. Alkyd-urethane enamel. Primer as recommended by enamel manufacturer.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install identification devices according to manufacturer's written instructions.
- B. Install labels where indicated and at locations for best convenience of viewing without interference with operation and maintenance of equipment.
- C. Lettering, Colors, and Graphics:
 - 1. Coordinate names, abbreviations, colors, and or designations used for electrical identification with corresponding designations used in Contract Documents or required by codes and standards. Use consistent designations throughout Project.
- D. Sequence of Work:
 - 1. Where identification is to be applied to surfaces that require finish, install identification after completion of finish work.
- E. Self Adhesive Identification Products:
 - 1. Clean surfaces of dust, loose material, and oily films before applying.
- F. Identify feeders over 600 V with "DANGER HIGH VOLTAGE" in black letters 2-in. (51-mm) high, stenciled with paint at 10-ft (3-m) intervals over continuous, painted orange background. Identify following:
 - 1. Entire floor area directly above conduits running beneath and within 12-in. (305-mm) of basement or ground floor that is in contact with earth or is framed above unexcavated space.
 - 2. Wall surfaces directly external to conduits concealed within wall.
 - 3. All accessible surfaces of concrete envelope around conduits in vertical shafts, exposed in building, or concealed above suspended ceilings.
 - 4. Entire surface of exposed conduits.
- G. Install painted identification as follows:
 - 1. Clean surfaces of dust, loose material, and oily films before painting.
 - 2. Prime Surfaces:
 - a. For galvanized metal, use single component, acrylic vehicle coating formulated for galvanized surfaces. For concrete masonry units, use heavy duty, acrylic resin block filler. For concrete surfaces, use clear, alkali resistant, alkyd binder type sealer.
 - 3. Apply one intermediate and one finish coat of silicone alkyd enamel.
 - 4. Apply primer and finish materials according to manufacturer's instructions.

I. Identify Raceways and Exposed Cables of Certain Systems with Color Banding:

1. Band exposed and accessible raceways of systems listed below for identification.
 - a. Bands: Pre-tensioned, snap around, colored plastic sleeves; colored adhesive tape; or combination of both. Make each color band 2-in. (51-mm) wide, completely encircling conduit, and place adjacent bands of 2 color markings in contact, side by side.
 - b. Locate bands at changes in direction, at penetrations of walls and floors, at 50-ft (15 m) maximum intervals in straight runs, and at 25-ft (7.6 m) in congested areas.
 - c. Colors: As follows:
 1. Fire Alarm System: Red.
 2. Fire Suppression Supervisory and Control System: Red and yellow.
 3. Combined Fire Alarm and Security System: Red and blue.
 4. Security System: Blue and yellow.
 5. Mechanical and Electrical Supervisory System: Green and blue.
 6. Telecommunications System: Green and yellow.

J. Install Caution Signs for Enclosures Over 600 V:

1. Use pressure sensitive, self-adhesive label indicating system voltage in black, preprinted on orange field. Install on exterior of door or cover.

K. Install Circuit Identification Labels on Boxes:

1. Label externally as follows:
 - a. Exposed Boxes: Pressure sensitive, self-adhesive plastic label on cover.
 - b. Concealed Boxes: Plasticized card stock tags.
 - c. Labeling Legend: Permanent, waterproof listing of panel and circuit number or equivalent.

L. Identify Paths of Underground Electrical Lines:

1. During trench backfilling, for exterior underground power, control, signal, and communications lines, install continuous underground plastic line marker located directly above line at 6 to 8-in. (150 to 200-mm) below finished grade. Where multiple lines installed in common trench or concrete envelope do not exceed an overall width of 16-in. (400-mm), use single line marker.
 - a. Install line marker for underground wiring, both direct buried and in raceway.

M. Color Code Conductors:

1. Secondary service, feeder, and branch circuit conductors throughout secondary electrical system.
 - a. Field applied, color coding methods may be used in lieu of factory coded wire for sizes larger than No. 10 AWG.

1. Colored, pressure sensitive plastic tape in half-lapped turns for distance of 6-in. (150-mm) from terminal points and in boxes where splices or taps are made. Apply last 2 turns of tape with no tension to prevent possible unwinding. Use 1-in. (25-mm) wide tape in colors as specified. Adjust tape bands to avoid obscuring cable identification markings.
2. Colored cable ties applied in groups of 3 ties of specified color to each wire at each terminal or splice point starting 3-in. (76-mm) from terminal and spaced 3-in. (76-mm) apart. Apply with special tool or pliers, tighten to snug fit, and cut off excess length.

<u>System Voltage</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Neutral</u>
120/240 Volt 1Ph/3w	Black	Red		White
120/208 Volt 3Ph/4w	Black	Red	Blue	White
120/240 Volt 3Ph/4w	Black	Orange	Blue	White
277/480 Volt 3Ph/4w	Brown	Purple	Yellow	Gray
Motor Control	1	Black		
	2	Red		
	3	Blue		
Ground				Green

N. Power Circuit Identification:

1. Use metal tags or aluminum wraparound marker bands for cables, feeders, and power circuits in vaults, pull boxes, junction boxes, manholes, and switchboard rooms.
 - a. Legend: ¼-in. (6.4-mm) steel letter and number stamping or embossing with legend corresponding to indicated circuit designations.
 - b. Fasten tags with nylon cable ties; fasten bands using integral ears.

O. Apply identification to conductors as follows:

1. Conductors to Be Extended in Future: Indicate source and circuit numbers.
2. Multiple Power or Lighting Circuits in Same Enclosure: Identify each conductor with source, voltage, circuit number, and phase. Use color coding for voltage and phase indication of secondary circuit.
3. Multiple Control and Communications Circuits in Same Enclosure: Identify each conductor by its system and circuit designation. Use consistent system of tags, color-coding, or cable marking tape.

P. Apply warning, caution, and instruction signs and stencils as follows:

1. Install warning, caution, and instruction signs where indicated or required to ensure safe operation and maintenance of electrical systems and of items to which they connect. Install engraved plastic laminated instruction signs with approved legend where instructions or explanations are needed for system or equipment operation. Install butyrate signs with metal backing for outdoor items.

2. Emergency Operating Signs:
 - a. Install engraved laminate signs with white legend on red background with minimum 3/8-in. (9-mm) high lettering for emergency instructions on power transfer, load shedding, and or emergency operations.

Q. Install identification as follows:

1. Apply equipment identification labels of engraved plastic laminate on each major unit of equipment, including central or master unit of each system. This includes communication, signal, and alarm systems, unless units are specified with their own self-explanatory identification. Except as otherwise indicated, provide single line of text with ½-in. (13-mm) high lettering on 1-1/2-in. (38-mm) high label; where 2 lines of text are required, use lettering 2-in. (51-mm) high. Use black lettering on white field. Apply labels for each unit of following categories of equipment:
 - a. Panelboards, electrical cabinets, and enclosures.
 - b. Access doors and panels for concealed electrical items.
 - c. Electrical switchgear and switchboards.
 - d. Electrical substations.
 - e. Motor control centers.
 - f. Motor starters.
 - g. Push button stations.
 - h. Power transfer equipment.
 - i. Contactors.
 - j. Remote controlled switches.
 - k. Dimmers.
 - l. Control devices.
 - m. Transformers.
 - n. Inverters.
 - o. Rectifiers.
 - p. Frequency converters.
 - q. Battery racks.
 - r. Power generating units.
 - s. Telephone switching equipment.
 - t. Clock/program master equipment.
 - u. Call system master station.
 - v. TV/audio monitoring master station.
 - w. Fire alarm master station or control panel.
 - x. Security monitoring master station or control panel.
2. Apply designation labels of engraved plastic laminate for disconnect switches, breakers, push buttons, pilot lights, motor control centers, and similar items for power distribution and control components above, except panelboards and alarm/signal components where labeling is specified elsewhere. For panelboards, provide framed, typed circuit schedules with explicit description and identification of items controlled by each individual breaker.

END OF SECTION

SECTION 26 20 10
ELECTRICAL WORK

PART 1 GENERAL

1.01 DESCRIPTION

- A. The work shall include providing materials and equipment required for installation of complete and functioning electrical systems as specified and as shown on the drawings.
- B. This section is an integral part of all Specification Sections related to electrical, control and instrumentation construction under this contract. Conditions of this section are paramount to all other conditions in applicable sections and shall supersede all other conditions and requirements.
- C. Electrical Control and Instrumentation Plans & Specifications are representative of the design intent and may not contain minute details normally associated with normally accepted electrical construction, as described in applicable codes or as described in manufacturer's literature. Contractor shall provide all appurtenances normally associated with a particular equipment or device, and as required for a properly operating system.

1.02 MAJOR ITEMS OF WORK AS FOLLOWS

- A. Installation of new mechanical barscreen & compactor system;
- B. Installation of new 480V heaters and 120V equipment;
- C. Installation of new 480V Distribution Panelboard;
- D. Installation of new 480V MCC buckets in existing MCCs.

1.03 PLANT CONTROL SYSTEM

- A. The Contractor shall incorporate proposed modifications to the electrical systems as shown on the plans. Contractor to provide complete and functioning systems at the end of the project.

1.04 SUBMITTALS

- A. Submit all products covered under this specification for Engineer's approval.
- B. Where submittals for a particular equipment, device or material item vary from that specified or shown on plan drawings, and where that item is not specifically noted as acceptable and, where installation of submitted item results in improper or undesirable operation of the system, Contractor shall be liable for removal and/or replacement of that item with the item specified or shown on plan drawings at no additional cost to Owner.

1.05 CONTRACTORS RESPONSIBILITIES

- A. Electrical Contractor shall coordinate telephone, data or special purpose line installation with utility companies. It is the Electrical Contractor's sole responsibility to assure that utility company and owner are notified and are kept aware of requirements.
- B. Contractor shall provide all conduits, conductors and termination equipment as needed for connection to the proposed service rack. Contractor shall coordinate with utility companies for installation requirements, if applicable, and shall provide installation constructed according to the utility company standards whether or not such is shown in detail or plans.

- C. Electrical Contractor shall review all sections of the plans including Civil, Structural, Mechanical, Instrumentation, Process, Architectural, and Electrical and shall note all electrical and/or requirements for devices and equipment shown or implied, and shall provide service accordingly for a complete operating electrical system.
- D. Electrical Contractor shall provide all programming set-up, adjustments and testing of devices or equipment included under this contract unless specifically excluded or unless equipment is not provided by Electrical Contractor.
- E. General Contractor is specifically responsible for coordination of all electrical systems, devices and equipment provided or installed under this contract and shall assure that all requirements by all trades are met such as to insure a complete and operating electrical, control, process or instrumentation system.
- F. Electrical Contractor shall be experienced with all types of electrical systems covered under this contract. No work shall be undertaken where Contractor's firm, project supervisors and project electrical workers have not had recent experience in similar projects in area or project location. Contractor will be required to furnish proof of experience where requested by Owner or Engineer or their Representatives.
- G. General Contractors Project Manager or his Assistant shall be familiar with types of electrical construction required by this project in order to determine that all subcontractors work in conformance with the plans and specifications.
- H. Contractor shall assure that all systems have been properly installed, adjusted and tested prior to final inspection, unless, Engineer has been duly notified in writing that certain equipments are not ready for final testing and such is acceptable with Engineer.

Additional site visits, inspections, and tests conducted by Engineer due to systems not being ready at designated time of final inspection may result in charges to Contractor by Engineer to pay for additional time of electrical inspectors not covered in Electrical Engineers scope of work. All charges will be at Engineers Standard rates.

- I. Contractor shall fully inspect all motors and nameplates, controls, conduit, wiring devices and other items before starting work, ordering materials or submitting shop drawings in order to verify existing conditions are as shown on plans and shall immediately notify Engineer of any discrepancies between plans & specifications and existing conditions. Failure to do so may result in responsibility for any required changes in construction.
- J. At completion of project and before final inspection, Contractor shall provide the Electrical Engineer with full size blue prints, red-lined to reflect the As-Built electrical installation. Any variation from plans shall be shown on each applicable plan sheet.

PART 2 PRODUCTS

2.01 MATERIALS

- A. All materials provided under all sections of the specifications shall be new and the standard products of manufacturers regularly engaged in the production of such equipment. All materials shall conform to the National Electrical Code and shall be approved and listed by the Underwriters' Laboratories. Materials described by manufacturer's name and catalog number are selected to set a definite standard of design and quality to be required. There is not any intention to discriminate against a product of another manufacturer, which is equally durable in

construction, similar in design, and will serve the purpose for which it is intended. Within 30 days after award of the contract and before any materials and equipment are placed on order, the Contractor shall submit to the Engineer for approval a complete list including catalog numbers and descriptive matter, of all materials and equipment he proposes to provide.

- B. Materials and equipment specifications are general in coverage and may contain reference to construction items that apply in only particular situations and may not apply as a general rule for materials installed on this project.

2.02 PLANS AND SPECIFICATIONS

- A. Electrical plans and specifications are not intended to discriminate against any particular manufacturer. Specific values shown for a particular manufacturer's product may vary slightly for another product. The Electrical Engineer reserves the right to interpret the electrical specifications and to make judgment as to acceptance of a product, regardless of minute details in the specifications or on the Plans.
- B. Specifications shall be reviewed for applicability of materials under certain conditions and in certain environments and, where not shown otherwise on plan drawings. These application directions shall be adhered to.
- C. Where a particular reference on drawing plans does not conform to standard acceptable construction methods for a particular type project, the Contractor shall immediately notify the Engineer and request a clarification before ordering materials or starting construction.

PART 3 EXECUTION

3.01 WORKMANSHIP

All wiring shall be installed in accordance with current NEC and local codes. Conduits exposed to the weather shall be rigid galvanized steel (RGS). Conduit placed underground shall be schedule 40 PVC or, as noted on plans.

A fish wire shall be left in all conduits in which the permanent wiring is not installed.

All fixtures, switch, and receptacle locations shall be approved by Engineer.

Refer to other sections of this specification for controls. Under this section of the specifications, the Contractor shall install the control devices and provide control wiring switches, outlet boxes, and shall make all final connections. Control wiring and interlocks shall conform to wiring diagrams furnished by equipment manufacturers.

The Contractor shall provide services of his Engineer or a factory trained technician to instruct plant-operating personnel for a period of at least one (1) full day after completion of the contract work.

3.02 EXCAVATION AND BACKFILL

All underground conduits shall be buried to a minimum depth of 24-inches below finished grade. All trenches shall be uniform width and shall be backfilled and compacted to 95% that of original density. Any damage to underground conduits caused by other Contractors shall be repaired by this Contractor and shall be compensated accordingly by the party or parties responsible for the damage.

3.03 CLEAN UP

The Contractor shall upon completion of the work, remove all materials, empty containers, and any other materials that are not incorporated into the work.

END OF SECTION

SECTION 26 20 15
ELECTRICAL DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Electrical Demolition

1.02 REFERENCES

- A. Temporary wiring of systems to maintain operation of facilities while undergoing modifications and demolition shall be provided in accordance with:
 - 1. American National Standards Institute/National Fire Protection Association (ANSI/NFPA), No.70 - National Electrical Code (NEC), Article No. 305- Temporary Wiring

1.03 SUBMITTALS

- A. Annotate existing drawings to sequence the demolition of systems, equipment removal and temporary hook-ups.
- B. Schedule with Engineer or required shut-downs to accommodate system demolition and installation of temporary facilities.

1.04 QUALITY ASSURANCE

- A. Verify field measurements and circuiting arrangements are as shown Drawings.
- B. Verify that abandoned wiring and equipment serve only abandoned facilities.
- C. Demolition drawings are based on casual field observation and existing record documents. Report discrepancies to Engineer before disturbing existing installation.
- D. By beginning demolition, installer accepts existing conditions and warrants that he will maintain service to equipment and items not scheduled or indicated for removal, and that he will return to the Owner all items and systems in good operating condition.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. Materials and equipment for patching and extending work. As specified in individual Sections.

2.02 DESIGN AND CONSTRUCTION

- A. The temporary electrical wiring and facilities shall be designed and constructed in strict compliance with NEC-Article No. 305.

PART 3 EXECUTION

3.01 PREPARATION

- A. Disconnect electrical systems in walls, floors, and ceilings scheduled for removal.
- B. Coordinate utility service mirages with Utility Company to provide continuous service to operating equipment.
- C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits. Use personnel experienced in such operations.
- D. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Obtain permission from the Engineer at least one week before partially or completely disabling system. Minimize outage duration.

3.02 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

- A. Remove, relocate, and extend existing installations to accommodate new construction.
 - 1. Remove abandoned wiring to source of supply.
 - 2. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.
 - 3. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets, which are not removed.
 - 4. Disconnect and remove abandoned panelboards and distribution equipment.
 - 5. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.
 - 6. Repair adjacent construction and finished damaged work.
 - 7. Maintain access to existing installations which remain active. Modify installation or provide access panel as appropriate.
 - 8. Extend existing installations using materials and methods as specified for new work.

3.03 DISPOSAL AND SALVAGE

- A. Salvage electrical and instrumentation equipment removed from existing facilities for reuse as applicable.
- B. Material and equipment which can be reused or salvaged remains the property of the Owner unless specifically indicated in the Specifications or Drawings or as designated by the Engineer.

- C. Materials and equipment which cannot be reused or salvaged will be removed and disposed of by the Contractor.

3.04 CLEANING AND REPAIR

- A. Clean and repair existing materials and equipment which remain or are to be reused.
- B. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide single line circuit directory showing revised circuiting arrangement.

END OF SECTION

SECTION 26 24 16

PANELBOARDS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Lighting and power panelboards and associated auxiliary equipment rated 600 V or less.

1.02 REFERENCES

A. National Electrical Manufacturers Association (NEMA):

1. NEMA PB.1-90 - Panelboards.
2. NEMA PB1.1-91 - General Instructions for Proper Installation, Operation and Maintenance of Panelboards Rated 600 volts or less.

B. Underwriter's Laboratory (UL):

1. UL 486A-86- Wire Connectors and Soldering Lugs for Use with Copper Conductors, 7th Edition.
2. UL 870-85 - Wireways, Auxiliary Gutters, and Associated Fittings, 5th Edition.

1.03 DEFINITIONS

- A. Load Center: Panelboard with thermal magnetic circuit-breaker branches, primarily of plug-in type, designed for residential and light commercial projects, operating at 240 V and below, available in both single and 3-phase versions, and equipped with combination flush/surface mounting trim.
- B. Overcurrent Protective Device (OCPD): Device operative on excessive current that causes and maintains interruption of power in circuit it protects.

1.04 SUBMITTALS

- A. Submit six sets within binders of all products covered under this specification for Engineer's approval.

B. Product Data:

1. For each type panelboard, accessory item, and component specified.
2. Identification materials.

C. Shop Drawings:

1. Dimensioned plans, sections, and elevations.
2. Tabulations of installed devices, major features, and voltage rating.

3. Include:
 - a. Enclosure type with details for types other than NEMA Type 1.
 - b. Bus configuration and current ratings.
 - c. Short-circuit current rating of panelboard.
 - d. Features, characteristics, ratings, and factory settings of individual protective devices and auxiliary components.
 - D. Wiring diagrams detailing schematic diagram including control wiring, and differentiating between manufacturer-installed and field- installed wiring.
- 1.05 QUALITY ASSURANCE
- A. Items provided under this section shall be listed or labeled by UL or other Nationally Recognized Testing Laboratory (NRTL).
 1. Terms "NRTL" shall be as defined in OSHA Regulation 1910.7.
 2. Terms "listed" and "labeled" shall be as defined in National Electrical Code, Article 100.
 - B. Regulatory Requirements:
 1. National Electrical Code (NEC): Components and installation shall comply with National Fire Protection Association (NFPA) 70.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Square D Co.
- B. General Electric
- C. Eaton Corp.
- D. Or equal.

2.02 PANELBOARDS, GENERAL REQUIREMENTS

- A. Construction in accordance with NEMA PB1.
- B. Overcurrent Protective Devices (OCPDs):
 1. Provide type, rating, and features as indicated.
 2. Comply with Section 26 28 00 with OCPDs adapted to panelboard installation.
 3. Tandem circuit breakers shall not be used.
 4. Multipole breakers shall have common trip.
- C. Enclosures:
 1. Cabinets, flush or surface mounted as indicated. NEMA Type 1 enclosure, except where other enclosure requirements are indicated.

- D. Front:
 - 1. Secure to box with concealed trim clamps except as indicated.
 - 2. Front for surface-mounted panels shall be same dimensions as box.
 - 3. Fronts for flush panels shall overlap box except as otherwise specified.
- E. Directory Frame: Metal, mounted inside each panel door.
- F. Bus: Hard drawn copper of 98 percent conductivity.
- G. Main and Neutral Lugs: Mechanical type.
- H. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment ground conductors. Bonded to box.
- I. Provision for Future Devices: Equip with mounting brackets, bus connections, and necessary appurtenances, for the OCPD ampere ratings indicated for future installation of devices.
- J. Special Features: Provide following features for panelboards as indicated.
 - 1. Isolated Equipment Ground Bus: Adequate for branch-circuit equipment ground conductors; insulated from box.
 - 2. Auxiliary Gutter: Conform to UL 870.

2.03 LOAD CENTERS

- A. Provide load-center-type panelboards only where specifically indicated.
- B. OCPDs: Plug-in full module (nominal 1-in. width) circuit breaker.
- C. Circuit Breakers for Switching Lights at Panelboards: Indicated type SWD.
- D. Circuit Breakers for Equipment Marked HCAR Type: Indicated HCAR type.
- E. Interiors: Provide physical means to prevent installation of more OCPDs than quantity for which enclosure was listed.
- F. Main, Neutral, and Ground Lugs and Buses: Mechanical connectors for conductors.

2.04 IDENTIFICATION

- A. General: Provide nameplates for all panelboards.
- B. Panelboard Nameplates: Engraved laminated plastic for each panelboard.

PART 3 EXECUTION

3.01 INSTALLATION

- A. General: Install panelboards and accessory items in accordance with NEMA PB 1.1, and manufacturers' written installation instructions, and approved submittals.
- B. Mounting Heights: Top of trim 6 ft 2-in. above finished floor, except as indicated.

C. Mounting:

1. Plumb and rigid without distortion of box.
2. Mount flush panels uniformly flush with wall finish.

D. Circuit Directory: Typed and reflective of final circuit changes required to balance panel loads. Obtain approval before installing.

E. Install filler plates in unused spaces.

F. Wiring in Panel Gutters: Train conductors neatly in groups, bundle, and wrap with wire ties after completion of load balancing.

3.02 GROUNDING

A. Connections: Make equipment grounding connections for panelboards as indicated.

B. Provide ground continuity to main electrical ground bus indicated.

C. Ground in accordance with Section 26 05 27.

3.03 CONNECTIONS

A. Tighten electrical connectors and terminals, including grounding connections, in accordance with manufacturer's published torque- tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A.

3.04 FIELD QUALITY CONTROL

A. Perform tests on low-voltage power panelboards and accessories.

B. Upon completing installation of system, perform following tests:

1. Make insulation resistance tests of panelboard buses, components, and connecting supply, feeder, and control circuits.
2. Make continuity tests of circuits.

C. Quality Control Program.

1. Procedures: Make field tests and inspections and prepare panelboard for satisfactory operation in accordance with manufacturer's recommendations and these specifications.

D. Visual and Mechanical Inspection: Include following inspections and related work:

1. Inspect for defects and physical damage, labeling, and nameplate compliance with requirements of up-to-date drawings and panelboard schedules.
2. Exercise and perform operational tests of all mechanical components and other operable devices in accordance with manufacturer's instruction.
3. Check panelboard mounting, area clearances, and alignment and fit of components.
4. Check tightness of bolted electrical connections with calibrated torque wrench. Refer to manufacturer's instructions for proper torque values.

5. Perform visual and mechanical inspection and related work for overcurrent protective devices as within this section.
- E. Electrical tests: Include following items performed in accordance with manufacturer's instruction:
1. Insulation resistance test of buses and portions of control wiring that disconnected from solid-state devices. Insulation resistance less than 100 megohms is not acceptable.
 2. Ground resistance test on system and equipment ground connections.
 3. Test main and subfeed overcurrent protective devices in accordance within this section.
- F. Retest: Correct deficiencies identified by tests and observations and provide retesting of panelboards. Verify by system tests that total assembly meets specified requirements.
- 3.05 CLEANING
- A. Upon completion of installation, inspect interior and exterior of panelboards.
 - B. Remove paint splatters and other spots, dirt, and debris.
 - C. Touch up scratches and mars of finish to match original finish.
 - D. Clean interior of panelboard.
- 3.06 ADJUSTING
- A. Adjust doors and operating mechanisms for free mechanical movement.
- 3.07 COMMISSIONING
- A. Balancing Loads: After Substantial Completion, but before Final Acceptance, conduct load-balancing measurements and circuit changes as follows:
 1. Perform measurements during period of normal working load as advised by Owner.
 2. Perform load-balancing circuit changes outside the normal occupancy/working schedule of the facility. Make special arrangements with Owner to avoid disrupting critical 24-hr services such as Fax machines and on-line data processing, computing, transmitting, and receiving equipment.
 3. Recheck loads after circuit changes during normal load period. Record load readings before and after changes and submit test records.
 4. Tolerance: Difference between phase loads exceeding 20 percent at any one panelboard is not acceptable. Re-balance and recheck as required to meet this minimum requirement.

END OF SECTION

SECTION 26 24 19

MOTOR CONTROL CENTERS (600V OR LESS)

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Motor-control centers (MCC) for use on ac circuits rated 600V or less.
- B. Overcurrent protective devices and disconnect switches used with motor control centers (MCC) are specified in Section 26 28 00.

1.02 REFERENCES

- A. American National Standards Institute (ANSI): ANSI C2-90 - National Electrical Safety Code (NESC).
- B. International Electrical Testing Association (P.O. Box 687, Morrison, CO 80465): ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- C. National Electrical Manufacturers Association (NEMA):
 - 1. NEMA 250-89 - Enclosures for Electrical Equipment (1000 Volts Maximum).
 - 2. NEMA ICS 2-88 - Industrial Control Devices, Controllers and Assemblies.
 - 3. NEMA ICS 2.3-88 - Instructions for the Handling, Installation, Operation, and Maintenance of Motor Control Centers.
- D. Underwriters Laboratories (UL):
 - 1. UL 486A-89 - Wire Connectors and Soldering Lugs for Use with Copper Conductors.
 - 2. UL 845-89 - Motor Control Centers.

1.03 SUBMITTALS

- A. Submit the following for Engineer's approval.
- B. Shop Drawings:
 - 1. Each MCC including dimensioned plans and elevations and component lists. Include a stub-up plan showing conduits entering each MCC.
 - 2. Show ratings, including short time and short-circuit ratings, and horizontal and vertical bus ampacities.
 - 3. Schedule of features, characteristics, ratings, and factory settings of individual MCC units.
 - 4. Wiring Diagrams: Interconnecting wiring diagrams pertinent to class and type specified for MCC. Schematic diagram of each type of controller unit indicated.
- C. Product Data: Each product and component specified.

- D. Test Results: Certified reports of field tests and observations.
- E. Operations and Maintenance Data: Maintenance data for MCC.

1.04 QUALITY ASSURANCE

- A. Items provided under this section shall be listed and labeled by UL or other nationally recognized Testing Laboratory (NRTL).
 - 1. Term "NRTL" shall be as defined in OSHA Regulation 1910.7.
 - 2. Terms "listed" and "labeled" shall be as defined in National Electrical Code, Article 100.
- B. Regulatory Requirements. National Electrical Code: Components and installation shall comply with NFPA 70.
- C. Manufacturer's Qualifications: Manufacturer shall be a member of NEMA, regularly engaged in manufacturing LV MCC complying with requirements of these Specifications, and experienced with at least 5 projects of similar size and scope.
- D. Product Selection for Restricted Space: Drawings indicate maximum dimensions for MCC including clearances between MCC and adjacent surfaces and items and are based on types and models indicated. MCC of other manufacturers having equal performance characteristics and complying with indicated maximum dimensions may be considered.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver in shipping splits of lengths that can be moved past obstructions.
- B. Store so condensation will not occur on or in MCC. Provide temporary heaters as required to prevent condensation.
- C. Handle MCC in accordance with NEMA ICS 2.3, "Instructions for Handling, Installation, Operation, and Maintenance of Motor Control Centers." Use factory-installed lifting provisions.

1.06 MAINTENANCE

- A. Extra Materials.
 - 1. Spare Fuses: Furnish one spare for every five of each type and rating of fuse and fusible devices installed, but not less than one set of three of each kind. Include spares for control power fuses.
 - 2. Spare Indicating Lights: Furnish five of each type installed.
 - 3. Touch-Up Paint: Furnish three half-pint unopened containers.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Square D Co.
- B. General Electric
- C. Eaton Corp./Cutler-Hammer Products.

D. Or Equal.

2.02 MOTOR-CONTROL CENTERS

A. Wiring Classification: Class I, Type B, as defined in NEMA ICS 2.

B. Enclosure: NEMA Type 1, gasketed, as defined in NEMA 250, except as otherwise indicated. Minimum enclosure depth is 20".

C. Compartments:

1. Modular, with individual doors with concealed hinges and quick-captive screw fasteners.
2. For combination starter units provide interlocks so disconnect means must be in off position before door can be opened and so door cannot be closed with disconnect means in on position, except by consciously operating permissive release device.

D. Interchangeability:

1. Construct compartments so it is possible to remove units without opening adjacent doors, disconnecting adjacent compartments, or disturbing operation of other units in control center.
2. Units requiring same size compartment shall be interchangeable, and compartments shall be constructed to permit ready rearrangement of units such as replacing 3 single units with unit requiring 3 spaces without cutting or welding.

E. Wiring Spaces:

1. Provide each vertical section of structure with horizontal and vertical wiring spaces for wiring to each unit compartment in each section.
2. Provide separate door over vertical wiring space.
3. Provide supports to hold wiring rigidly in place.

F. Meet current NEC requirements for service entrance.

G. Ratings: Provide nominal system voltage, continuous main bus amperage, and short-time and short-circuit-current ratings as indicated and conform with short circuit and coordination study.

2.03 BUSES

A. Material: Tin plated copper.

B. Ampacity Ratings: As indicated for horizontal main buses and vertical bus sized for indicated loads or 300A minimum.

C. Neutral Buses: Full size.

D. Equipment Ground Bus: Non-insulated, horizontal copper bus 2 inches by 1/4 inch, minimum.

E. Horizontal Bus Arrangement: Extend main phase, neutral and ground buses with same capacity entire length of MCC unless otherwise indicated, and provision for future extension at both ends by means of bolt holes and captive bus splice sections or approved equivalent.

- F. Natural Disconnect Link: For switchgear assembly having main service disconnect. Arrange to permit disconnecting the switchgear assembly neutral bus from the common ground bus and the incoming service neutrals. Also provide a bolted, un-insulated, 1/4-in. by 2-in. copper bus (main bonding jumper). Arrange to interconnect the neutral and the ground buses to establish the system common ground point.
- G. Short-Circuit Withstand Rating: Same as short-circuit current rating of section.

2.04 FUNCTIONAL FEATURES

- A. General: Provide modular arrangement of motor controllers, control devices, overcurrent protective devices, transformers, panelboards, instruments, indicating panels, blank panels, and other items mounted in compartments of motor-control center as indicated.
- B. Motor Controller Units:
 - 1. Combination controller units; of types and with features, ratings, and circuit assignments indicated.
 - 2. Units with full-voltage, across-the-line, magnetic controllers up to and including Size 3 shall be installed on drawout mountings with connectors that automatically line up and connect with vertical section buses while being racked into their normal energized positions.
 - 3. Units shall have short-circuit current ratings equal to or greater than short-circuit current rating of MCC section.
 - 4. Units in MCC shall be equipped with pull-apart terminal strips or drawout terminal boards for external control connections.
- C. Overcurrent Protective Devices:
 - 1. Provide types of devices with features, ratings, and circuit assignments indicated, as specified in Section 16475.
 - 2. Individual feeder tap units through 225 ampere rating shall be installed on drawout mountings with connectors that automatically line up and connect with vertical section buses while being racked into their normal energized positions.
- D. Spaces and Blank Units: Compartments fully bussed and equipped with guide rails or equivalent, ready for insertion of drawout units.
- E. Spare Units: Type, sizes, and ratings as indicated, and installed in compartments indicated "spare."

2.05 IDENTIFICATION PRODUCTS

- A. Provide identifying devices.
- B. Equipment Markers: Provide 2-ply, 1/8-in. thick laminated plastic, engraved equipment markers.
 - 1. Color: Black letters on white background.
 - 2. Nomenclature: Include following, matching terminology on schedules as closely as possible:

- a. Equipment name (i.e. motor control center).
 - b. Equipment Tag No. (i.e. 30-MCC-1).
- 3. Size: Provide approximate 3-in. by 6-in. (minimum) for equipment.
 - a. 1-in. high letters for equipment tag number.
 - b. 1/2-in. high letters for descriptive equipment name.
- 4. Size: Provide approximate 1-1/2 in. by 3-in. (minimum) for device or component.
 - a. 1/4-in. high letters for equipment tag number.
 - b. 1/4-in. high letters for descriptive equipment name.
- 5. Fasteners: Self-tapping stainless steel screws except contact type permanent adhesive where screws cannot or should not penetrate substrate.

2.06 FINISHES

- A. Manufacturer's standard finish suitable for environment in which installed.

PART 3 EXECUTION

3.01 INSTALLATION

- A. General: Install MCC in accordance with NEMA ICS 2.3 "Instructions for Handling, Installation, Operation, and Maintenance of MCC," and with manufacturer's written installation instructions.
- B. Anchor each motor-control center assembly to concrete base in accordance with manufacturer's recommendations. Level and grout sills flush with motor-control center mounting surface.
- C. Remove temporary lifting eyes, channels, brackets, and temporary blocking of moving parts from MCC units and components.

3.02 CONCRETE BASES

- A. Where concrete slab is indicated under MCC location, provide 4-in. high concrete foundation pad or, as shown on Plans.

3.03 CONNECTIONS

- A. Tighten MCC bus joint bolts and electrical connector and terminal bolts in accordance with manufacturer's installation instructions and torque-tightening values. Where manufacturer's torque values are not stated, use those specified in UL 486A and UL 486B.

3.04 FIELD QUALITY CONTROL

- A. Testing:
 - 1. Comply with applicable requirements of InterNational Electrical Testing Association (INETA) Standard ATS, "Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems."
 - 2. Reports: Notify Engineer in writing indicating defective materials and workmanship and unsatisfactory test results. Include record of repairs and adjustments made.

3. Perform following tests:
 - a. Test insulation resistance of MCC buses; components; and of connecting supply, feeder, and control circuits. For components with solid-state devices or other sensitive components, perform tests in accordance with manufacturer's instructions.
 - b. Make continuity tests of circuits.
 - c. Inspect MCC for defects and physical damage, testing laboratory labels, circuit connections, and nameplate compliance with up-to-date system drawings.
 - d. Perform operational test and exercise of mechanical components and other operable devices in accordance with manufacturer's instruction manual.
 - e. Check MCC anchorage, external clearances, and alignment and fit of components including internal elements.
 - f. Check tightness of bolted electrical connections with calibrated torque wrench. Refer to manufacturer's instructions for proper torque values.
 - g. Perform visual and mechanical inspection and related work for motor control and protective devices.
 - h. Device Ratings and Settings: Verify ratings and settings of overload relays, motor circuit protectors, and overcurrent protective devices.
4. Quality Control Testing Program: Assure MCC installation meets specified requirements, is operational within specified tolerances, and provides appropriate protection for systems and equipment.
 - a. Test and inspect MCC in accordance with manufacturer's recommendations and these specifications.
 - b. Schedule tests and provide notification at least 7 days in advance of test commencement.
 - c. Reports: Prepare written reports of test results and observations. Report defective materials and workmanship. Include complete records of adjustments and corrective action taken.
 - d. Labeling: On satisfactory completion of tests and related effort, apply label to tested components indicating results, person responsible, and date.
 - e. Test insulation resistance of buses and portions of control wiring that disconnect from solid-state devices through normal disconnecting features. Insulation resistance less than 100 megohms is not acceptable.
 - f. Verify appropriate capacity, overcurrent protection, and operating voltage of control power elements including control power transformers and control power wiring.
 - g. Check phasing of supply source to bus.

- h. Test motor-control devices.
 - i. Test overcurrent protective devices.
 - 5. Retesting: Correct deficiencies and retest. Verify by retests that specified requirements are met.
- 3.05 CLEANING
 - A. Inspect interior and exterior of MCC. Remove paint splatters and other spots, dirt, and debris. Touch up scratches and mars of finish to match original finish.
- 3.06 PROTECTION
 - A. Temporary Heating: Apply temporary heat in accordance with manufacturer's recommendation within each section of switchgear throughout periods during which the switchgear is not in a space that is continuously under normal control of temperature and humidity.

END OF SECTION

SECTION 26 27 16

CABINETS AND ENCLOSURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Specifications for cabinets and enclosures for housing of control panels and motor controls.

1.02 REFERENCES

- A. National Electrical Manufacturers Association (NEMA):
 - 1. 250 - Enclosures for Electrical Equipment (1000 Volts maximum).
 - a. NEMA 3R - Enclosures for outdoor use primarily to provide a degree of protection against wind-blown dust, rain, and sleet; undamaged by formation of ice on the enclosure.
 - b. NEMA 12 - Enclosures for indoor use primarily to provide a degree of protection against dust, falling dirt, and dripping non-corrosive liquids.
 - c. NEMA 4X – Enclosures for outdoor use primarily to provide a degree of protection against wind-blown dust, rain, sleet, hose directed water, and corrosion; undamaged by formation of ice on the enclosure.
- B. American National Standards Institute/National Fire Protection Association (ANSI/NFPA), NFPA 70 - National Electrical Code (NEC), Article 373 - Cabinets, Cutout Box, and Meter Socket Enclosures.
- C. Underwriters Laboratories (UL), UL 50 - Safety for Cabinets and Boxes.

1.03 SUBMITTALS

- A. Submit the following under provisions of Section 01330 – Submittal Procedures:
 - 1. Manufacturer's cut sheets and catalog data.
 - 2. Instruction for handling and storage.
 - 3. Installation instructions.
 - 4. Dimensions and weights.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Have cabinets and enclosures packed and crated to permit ease of handling and to provide protection from damage during shipping, handling and storage.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. The EMF Company
- B. Eaton Crouse-Hinds
- C. Hoffman (Pentair)
- E. Weigmann (Hubbell)
- F. Hammond Mfg. Co.
- G. NEMA Enclosures Mfg. Co.

2.02 MATERIALS AND EQUIPMENT

A. Sheet Metal Boxes:

1. Provide enclosures manufactured in accordance with NEMA 250 and NEC Article 373. Fabricate outdoor NEMA 3R and NEMA 4X panels from 0.125- inch thick type 5052 H32 aluminum or 14 gauge, 316 stainless steel. NEMA 12 indoor panels shall be painted steel.
2. Dimensions and special features are shown on the Drawings.
3. Construct outdoor enclosures with continuously welded seams ground smooth.
4. Additional material thickness and bracing requirements shall be determined by the manufacturer to provide the strength required by the standard listed. The bracing shall be provided in such a way as to minimize the protrusion into the wiring and the equipment spaces.
5. Install the door with a stainless steel continuous hinge, stainless steel padlock handle with gasket and stainless steel hardware.
6. Furnish the door with oil-resistant neoprene gasket attached with oil-resistant adhesive and held in place with aluminum retaining strips.
7. Use a single, 3/4-inch minimum, door handle that provides a 3-point latching through latch rods with rollers. Provide rollers with at least 3/4-inch diameter.
8. Gasketed overlapping doors may be used instead of a center post.
9. Provide heavy duty lifting eyes of suitable material.
10. Fabricate the enclosure with a stud-mounted panel inside. Make panels from 12-gauge steel painted with white enamel finish.
11. Equip NEMA 12, NEMA 3R, and NEMA 4X enclosures with thermostatically controlled space heaters and corrosion inhibitors. Provide heaters rated for 240V for 120V operation.
12. Weld mounting feet to the enclosure if called for on the Drawing.
13. Include a high impact plastic data pocket in the enclosure.

14. Provide ground connections on the enclosures to enable grounding of the enclosure with a No. 2 AWG conductor.
15. Equip free-standing outdoor cabinets with inner and outer door restraint bars to prevent door swing during windy conditions.
16. Supply indoor enclosures with filtered passive air intake and exhaust openings, 4-inch square in the side near the top and near the bottom of the adjacent side panel.

B. Hardware:

1. Mounting Hardware: Stainless steel
2. Conduit Connectors: Watertight as manufactured by Myers Hubs, or equal.

2.03 TESTING

- A. Test cabinets and enclosures in accordance with UL 50 so unit qualifies for a UL label.

PART 3 EXECUTION

3.01 PREPARATION

- A. Review Drawings and determine how many enclosures of each kind are required and check if supplied quantity is sufficient.
- B. Check the mounting pads or foundations for proper mounting dimensions and features, including grounding conductor stub-up.

3.02 INSTALLATION

- A. Use enclosures described in this specification only above grade.
- B. Install enclosures in accordance with NEC Article 373 in locations as indicated on the Drawings.
- C. Install enclosures in readily accessible locations to facilitate general operations, wire pulls, maintenance and repair.
- D. Plug unused conduit openings.
- E. Make conduit connections to the enclosures with watertight conduit connectors.

END OF SECTION

SECTION 26 27 26

WIRING DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Specifications for wiring devices including:

1. Receptacles.
2. Wall switches.
3. Wall plates and cover plates.

1.02 REFERENCES

A. American National Standards Institute/National Electrical Manufacturers Association (ANSI/NEMA):

1. NEMA WD1 - General Purpose Wiring Devices.
2. NEMA WD6 - Dimensional Requirements.

B. Federal Specifications (WC-596F).

C. American National Standards Institute/National Fire Protection Association (NFPA):

1. NFPA No. 70 - National Electrical Code (NEC), Articles 210 Branch Circuits, 250 Grounding and 410, Paragraphs 56, 57 and 58.

1.03 SUBMITTALS

A. Submit all products covered under this specification for Engineer's approval:

1. Manufacturer's product literature and specifications including dimensions, weights, certifications and instructions for handling, storage and installation.

1.04 DELIVERY, STORAGE AND HANDLING

A. Pack and crate devices to permit ease of handling and protect from damage during shipping, handling and storage.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Bryant Electric
- B. Crouse-Hinds, Arrow Hart Division
- C. Hubbel Inc. Wiring Devices Division
- D. Leviton Manufacturing Company

- E. Pass & Seymour/Legrand.

2.02 MATERIALS AND EQUIPMENT

- A. Standards: Conform to NEMA WD1 for general requirements and NEMA WD6 for dimensional requirements.
- B. Manufacture devices to heavy-duty industrial specification grade with brown nylon bodies (orange for isolated-ground receptacles) back and side wiring provisions and green-colored grounding screws.
- C. Receptacles:
 - 1. Duplex-type receptacles: Rated 20 Amps at 120 Volts.
 - 2. Contacts: Brass or phosphor bronze.
 - 3. Receptacle grounding system: Extend to the mounting strap unless isolated ground is indicated or required.
 - 4. GFI or GFCI (ground fault circuit interrupter) receptacles: Provide feed-through type with test and reset button.
- D. Wall Switches:
 - 1. Toggle switches: Rated 20 Amps at 120/277 Volts AC rated for both resistive and inductive loads.
 - 2. Contacts: Silver cadmium oxide construction to prevent sticking, welding and excessive pitting.
- E. Cover Plates:
 - 1. In outdoor, corrosive and wet areas, provide cover plates of cast metal, gasketed with spring-loaded hinged covers and stainless steel hardware.
 - 2. All other plates: Type 302 stainless steel.

PART 3 EXECUTION

3.01 PREPARATION

- A. Verify that device boxes are correctly placed.
- B. Verify that the correct quantity, size and type of wires are pulled to each device box.
- C. Verify that wiring has been checked at both ends.
- D. Prepare wire ends for connection to devices.
- E. Inspect each wiring device for defects.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.

- B. Install devices plumb and level.
- C. Install switches with OFF position down.
- D. Install receptacles with grounding pole on top.
- E. Connect wiring device grounding terminal to outlet box with bonding jumper.
- F. Connect wiring devices by wrapping conductors clockwise around screw terminals.
- G. Install cover plates on switch, receptacle and blank outlets in finished areas.
- H. Energize and test devices for proper operation.

END OF SECTION

SECTION 26 28 00

OVERCURRENT PROTECTIVE DEVICES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Overcurrent protective devices (OCPDs) rated 600V and below and switching devices commonly used with them.

1.02 REFERENCES

A. National Electrical Manufacturers Association (NEMA).

1. NEMA AB1-86 - Molded Case Circuit Breakers and Molded Case Switches.

B. National Fire Protection Association (NFPA):

1. NFPA 70-90 - National Electrical Code (NEC).

C. Underwriters Laboratory (UL):

1. UL 98-87 - Enclosed and Dead Front Switches.
2. UL 486A-80 - Wire Connectors and Soldering Lugs for Use with Copper Conductors. Seventh Edition.
3. UL 489-86 - Molded-Case Circuit Breakers and Circuit-Breaker Enclosures. Seventh Edition.

1.03 DEFINITIONS

A. Overcurrent Protective Device (OCPD): Device operative on excessive current that causes and maintains interruption of power in circuit it protects.

B. Ampere-Squared-Seconds: Expression of available thermal energy resulting from current flow. With regard to current-limiting fuses and circuit breakers, ampere-squared-seconds during fault current interruption represents energy allowed to flow before fuse or breaker interrupts fault current within its current limiting range.

1.04 QUALITY ASSURANCE

A. Items provided under this section shall be listed and labeled by UL or other Nationally Recognized Testing Laboratory (NRTL).

1. Term "NRTL" shall be as defined in OSHA Regulation 1910.7.
2. Terms "listed" and "labeled" shall be as defined in National Electrical Code, Article 100.

- B. Regulatory Requirements:
 - 1. Components and Installation:
 - a. NFPA 70 "National Electrical Code (NEC)."
 - b. Local codes and ordinances.
- C. Single-Source Responsibility: Obtain similar OCPDs from single manufacturer.

PART 2 PRODUCTS

2.01 OVERCURRENT PROTECTIVE DEVICES (OCPDs), GENERAL

- A. General: Provide OCPDs in indicated types, as integral components of panelboards, switchboards, and motor control centers; and also as individually enclosed and mounted single units.

2.02 MOLDED-CASE CIRCUIT BREAKERS

- A. Manufacturers Except as Indicated:
 - 1. Square D Co.
 - 2. General Electric
 - 3. Eaton
 - 4. Or equal.
- B. UL 489 and NEMA AB 1.
- C. Construction: Bolt-in type, except breakers in load-center-type panelboards and breakers 225-ampere frame size and larger may be plug-in type if held in place by positive locking device requiring mechanical release for removal.
- D. Tripping Device: Quick-make, quick-break toggle mechanism with inverse-time delay and instantaneous overcurrent trip protection for each pole.
- E. Adjustable Instantaneous Trip Devices: Factory adjusted to low-trip-setting current values.
- F. Enclosure for Switchboard or Panelboard Mounting: Suitable for panel mounting in switchboard or panelboards where indicated.
- G. Enclosure for Switchboard or Motor Control Center Mounting: Provide individual mounting where indicated.
- H. Enclosure for Independent Mounting: NEMA Type 1 enclosure, as indicated or required to suit environment where located.
- I. Combination Circuit Breakers and Ground-Fault Circuit Interrupters: UL 943 arranged for sensing and tripping for ground-fault current in addition to overcurrent and short-circuit current.
 - 1. Match features and module size of panelboard breakers and provide clear identification of ground fault trip function.

2. Trip Setting for Ground Fault: 4 to 6 milliamperes, listed and labeled as Class A, Type 1 device.
 3. Trip Setting for Ground Fault: 30 milliamperes.
- J. Current-Limiting Circuit Breakers: Arranged to limit let-through ampere-squared-seconds during fault conditions to value less than ampere-squared-seconds of one-half-cycle wave of prospective symmetrical fault current. Circuit breaker shall use no fusible devices in its operation. Current-limiting characteristic shall be in addition to normal time-delay and instantaneous-trip characteristics and other features as indicated.
- K. Circuit Breakers With Solid-State Trip Devices: Provide indicated circuit breakers with solid-state trip devices having following features:
1. Ambient Compensation: Trip device insensitive to temperature changes between minus 20C and plus 55C.
 2. Adjustability: Breaker ratings and trip settings shall be changeable by operation of controls on front panel of breaker, by change of plug-in element without removing breaker from mounting, or by combination of 2 methods.
 3. Ground-Fault Tripping: Adjustable for pick-up and time-delay values. Provide for indicated units.
 4. Provide clear plastic shield limiting access to rating plug and adjustments on solid state trip circuit breaker. Seal by attaching sealing wire through hole in posts provided. With wire seal installed, circuit breaker rating plug and adjustments shall not be "readily accessible."

2.03 INSULATED-CASE CIRCUIT BREAKERS

- A. Manufacturers:
1. Square D Co.
 2. General Electric
 3. Or Engineer-approved equal.
- B. UL 489 and NEMA AB 1.
- C. Ratings: Continuous-current, interrupting, and short-time-current ratings, and voltage and frequency ratings as indicated.
- D. Operating Mechanism: Mechanically and electrically trip-free, stored-energy operating mechanism with following features:
1. Moving Contacts Closing Speed: Independent of both control and operator.
- E. Circuit-Breaker Trip Devices: Solid-state overcurrent trip device system that includes 1 integrally mounted current transformer or sensor per phase, release mechanism, and following features:
1. Functions: Long-time-delay, short-time-delay, and instantaneous-trip functions, which are independent of each other in both action and adjustment.

2. Temperature compensation to assure accuracy and calibration stability from minus 20 C to plus 55 C.
 3. Field-adjustable, time-current characteristics.
 4. Current Adjustability: Effected by operating controls on front panel or by changing plug-in elements or current transformers or sensors.
 5. Three bands for long-time- and short-time-delay functions marked "minimum," "intermediate," and "maximum."
 6. Five pickup points, minimum, for long-time- and short-time-trip functions.
 7. Six pickup points, minimum, for instantaneous-trip functions.
 8. Ground fault protection with at least 3 short-time-delay settings and 37 trip-time-delay bands. Adjustable current pickup.
 9. Trip Indication: Labeled lights or mechanical indicators on trip device shall indicate type of fault causing breaker trip. If lights are used, integral power source shall maintain indication for 60 hrs, minimum.
- F. Auxiliary Contacts for Remote Indication: Where remote indication of breaker position is indicated, provide spare auxiliary switch in addition to other auxiliary switches required for normal breaker operation. Spare auxiliary switch shall consist of 2 Type "a" and 2 Type "b" stages (contacts), wired to terminal block in breaker housing.
- G. Circuit-Breaker Features and Accessories: Include following:
1. Padlocking Provisions: For installing at least 2 padlocks on each breaker to secure its enclosure and prevent movement of draw out mechanism.
 2. Operating Handle: Provide 1 for each manually operated breaker. No handle ties are permitted.
 3. Electric Close Button: Provide 1 for each electrically operated breaker.
 4. Indicating Lights: Contacts for "Breaker Open" and "Breaker Closed," for main and bus tie circuit breakers, and for other indicated breakers.

PART 3 EXECUTION

3.01 CONNECTIONS

- A. Check connectors, terminals, bus joints, and mountings for tightness.
- B. Tighten field-connected connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL 486A and UL 486B.

3.02 GROUNDING

- A. Provide equipment grounding connections for individually mounted OCPD units as indicated and as required by NEC. Tighten connectors to comply with tightening torques specified in UL Standard 486A to assure permanent and effective grounding.

B. Ground in accordance with Section 26 05 27.

3.03 FIELD QUALITY CONTROL

A. Testing:

1. Reports: Prepare certified written reports on tests and observations. Report defective materials and workmanship and unsatisfactory test results. Include complete records of repairs and adjustments made.
2. Labeling: Upon satisfactory completion of tests and related effort, apply label to tested components indicating test results, date, and responsible person.
3. Schedule visual and mechanical inspections and electrical tests with at least 1 week's advance notification.
4. Pretesting: Upon completing installation of system, perform following preparations for tests:
 - a. Make insulation resistance tests of OCPD buses, components, and connecting supply, feeder, and control circuits.
 - b. Make continuity tests of circuits.
 - c. Include full updating on final system configuration and parameters where they supplement or differ from those indicated in original Contract Documents.
 - d. Comply with manufacturer's instructions for installation and testing of OCPDs.
5. Visual and mechanical inspection: Include following inspections and related work.
 - a. Overcurrent-Protective-Device Ratings and Settings: Verify indicated ratings and settings to be appropriate for final system arrangement and parameters. Where discrepancies are found, test organization shall recommend final protective device ratings and settings. Use accepted revised ratings or settings to make final system adjustments.
 - b. Inspect for defects and physical damage, NRTL labeling, and nameplate compliance with current single line diagram.
 - c. Exercise and perform operational tests of mechanical components and other operable devices in accordance with manufacturer's instruction manual.
 - d. Check tightness of electrical connections of OCPDs with calibrated torque wrench. Refer to manufacturer's instructions for proper torque values.
 - e. Clean OCPDs using manufacturer's approved methods and materials.
 - f. Verify installation of proper fuse types and ratings in fusible OCPDs.
6. Electrical Tests: Include following items performed in accordance with manufacturer's instructions:
 - a. Insulation resistance test of OCPD conducting parts. Insulation resistance less than 100 megohms is not acceptable.
 - b. Verify trip unit reset characteristics for insulated-case circuit breakers.
 - c. Make adjustments for final settings of adjustable-trip devices.
 - d. Activate auxiliary protective devices such as ground fault or undervoltage relays, to verify operation of shunt-trip devices.
 - e. Check stored-energy charging motors for proper operation of motor, mechanism, and limit switches.
 - f. Check operation of electrically operated OCPDs in accordance with manufacturer's instructions.

- g. Check key and other interlock and safety devices for operation and sequence. Make closing attempts on locked-open and opening attempts on locked-closed devices including moveable barriers and shutters.
 - 7. Retest: Correct deficiencies identified by tests and observations and retest. Verify by system tests that specified requirements are met.
- 3.04 CLEANING
- A. Upon completion of installation, inspect OCPDs. Remove paint splatters and other spots, dirt, and debris. Touch up scratches and mars of finish to match original finish.

END OF SECTION

SECTION 26 28 17

DISCONNECT SWITCHES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Specifications for disconnect switches including:
 - 1. Fusible disconnect switches
 - 2. Non-fusible disconnect switches
 - 3. Circuit breaker type disconnect switches
 - 4. Fuses
 - 5. Circuit breakers

1.02 REFERENCES

- A. American National Standards Institute/National Electrical Manufacturers Association (ANSI/NEMA)
 - 1. NEMA AB1: Molded Case Circuit Breakers
 - 2. NEMA KS1: Enclosed Switches
- B. Underwriters Laboratories (UL)
 - 1. UL 98: Standard for safety enclosed switches and Dead Front Switches
 - 2. UL 198C: High Interrupting Capacity Fuses, Current Limiting type
 - 3. UL 198E: Class R Fuses
- C. American National Standards Institute/National Fire Protection Association (ANSI/NFPA), NFPA No. 70 - National Electrical Code (NEC), Article 380 - Switches.

1.03 SUBMITTALS

- A. Submit six sets within binders of all products covered under this specification for Engineer's approval:
 - 1. Manufacturer's cut sheets and catalog data
 - 2. Switch internal arrangement
 - 3. Breaker or fuse characteristic curves
 - 4. Instructions for handling and storage
 - 5. Installation instructions
 - 6. Dimensions and weights

1.04 DELIVERY, STORAGE AND HANDLING

- A. Have disconnect switches packed and crated to permit ease of handling and to provide protection from damage during shipping, handling and storage.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Disconnect Switches and Circuit Breakers:

1. Cutler-Hammer Products
2. General Electric
3. Siemens Energy and Automation
4. Square D Company
5. Westinghouse Electric

B. Fuses:

1. Bussman Division, Cooper Industries
2. Gould Shawmut
3. Littelfuse Incorporated

2.02 MATERIALS AND EQUIPMENT

A. Disconnect Switches:

1. Characteristics: Horsepower rated, 600-volt, heavy-duty type with an interlocked door, positive quick-make, quick-break mechanism and visible blades.
2. Use switches and components designed, manufactured and tested in accordance with NEMA AB1, NEMA KS1, UL 98, and NEC Article 380.
3. Enclose switch in a NEMA 12 type enclosure for indoor application and NEMA 4X (type 316 stainless steel) in outdoor locations or other wet or corrosive areas.
4. Provide switches with provisions for padlocking the operating lever in OFF position and door in closed position.
5. Select switches having the number of poles and general size conforming to the Drawings.
6. Conform to fusible, non-fusible or circuit breaker type switch requirements as shown on Drawings or one-line diagrams.
7. Provide an auxiliary contact, shown on the Drawings.
8. Select fuses or circuit breakers with current interrupting duty as calculated for the points of switch application or as indicated on the Drawings or one-line diagrams.

B. Fuses: Unless otherwise noted on Drawings, for fuses used in disconnect switches, provide the dual-element, time-delay type with the maximum interrupting rating of 200,000 amperes, conforming to the current NEC.

C. Circuit Breakers: When circuit breakers are used in disconnect switches, provide the thermal-magnetic type with current interruption ratings as required at the point of application.

- D. Conduit Connectors: Watertight as manufactured by Myers Hubs, or equal.

PART 3 EXECUTION

3.01 PREPARATION

- A. Review the Drawings and verify the disconnect switches are correct for the applications.
- B. Make sure that the correct fuses or breakers are being used regarding size and short circuit interrupting capability.
- C. Prepare adhesive labels on the inside door of each switch indicating UL fuse class and size or breaker type and size for replacement.

3.02 INSTALLATION

- A. Install disconnect switches in accordance with and NEC Article 380.
- B. Mount switches 6'-6" (to top of cabinet) above finished floor or grade.
- C. In wet and corrosive areas, including outdoor locations, install switches on spacers to provide a space of approximate 1/4-inch between the back of cabinet and the mounting surface.
- D. In wet and corrosive areas, including outdoor locations, connect conduit to the bottom of enclosure and to the lower 30 percent of the sides using watertight connectors.

END OF SECTION

SECTION 26 28 20

DISCONNECTS AND CIRCUIT BREAKERS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Service disconnects.
2. Feeder and equipment disconnects.
3. Enclosed circuit breakers.

1.02 SUBMITTALS

A. Submit six sets within binders of the following for Engineer's approval.

B. Product Data:

1. Submit for switches, circuit breakers, and accessories.
2. Descriptive data and time-current curves for protective devices and let-through current curves for those devices with current-limiting characteristics. Include coordination charts and tables, and related data.

C. Shop Drawings:

1. Wiring diagrams detailing power and control wiring and differentiating clearly between manufacturer-installed wiring and field-installed wiring.

D. Test Results:

1. Field test reports indicating and interpreting test results.

E. Operating and Maintenance Data:

1. Maintenance data for tripping devices.

1.03 QUALITY ASSURANCE

A. Items provided under this section shall be listed or labeled by UL or other Nationally Recognized Testing Laboratory (NRTL).

1. Term "NRTL" shall be as defined in OSHA Regulation 1910.7.
2. Terms "listed" and "labeled" shall be as defined in National Electrical Code, Article 100.

B. Regulatory Requirements:

1. National Electrical Code (NEC): Components and installation shall comply with National Fire Protection Association (NFPA) 70.

- C. Single-Source Responsibility: Enclosed switches and circuit breakers shall be product of single manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Molded-Case Circuit Breakers:
 - 1. Square D Co.
 - 2. Eaton
 - 3. General Electric
- B. Combination Circuit Breaker and Ground Fault Trip:
 - 1. Square D Co.
 - 2. Eaton
 - 3. General Electric

2.02 ENCLOSED CIRCUIT BREAKERS

- A. Enclosed Molded-Case Circuit Breaker: NEMA AB 1, handle lockable with 2 padlocks.
- B. Characteristics:
 - 1. Frame size, trip rating, number of poles, and auxiliary devices as indicated
 - 2. Interrupting capacity rating to meet available fault current, 10,000 symmetrical rms amperes minimum
 - 3. Appropriate application listing when used for switching fluorescent lighting loads or heating, air conditioning, and refrigeration equipment.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install enclosed switches and circuit breakers in locations as indicated, according to manufacturer's written instructions.
- B. Install enclosed switches and circuit breakers level and plumb.
- C. Install wiring between enclosed switches and circuit breakers and control/indication devices.
- D. Connect enclosed switches and circuit breakers and components to wiring system and to ground as indicated and instructed by manufacturer. Tighten connectors and terminals, including screws and bolts according to equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals according to tightening torques specified in UL Standard 486A.

3.02 ADJUSTING

- A. Set field-adjustable enclosed switches and circuit breaker trip ranges as indicated.

3.03 CLEANING

- A. After completing system installation, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish including chips, scratches, and abrasions.

END OF SECTION

CONCRETE FORMWORK

PART 1 GENERAL

1 SECTION INCLUDES

- A. Design, construction, erection and removal of structural concrete formwork.

2 UNIT PRICES

- A. No separate payment will be made for concrete formwork under this Section. Include payment in unit price for structural concrete.
- B. Refer to Section 01025 - Measurement and Payment for unit price procedures.

3 REFERENCE STANDARDS

- A. ACI 117 - Standard Tolerances for Concrete Construction and Materials.
- B. ACI 347 - Recommended Practice for Concrete Formwork.
- C. U.S. Product Standard PS 1 Construction and Industrial Plywood.
- D. U.S. Product Standard PS 20 American Softwood Lumber Standard.

4 SUBMITTALS

- A. Conform to Section 01300 - Submittals.
- B. Shop Drawings: Show location, member size and loading of shoring. When reshoring is permitted, submit plans showing locations and member size of reshoring.
- C. Product Data and Samples:
 - 1. Corrugated Fiberboard Carton Forms: Submit certification of compliance with design criteria, description of forms, and one-foot-long sample.
 - 2. Form-coating Materials: Submit trade or brand names of manufacturers and complete description of products.
 - 3. Form ties and related accessories, including taper tie plugs, if taper ties are used. Form gaskets.
- D. Detailed Layout for Slip-forming: Submit detailed layout of proposed slipforming, including description of equipment, rate of progress, and other data to show suitability of method. Show provisions for ensuring attainment of required concrete surface finish.

PART 2 PRODUCTS

1 MATERIAL

A. Smooth Forms: New plywood, metal, plastic, tempered concrete-form hardboard, dressed lumber faced with plywood or fiberboard lining, or metal-framed plywood-faced panel material, to provide continuous, straight, smooth surfaces. Form material shall be free of raised grain, torn surfaces, worn edges, patches, dents or other defects. Furnish material in largest practical sizes to minimize number of joints and, when indicated on Drawings, conform to joint system indicated. Form material shall have sufficient strength and thickness to withstand pressure of newly placed concrete without bow or deflection.

B. Rough Forms: Plywood, metal, dressed or undressed lumber free of knots, splits or other defects, or other material acceptable to City Engineer of sufficient strength and thickness to withstand pressure of newly placed concrete without bow or deflection.

C. Plywood: Conform to PS 1, Class 1.

D. Lumber: Conform to PS 20.

E. Edge Forms and Intermediate Screed Strips: Type and strength compatible with the screed equipment and methods used.

F. Plastic Forms: One-piece forms for domes, beams and pan joists. Single lengths for columns not exceeding height of 7 feet 6 inches. For columns over 7 feet 6 inches, use 7-foot 6-inch sections and filler sections as needed. To facilitate removal of pan joist forms, taper sides one inch per foot.

G. Metal Pan Joist Forms: Removable type; fabricated of minimum 14-gauge steel; one piece between end closures. Adjustable forms not allowed. Taper sides one inch per foot to facilitate removal.

H. Earth Cuts for Forms:

1. Use earth cuts for forming unexposed sides of grade beams cast monolithically with slabs on grade.

1. Where sides of excavations are stable enough to prevent caving or sloughing, following surfaces may be cast against neat-cut excavations:

a. Sides of footings.

b. Inside face of perimeter grade beams not monolithic with slab on grade. When inside face is cast against earth, increase beam width indicated on Drawings by one inch.

c. Both faces of interior grade beams not monolithic with slab on grade. When grade beam is cast against earth, increase beam width indicated on Drawings by 2 inches.

I. Corrugated Fiberboard Carton Forms:

03100-2

1. Corrugated fiberboard carton forms, when called for, are intended to form a void space beneath pile-supported and pier-supported slabs and other structural elements as shown.
2. Provide products of a reputable manufacturer regularly engaged in commercial production of double-faced corrugated fiberboard carton forms, constructed of waterproof paper and laminated with waterproof adhesive.
3. Fiberboard forms: Capable of supporting required dead load plus construction loads, and designed to lose their strength upon prolonged contact with moisture and soil bacteria.
4. Seal cuts and ends of each form section by dipping in waterproof wax, unless liners and flutes are completely impregnated with waterproofing.
5. Size forms as indicated on Drawings. Assemble as recommended by manufacturer, either with steel banding at 4 feet 0 inches maximum on centers, or, where liners and flutes are impregnated with waterproofing, with adequate stapling.

J. Circular Forms:

1. Form round-section members with paper or fiber tubes, constructed of laminated plies using water-resistant adhesive with wax-impregnated exterior for weather and moisture protection. Provide units with sufficient wall thickness to resist loads imposed by wet concrete without deformation. Provide manufacturer's seamless units to minimize spiral gaps and seams.
2. Fiberglass or steel forms may be used for round-section members.

K. Shores: Wood or adjustable metal, with bearing plates; with double wedges at lower end.

L. Form Ties:

1. Use commercially-manufactured ties, hangers and other accessories for embedding in concrete. Do not use wire not commercially fabricated for use as a form accessory.
2. Fabricate ties so ends or end fasteners can be removed without causing spalling of concrete faces. Depth from formed concrete face to the embedded portion: At least 1 inch, or twice the minimum dimension of tie, whichever is greater.
3. Provide waterstop feature for form ties used on liquid-containing structures and on concrete walls which will have earth backfill on one side.
4. Removable ties: Taper ties may be used when approved by the City Engineer. In the hole left by the removal of the taper tie, insert a preformed neoprene or polyurethane plug sized to seat at the center of the wall.

M. Form Coating: Commercial formulation of form oil or form-release agent having proven satisfactory performance. Coating shall not bond with, stain or otherwise adversely affect concrete surfaces, or impair their subsequent treatment, including application of bonding agents, curing compounds, paint, protective liners and membrane waterproofing.

N. Coating for Plastic Forms: Alkali-resistant gel-coat.

O. Chamfer Strips: Unless otherwise indicated on Drawings, provide 3/4-inch chamfer strips in corners of forms to produce beveled edges where required by Part 3, Execution.

P. Form Gaskets: Polyethylene rod, closed cell, one-inch diameter.

2 DESIGN OF FORMWORK

A. Conform to ACI 117, ACI 347 and City building codes, unless more restrictive requirements are specified or shown on Drawings. Contractor shall design and engineer concrete formwork, including shoring and bracing. Design formwork for applicable gravity loads, lateral pressure, wind loads and allowable stresses. Camber formwork to compensate for anticipated deflection during placement of concrete when required to maintain specified tolerances. Design formwork to be readily removed without impact, shock or damage to concrete surfaces and adjacent materials.

B. Slip Forming: Permitted on written approval of City Engineer. Contractor shall demonstrate suitability of method proposed.

PART 3 EXECUTION

1 INSTALLATION

A. Formwork Construction

1. Construct and maintain formwork so that it will maintain correct sizes of members, shape, alignment, elevation and position during concrete placement and until concrete has gained sufficient strength. Provide for required openings, offsets, sinkages, keyways, recesses, moldings, anchorages and inserts.

2. Construct forms for easy removal without damage to concrete surfaces.

3. Make formwork sufficiently tight to prevent leakage of cement paste during concrete placement. Solidly butt joints and provide backup material at joints as required to prevent leakage and fins. Provide gaskets for wall forms to prevent concrete paste leakage at their base.

4. Place chamfer strips in forms to bevel edges and corners permanently exposed to view, except top edges of walls, and slabs which are indicated on Drawings to be tooled. Do not bevel edges of formed joints and interior corners unless indicated on Drawings. Form beveled edges for vertical and horizontal corners of equipment bases. Unless otherwise indicated on Drawings, make bevels 3/4 inch wide.

5. Provide temporary openings at bases of column and wall forms and other points as required for observation and cleaning immediately before concrete is placed.
6. Where runways are required for moving equipment, support runways directly on the formwork or structural members. Do not allow runways or supports to rest on reinforcing steel.
7. Use smooth forms on formed concrete surfaces required to have smooth form finish or rubbed finish as specified in Section 03350 - Concrete Finishing.
8. Rough forms may be used on formed concrete surfaces indicated to have rough form finish as specified in Section 03350 - Concrete Finishing.

B. Forms for Surfaces Requiring Smooth Form Finish:

1. Drill forms to suit ties used and to prevent leakage of concrete mortar around tie holes. Uniformly space form ties and align in horizontal and vertical rows. Install taper ties, if used, with the large end on the wet face of the wall.
2. Provide sharp, clean corners at intersecting planes, without visible edges or offsets. Back up joints with extra studs or girts to maintain true, square intersections.
3. Form molding shapes, recesses and projections with smooth-finish materials and install in forms with sealed joints to prevent displacement.
4. Form exposed corners of beams and columns to produce square, smooth, solid, unbroken lines.
5. Provide exterior exposed edges with 3/4-inch chamfer or 3/4-inch radius.
6. Arrange facing material in orderly and symmetrical fashion. Keep number of joints to practical minimum. Support facing material adequately to prevent deflection in excess of allowable tolerances.
7. For flush surfaces exposed to view in completed structure, overlap previously-placed hardened concrete with form sheathing by approximately 1 inch. Hold forms against hardened concrete to maintain true surfaces, preventing offsets or loss of mortar.

C. Forms for Surfaces Requiring Rubbed Finish: Provide forms as specified in Paragraph 3.01B, Smooth Form Finish. Use smooth plywood or fiberboard linings or forms, in as large sheets as practicable, and with smooth, even edges and close joints.

D. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface. Provide and secure supports for types of screeds required.

E. Circular Forms: Set forms in one piece for full height of member.

F. Surfaces to Receive Membrane Waterproofing: Coordinate surface finish, anchors, reglets and similar requirements with membrane waterproofing applicator.

G. Fireproofing Steel Member: Construct forms to provide not less than the concrete thickness necessary, measured from face of steel member, to provide the required fire rating. Forms for concealed surfaces may be unlined.

H. Tolerances:

1. Unless noted otherwise on Drawings, construct formwork so concrete surfaces will conform to tolerance limits listed in Tables 03100A and 03100B at end of this Section.
2. Establish sufficient control points and bench marks as references for tolerance checks. Maintain these references in undisturbed condition until final completion and acceptance of the Work.

I. Adjustment of Formwork:

1. Use wedges or jacks to provide positive adjustment of shores and struts. After final inspection and before concrete placement, fasten in position wedges used for final adjustment of forms.
2. Brace forms securely against lateral deflections. Prepare to compensate for settling during concrete placement.
3. For wall openings, construct wood forms that facilitate necessary loosening to counteract swelling of forms.

J. Corrugated Fiberboard Carton Forms:

1. Place on smooth firm bed of suitable material to prevent vertical displacement; set tight to prevent horizontal displacement. Exercise care to avoid buckling of forms. Install in accordance with manufacturer's directions and recommendations.
2. Fit carton forms tightly around piles and piers; completely fill the space between subgrade and concrete placement with carton forms to form a void space.
3. Protect carton forms from moisture and maintain in a dry condition until concrete is placed on them. If they become wet before placement of concrete, allow them to dry and carefully inspect for strength before concrete is placed.
4. Before concrete placement, replace damaged or deteriorated forms which are incapable of supporting concrete dead load plus construction live loads.

2 PREPARATION OF FORM SURFACES

A. Clean surfaces of forms and embedded materials before placing concrete. Remove accumulated mortar, grout, rust and other foreign matter.

B. Coat forms for exposed or painted concrete surfaces with form oil or form-release agent before placing reinforcement. Cover form surfaces with coating material in accordance with manufacturer's printed instructions. Do not allow excess coating material to accumulate in forms

or to contact hardened concrete against which fresh concrete will be placed. Remove coating material from reinforcement before placing concrete.

C. Forms for unexposed surfaces, other than retained-in-place metal forms, may be wet with water immediately before concrete placement in lieu of coating. When possibility of freezing temperatures exists, however, the use of coating is mandatory.

3 REMOVAL OF FORMS

A. Time Limits:

1. When repair of surface defects or finishing is required before concrete is aged, forms on vertical surfaces may be removed as soon as concrete has hardened sufficiently to resist damage from removal operations.
2. Remove top forms on sloping surfaces of concrete as soon as concrete has attained sufficient stiffness to prevent sagging. Loosen wood forms for wall openings as soon as this can be accomplished without damage to concrete. Leave formwork for water-retaining structures in place for at least 2 days. Formwork for non-water-retaining columns, walls, sides of beams and other formwork components not supporting weight of concrete may be removed after 12 hours, provided concrete has hardened sufficiently to resist damage from removal operations, and provided removal of forms will not disturb members supporting weight of concrete.
3. Forms and shoring supporting weight of concrete or construction loads: Leave in place until concrete has reached minimum strength specified for removal of forms and shoring. Do not remove such forms in less than 4 days.

B. Circular Paper or Spiral Tube Forms: Follow manufacturer's directions for form removal. Take necessary precautions to prevent damage to concrete surface. When removal is done before completion of curing time, replace form, tie in place and seal to retard escape of moisture.

C. Removal Strength:

1. Control Tests: Suitable strength-control tests will be required as evidence that concrete has attained specified strength for removal of formwork or shoring supporting weight of concrete in beams, slabs and other structural members. Furnish test cylinders and data to verify strength for early form removal.
 - a. Field-cured Test Cylinders: When field-cured test cylinders reach specified removal strength, formwork or shoring may be removed from respective concrete placements.
 - b. Laboratory-cured Test Cylinders: When concrete has been cured as specified for structural concrete for same time period required by laboratory-cured cylinders to reach specified strength, formwork or shoring may be removed from respective concrete placements. Determine length of time that concrete has been cured by totaling the days or fractions of days, not necessarily consecutive, during which air temperature surrounding concrete is above 50 degrees F and concrete has been damp or thoroughly sealed against evaporation and loss of moisture.

2. Compressive Strengths: The minimum concrete compressive strength for removal of formwork supporting weight of concrete is 75 percent of specified minimum 28-day strength for class of concrete involved.

4 RESHORING

- A. When reshoring is permitted, plan operations in advance and obtain City Engineer's approval of such operations. While reshoring is under way, keep live load off new construction. Do not permit concrete in any beam, slab, column or other structural member to be subjected to combined dead and construction loads in excess of loads permitted for developed concrete strength at time of reshoring.
- B. Place reshores as soon as practicable after form-stripping operations are complete but in no case later than end of day on which stripping occurs. Tighten reshores to carry required loads without over stressing construction. Leave reshores in place until tests representative of concrete being supported have reached specified strength at time of removal of formwork supporting weight of concrete.
- C. Floors supporting shores under newly-placed concrete: Leave original supporting shores in place, or re-shore. Locate reshores directly under shore position above. Extend reshoring over a sufficient number of stories to distribute weight of newly-placed concrete, forms and construction live loads in such manner that design superimposed loads of floors supporting shores are not exceeded.

5 FORM REUSE

- A. Do not reuse forms that are worn or damaged beyond repair. Thoroughly clean and recoat forms before reuse. For wood and plywood forms to be used for exposed smooth finish, sand or otherwise dress concrete contact surface to original condition or provide form liner facing material. For metal forms, straighten, remove dents and clean to return forms to original condition.

Table 03100A

TOLERANCES FOR FORMED SURFACES CONCRETE IN BUILDINGS**				
VARIATION FROM	VARIATION IN	FOR ANY 10-FOOT LENGTH	FOR ANY 20-FOOT LENGTH OR ANY BAY	MAXIMUM FOR ENTIRE DIMENSION
PLUMB OR SPECIFIED BATTER	LINES AND SURFACES OF COLUMNS, PIERS, WALLS AND ARRISES	1/4"	---	1"
	EXPOSED CORNER COLUMNS, CONTROL JOINT GROOVES, AND OTHER CONSPICUOUS LINES	---	1/4"	1/2"
LEVEL OR SPECIFIED GRADE	SLAB SOFFITS, CEILINGS, BEAM SOFFITS, AND ARRISES (MEASURED BEFORE REMOVAL OF SHORES)	1/4"	3/8"	3/4"
	EXPOSED LINTELS, SILLS, PARAPETS, HORIZONTAL GROOVES AND OTHER CONSPICUOUS LINES	---	1/4"	1/2"
DRAWING DIMENSIONS	POSITION OF LINEAR BUILDING LINES, COLUMNS, WALLS, AND PARTITIONS	---	1/2"	1"
	SIZE AND LOCATION OF SLEEVES, FLOOR OPENINGS AND WALL OPENINGS	---	---	+1/4"
	CROSS SECTION OF COLUMNS, BEAMS, SLABS, AND WALLS	---	---	+1/2", -1/4"
	FOOTINGS* IN PLAN	---	---	+2", -1/2"
	FOOTING MISPLACEMENT OR ECCENTRICITY IN DIRECTION OF ERROR (THE LESSER OF)	---	---	2% OF WIDTH OR 2"
	FOOTING THICKNESS DECREASE	---	---	5%
	FOOTING THICKNESS INCREASE	---	---	NO LIMIT
	STEP RISE IN FLIGHT OF STAIRS	---	---	+1/8"
	STEP TREAD IN FLIGHT OF STAIRS	---	---	+1/4"
	CONSECUTIVE STEP RISE	---	---	+1/16"
	CONSECUTIVE STEP TREAD	---	---	+1/8"

* Footing tolerances apply to concrete dimensions only, not to positioning of vertical reinforcing steel, dowels, or embedded items.

** Includes water and wastewater process structures.

TABLE 03100B

TOLERANCES FOR FORMED SURFACES CONCRETE IN BRIDGES, WHARVES AND MARINE STRUCTURES		
VARIATION FROM	VARIATION IN	MAXIMUM
PLUMB OR SPECIFIED BATTER	SURFACES OF COLUMNS, PIERS AND WALLS	1/2" in 10'
LEVEL OR SPECIFIED GRADE	TOP SURFACES OF SLABS	See Section 03345
	TOP SURFACES OF CURBS AND RAILINGS	3/16" in 10'
DRAWING DIMENSIONS	CROSS SECTION OF COLUMNS, CAPS, WALLS, BEAMS AND SIMILAR MEMBERS	+1/2", -1/4"
	THICKNESS OF DECK SLABS	+1/4", - 1/8"
	SIZE AND LOCATION OF SLAB AND WALL OPENINGS	+ 1/2"
	FOOTINGS IN PLAN	+2", -1/2"
	FOOTING MISPLACEMENT OR ECCENTRICITY IN DIRECTION OF ERROR (THE LESSER OF)	2% of WIDTH OR 2"
	FOOTING THICKNESS DECREASE	5%
	FOOTING THICKNESS INCREASE	NO LIMIT
	STEP RISE IN FLIGHT OF STAIRS	+1/8"
	STEP TREAD IN FLIGHT OF STAIRS	+1/4"
	CONSECUTIVE STEP RISE	+1/16"
	CONSECUTIVE STEP TREAD	+1/8"

END OF SECTION

REINFORCING STEEL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Structural concrete reinforcement and grouting of reinforcement dowel bars into hardened concrete.

1.02 UNIT PRICES

- A. No separate payment will be made for reinforcing steel or grouting that is part of the Work as bid. Include payment in unit price for structural concrete.
- B. Measurement for reinforcing steel installed as extra work is on a per-pound basis.
- C. Refer to Section 01270 - Measurement and Payment for unit price procedures.

1.03 REFERENCES

- A. ACI 315 - Details and Detailing of Concrete Reinforcement.
- B. ACI 318 - Building Code Requirements for Reinforced Concrete.
- C. ASTM A 36 - Standard Specification for Structural Steel.
- D. ASTM A 82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
- E. ASTM A 185 - Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
- F. ASTM A 497 - Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement.
- G. ASTM A 615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
- H. ASTM A 675 - Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality, Mechanical Properties.
- I. ASTM A 775/A 775M - Standard Specification for Epoxy-Coated Reinforcing Steel Bars.

- J. ASTM C 881 - Specification for Epoxy-Resin-Base Bonding Systems for Concrete.
- K. AWS D 1.4 - Structural Welding Code – Reinforcing Steel.
- L. WRI - Manual of Standard Practice for Welded Wire Fabric.
- M. CRSI MSP-1 - Manual of Standard Practice.

1.04 SUBMITTALS

- A. Conform to Section 01330 - Submittal Procedures.
- B. Shop Drawings:
 - 1. Submit shop drawings detailing reinforcement fabrication, bar placement location, splices, spacing, bar designation, bar type, length, size, bending, number of bars, bar support type and other pertinent information, including dimensions. Provide sufficient detail for placement of reinforcement without use of Contract Drawings. Information shall correspond directly to data listed on bill of materials.
 - 2. Use of reproductions of Contract Drawings by Contractor, Subcontractor, erector, fabricator or material supplier in preparation of shop drawings (or in lieu of preparation of shop drawings) signifies acceptance by that party of information shown thereon as correct, and acceptance of obligation to pay for any job expense, real or implied, arising due to errors that may occur thereon. Remove references to Design Engineer, including seals, when reproductions of Contract Drawings are used as shop drawings.
 - 3. Detail shop drawings in accordance with ACI 315, Figure 6.
 - 4. Submit shop drawings showing location of proposed additional construction joints and obtain approval of City Engineer, prior to submitting reinforcing steel shop drawings.
- C. Bill of Materials: Submit with shop drawings.
- D. Product Data:
 - 1. Mechanical Bar Splices: Submit manufacturer's technical literature, including specifications and installation instructions.
 - 2. Epoxy grout proposed for anchoring reinforcing dowels to hardened concrete: Submit manufacturer's technical literature including recommended installation procedures.

E. Certificates:

1. Submit steel manufacturer's certificates of mill tests giving properties of steel proposed for use. List manufacturer's test number, heat number, chemical analysis, yield point, tensile strength and percentage of elongation. Identify proposed location of steel in work.
2. Foreign-manufactured reinforcing bars shall be tested for conformance to ASTM requirements by a certified independent testing laboratory located in United States. Certification from any other source is not acceptable. Submit test reports for review. Do not begin fabrication of reinforcement until material has been approved.

1.05 HANDLING AND STORAGE

- A. Store steel reinforcement above ground on platforms, skids or other supports. Protect reinforcing from mechanical injury, surface deterioration and formation of excessive, loose or flaky rust caused by exposure to weather. Protect epoxy-coated reinforcing from formation of any amount of rust.

1.06 QUALITY ASSURANCE

- A. Notify City Engineer at least 48 hours before concrete placement so that reinforcement may be inspected, and errors corrected, without delaying Work.

PART 2 PRODUCTS

2.01 MATERIAL

- A. Reinforcing Bars: Deformed bars conforming to ASTM A 615, grade as indicated on Drawings, except column spirals and those shown on Drawings to be smooth bars. Where grade is not shown on Drawings, use Grade 60.
- B. Smooth Bars: Where indicated on Drawings, use smooth bars conforming to ASTM A 615, Grade 40.
- C. Column Spirals: Bars conforming to ASTM A 615, Grade 60, or wire conforming to ASTM A 82.
- D. Epoxy-Coated Deformed Bars, Column Spirals and Smooth Bars: Conform to ASTM A 775/A 775M.
- E. Welded Wire Fabric:
1. Welded Smooth Wire Fabric: Conform to ASTM A 185.

2. Welded Deformed Wire Fabric: Conform to ASTM A 497.
 3. Provide wire size, type and spacing as shown. Where type is not shown on Drawings, use welded smooth wire fabric.
 4. Furnish welded wire fabric in flat sheets only.
- F. Tie Wire: 16-1/2 gage or heavier annealed steel wire. Use plastic-coated tie wire with epoxy-coated reinforcing steel.
- G. Bar Supports: Provide chairs, riser bars, ties and other accessories made of plastic or metal, except as otherwise specified. Use bar supports and accessories of sizes required to provide required concrete cover. Where concrete surfaces are exposed to weather, water or wastewater, provide plastic accessories only; do not use galvanized or plastic-tipped metal in such locations. Provide metal bar supports and accessories rated Class 1 or 2 conforming to CRSI MSP-1 Manual of Standard Practice. Use epoxy-coated bar supports with epoxy-coated reinforcing bars.
- H. Slabs-on-Grade: Provide chairs with sheet metal bases or provide precast concrete bar supports 3 inches wide, 6 inches long, and thick enough to allow required cover. Embed tie wires in 3-inch by 6-inch side.
- I. Mechanical Bar Splices:
1. Conform to ACI 318; use where indicated on Drawings.
 - a. Compression splices shall develop ultimate stress of reinforcing bar.
 - b. Tension splices shall develop 125 percent of minimum yield point stress of reinforcing bar.
 2. Regardless of chemical composition of steel, any heat effect shall not adversely affect performance of reinforcing bar.
- J. Welded Splices:
1. Provide welded splices where shown and where approved by the City Engineer. Welded splices of reinforcing steel shall develop a tensile strength exceeding 125 percent of the yield strength of the reinforcing bars connected.
 2. Provide materials for welded splices conforming to AWS D1.4.

- K. Epoxy Grout: High-strength rigid epoxy adhesive, conforming to ASTM C 881, Type IV, manufactured for purpose of anchoring dowels into hardened concrete and the moisture condition, application temperature and orientation of the hole to be filled. Unless otherwise shown, depth of embedment shall be as required to develop the full tensile strength (125 percent of yield strength) of dowel, but not less than 12 diameters.

2.02 FABRICATION

- A. Bending: Fabricate bars to shapes indicated on Drawings by cold bending. Bends shall conform to minimum bend diameters specified in ACI 318. Do not straighten or rebend bars. Fabricate epoxy-coated reinforcing steel to required shapes in a manner that will not damage epoxy coating. Repair any damaged epoxy coating with patching material conforming to Item 4.4 of ASTM A 775/A 775M.
- B. Splices:
 - 1. Locate splices as indicated on Drawings. Do not locate splices at other locations without approval of City Engineer. Use minimum number of splices located at points of minimum stress. Stagger splices in adjacent bars.
 - 2. Length of lap splices: As shown on Drawings.
 - 3. Prepare ends of bars at mechanical splices in accordance with splice manufacturer's requirements.
- C. Construction Joints: Unless otherwise shown, continue reinforcing through construction joints.
- D. Bar Fabrication Tolerances: Conform to tolerances listed in ACI 315, Figures 4 and 5.
- E. Standard Hooks: Conform to the requirements of ACI 318.
- F. Marking: Clearly mark bars with waterproof tags showing number of bars, size, mark, length and yield strength. Mark steel with same designation as member in which it occurs.

PART 3 EXECUTION

3.01 PREPARATION

- A. Clean reinforcement of scale, loose or flaky rust and other foreign material, including oil, mud or coating that will reduce bond to concrete.

3.02 INSTALLATION

- A. Placement Tolerances: Place reinforcement within tolerances of Table 03210A at the end of this Section. Bend tie wire away from forms to maintain the specified concrete coverage.
- B. Interferences: Maintain 2-inch clearance from embedded items. Where reinforcing interferes with location of other reinforcing steel, conduit or embedded items, bars may be moved within specified tolerances or one bar diameter, whichever is greater. Where greater movement of bars is required to avoid interference, notify the City Engineer. Do not cut reinforcement to install inserts, conduit, mechanical openings or other items without approval of City Engineer.
- C. Concrete Cover: Provide clear cover measured from reinforcement to face of concrete as listed in Table 03210B at the end of this Section, unless otherwise indicated on Drawings.
- D. Placement in Forms: Use spacers, chairs, wire ties and other accessory items necessary to assemble, space and support reinforcing properly. Provide accessories of sufficient number, size and strength to prevent deflection or displacement of reinforcement due to construction loads or concrete placement. Use appropriate accessories to position and support bolts, anchors and other embedded items. Tie reinforcing bars at each intersection, and to accessories. Blocking reinforcement with concrete or masonry is prohibited.
- E. Placement for Concrete on Ground: Support bar and wire reinforcement on chairs with sheet metal bases or precast concrete blocks spaced at approximately 3 feet on centers each way. Use minimum of one support for each 9 square feet. Tie supports to reinforcing bars and wires.
- F. Vertical Reinforcement in Columns: Offset vertical bars by at least one bar diameter at splices. Provide accurate templates for column dowels to ensure proper placement.
- G. Splices:
 - 1. Do not splice bars, except at locations indicated on Drawings or reviewed shop drawings, without approval of City Engineer.
 - 2. Lap Splices: Unless otherwise shown or noted, Class B, conforming to ACI 318-95, Section 12.15.1. Tie securely with wire prior to concrete placement, to prevent displacement of splices during concrete placement.
 - 3. Mechanical Bar Splices: Use only where indicated on Drawings or approved by the City Engineer. Install in accordance with manufacturer's instructions.

- a. Couplers located at a joint face shall be of a type which can be set either flush or recessed from the face as shown. Seal couplers prior to concrete placement to completely eliminate concrete or cement paste from entering.
 - b. Couplers intended for future connections: Recess 1/2 inch minimum from concrete surface. After concrete is placed, plug coupler and fill recess with sealant to prevent contact with water or other corrosive materials.
 - c. Unless noted otherwise, match mechanical coupler spacing and capacity to that shown for the adjacent reinforcing.
- H. Construction Joints: Place reinforcing continuous through construction joints, unless noted otherwise.
- I. Welded Wire Fabric: Install wire fabric in as long lengths as practicable. Unless otherwise indicated on Drawings, lap adjoining pieces at least 6 inches or one full mesh plus 2 inches, whichever is larger. Lace splices with wire. Do not make end laps midway between supporting beams, or directly over beams of continuous structures. Offset end laps in adjacent widths to prevent continuous laps. Conform to WRI – Manual of Standard Practice for Welded Wire Fabric.
- J. Field Bending: Shape reinforcing bent during construction operations to conform to Drawings. Bars shall be cold-bent; do not heat bars. Closely inspect reinforcing for breaks. When reinforcing is damaged, replace, Cadweld, or otherwise repair, as directed by City Engineer. Do not bend reinforcement after it is embedded in concrete.
- K. Epoxy-coated Reinforcing Steel: Install in accordance with Paragraph 3.02J, Field Bending, and in a manner that will not damage epoxy coating. Repair damaged epoxy coating with patching material as specified in Paragraph 2.02A, Bending.
- L. Field Cutting: Cut reinforcing bars by shearing or sawing. Do not cut bars with cutting torch.
- M. Welding of reinforcing bars is prohibited, except where shown on Drawings.

3.03 GROUTING OF REINFORCING AND DOWEL BARS

- A. Epoxy Grout Anchoring: Unless indicated otherwise on the Drawings, use epoxy grout for anchoring reinforcing and dowel steel to existing concrete in accordance with epoxy manufacturer's instructions. Drill hole not more than 1/4 inch larger than steel bar diameter (including height of deformations for deformed bars) in existing concrete. Just before installation of steel, blow hole clean of all debris using compressed air. Partially fill hole with epoxy, using enough epoxy so when steel bar

is inserted, epoxy grout will completely fill hole around bar. Dip end of steel bar in epoxy and twist bar while inserting into partially-filled hole.

- B. Adhesive Anchoring: Where indicated on the Drawings, use HVA or HIT adhesive anchoring system, as manufactured by Hilti, Corporation, or equal, for anchoring reinforcing and dowel steel to existing concrete. Drill holes and install adhesive anchors in accordance with the manufacturer's written instructions.

Table 03210A
REINFORCEMENT PLACEMENT TOLERANCES

PLACEMENT	TOLERANCE IN INCHES
Clear Distance - To formed soffit: To other formed surfaces: Minimum spacing between bars:	-1/4 ±1/4 -1/4
Clear distance from unformed surface to top reinforcement - Members 8 inches deep or less: Members more than 8 inches deep but less than 24 inches deep: Members 24 inches deep or greater: Uniform spacing of bars (but the required number of bars shall not be reduced): Uniform spacing of stirrups and ties (but the required number of stirrups and ties shall not be reduced):	±1/4 -1/4, +1/2 -1/4, +1 ±2 ±1
Longitudinal locations of bends and ends of reinforcement - General: Discontinuous ends of members: Length of bar laps:	±2 ±1/2 -1-1/2
Embedded length - For bar sizes No. 3 through 11: For bar sizes No. 14 and 18:	-1 -2

Table 03210B
MINIMUM CONCRETE COVER FOR REINFORCEMENT

SURFACE	MINIMUM COVER IN INCHES
Slabs and Joists – Top and bottom bars for dry conditions – No. 14 and No. 18 bars: No. 11 bars and smaller:	1-1/2 1
Formed concrete surfaces exposed to earth, water or weather; over, or in contact with, sewage; and for bottoms bearing on work mat, or slabs supporting earth cover – No. 5 bars and smaller: No. 6 through No. 18 bars:	1-1/2 2
Beams and Columns - For dry conditions – Stirrups, spirals and ties: Principal reinforcement: Exposed to earth, water, sewage or weather - Stirrups and ties: Principal reinforcement:	1-1/2 2 2 2-1/2
Walls - For dry conditions – No. 11 bars and smaller: No. 14 and No. 18 bars: Formed concrete surfaces exposed to earth, water, sewage or weather, or in contact with ground – Circular tanks with ring tension: All others:	1 1-1/2 2 2
Footings and Base Slabs – At formed surfaces and bottoms bearing on concrete work mat: At unformed surfaces and bottoms in contact with earth: Over top of piles: Top of footings -- same as slabs	 2 3 2

END OF SECTION

SECTION 03310

STRUCTURAL CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Cast-in-place normal-weight structural concrete and mass concrete.

1.02 UNIT PRICES

- A. Measurement for structural concrete is on lump-sum basis for each structure as bid. Payment includes related work performed on these structures in accordance with related sections of these Specifications.
- B. Measurement for extra structural concrete is on cubic-yard basis. Payment includes related work performed in accordance with related sections.
- C. Refer to Section 01270 - Measurement and Payment for unit price procedures.

1.03 REFERENCES

- A. ACI 301 - Specifications for Structural Concrete for Buildings.
- B. ACI 304.2R - Placing Concrete by Pumping Methods
- C. ACI 305R - Hot Weather Concreting.
- D. ACI 306.1 - Standard Specification for Cold Weather Concreting.
- E. ACI 309R - Guide for Consolidation of Concrete.
- F. ACI 318 - Building Code Requirements for Reinforced Concrete.
- G. ACI 350R - Environmental Engineering Concrete Structures.
- H. ASTM C 31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
- I. ASTM C 33 - Standard Specification for Concrete Aggregates.
- J. ASTM C 39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.

- K. ASTM C 42 - Standard Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
- L. ASTM C 88 - Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
- M. ASTM C 94 - Standard Specifications for Ready-Mixed Concrete.
- N. ASTM C 127 - Standard Test Method for Specific Gravity and Absorption of Coarse Aggregate.
- O. ASTM C 131 - Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
- P. ASTM C 136 - Sieve Analyses of Fine and Coarse Aggregates.
- Q. ASTM C 143 - Standard Test Method for Slump of Hydraulic Cement Concrete.
- R. ASTM C 150 - Standard Specification for Portland Cement.
- S. ASTM C 157 - Test Method for Length Change of Hardened Hydraulic Cement Mortar and Concrete.
- T. ASTM C 172 - Standard Practice for Sampling Freshly Mixed Concrete.
- U. ASTM C 173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
- V. ASTM C 192 - Method of Making and Curing Concrete Test Specimens in the Laboratory.
- W. ASTM C 231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
- X. ASTM C 260 - Standard Specification for Air-Entraining Admixtures for Concrete.
- Y. ASTM C 330 - Standard Specification for Lightweight Aggregates for Structural Concrete.
- Z. ASTM C 494 - Standard Specification for Chemical Admixtures for Concrete.
- AA. ASTM C 535 - Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

- AB. ASTM C 567 - Standard Test Method for Unit Weight of Structural Lightweight Concrete.
- AC. ASTM C 1064 - Standard Test Method for Temperature of Freshly Mixed Portland Cement Concrete.
- AD. Concrete Plant Manufacturer's Bureau (CPMB), Plant Mixer Manufacturers Division: Concrete Plant Mixer Standards.
- AE. National Ready-Mixed Concrete Association (NRMCA): Certification of Ready-Mixed Concrete Production Facilities (checklist with instructions).
- AF. John Wiley and Sons, Interscience Publishers Division, "Encyclopedia of Industrial Chemical Analysis," Vol. 15, Page 230 (alkalinity test procedure).

1.04 DEFINITIONS

- A. Mass Concrete: Concrete sections 4 feet or more in least dimension.
- B. Hot Weather: Any combination of high air temperature, low relative humidity and wind velocity tending to impair quality of fresh or hardened concrete or otherwise resulting in abnormal properties.
- C. Cold Weather: Period when, for more than 2 successive days, mean daily temperature is below 40 degrees F.

1.05 SUBMITTALS

- A. Conform to Section 01330—Submittal Procedures.
- B. Mill Certificates: Required for bulk cement.
- C. Design Mixes:
 - 1. Submit test data on proposed design mixes for each type of concrete in the Work, including each class, and variations in type, source or quantity of material. Include type, brand and amount of cementitious materials; type, brand and amount of each admixture; slump; air content; aggregate sources, gradations, specific gravity and absorption; total water (including moisture in aggregate); water/cement ratio; compressive strength test results for 7 and 28 days; and shrinkage tests for Class C and D concrete at 21 or 28 days of drying.
 - 2. Submit abrasion loss and soundness test results for limestone aggregate.

3. Testing of aggregates, including sieve analysis, shall be performed by a certified independent testing laboratory. Tests shall have been performed no earlier than 3 months before Notice to Proceed.
 4. Provide standard deviation data for plant producing concrete. Data shall include copies of laboratory test results and standard deviation calculated in accordance with ACI 318, Item 5.3.1. Laboratory tests shall have been performed within past 12 months. When standard deviation data is not available, comply with ACI 318, Table 5.3.2.2.
 5. Review and acceptance of mix design does not relieve Contractor of responsibility to provide concrete of quality and strength required by these Specifications.
- D. Admixtures: Submit manufacturer's technical information, including following:
1. Air-Entraining Admixture: Give requirements to control air content under all conditions, including temperature variations and presence of other admixtures.
 2. Chemical Admixtures: Give requirements for quantities and types to be used under various temperatures and job conditions to produce uniform, workable concrete mix. Submit evidence of compatibility with other admixtures and cementitious materials proposed for use in design mix.
- E. High-range Water Reducer (Superplasticizer): When proposed for use, submit manufacturer's technical information and instructions for use of superplasticizer. State whether superplasticizer will be added at ready-mix plant or job site. When superplasticizer will be added at job site, submit proposed plan for measuring and adding superplasticizer to concrete mix at job site, and establish dosing area on site with holding tanks and metering devices. When superplasticizer is to be added at ready-mix plant, submit contingency plans for adding additional superplasticizer at job site when required due to delay in placing concrete. Identify portions of Work on which superplasticizer is proposed for use.
- F. Hot and Cold Weather Concreting: Submit, when applicable, proposed plans for hot and cold weather concreting. Review and acceptance of proposed procedure will not relieve Contractor of responsibility for quality of finished product.
- G. Project Record Drawings: Accurately record actual locations of embedded utilities and components that are concealed from view.

1.06 QUALITY ASSURANCE

- A. Provide necessary controls during evaluation of materials, mix designs, production and delivery of concrete, placement and compaction to assure that the Work will be

accomplished in accordance with Contract Documents. Maintain records of concrete placement. Record dates, locations, quantities, air temperatures, and test samples taken.

B. Code Requirements: Concrete construction for buildings shall conform to ACI 318. Concrete construction for water and wastewater treatment and conveying structures shall conform to ACI 318 with modifications by ACI 350.4R-04. Where this Specification conflicts with ACI 318, ACI 350.4R-04 governs.

C. Testing and Other Quality Control Services:

1. Concrete testing required in this section, except concrete mix design, limestone aggregate test data, and testing of deficient concrete, will be performed by an independent commercial testing laboratory employed and paid by the City in accordance with Section 01454 - Testing Laboratory Services.
2. Provide material for and cooperate fully with the City's testing laboratory technician in obtaining samples for required tests.
3. Standard Services: The following testing and quality control services will be provided in accordance with Section 01454 - Testing Laboratory Services:
 - a. Verification that plant equipment and facilities conform to NRMCA "Certification of Ready-Mix Concrete Production Facilities".
 - b. Testing of proposed materials for compliance with this Specification.
 - c. Review of proposed mix design submitted by Contractor.
 - d. Obtaining production samples of materials at plants or stockpiles during work progress and testing for compliance with this Specification.
 - e. Strength testing of concrete according to following procedures:
 - (1) Obtaining samples for field test cylinders from every 100 cubic yards and any portion less than 100 cubic yards for each mix design placed each day, according to ASTM C 172, with each sample obtained from a different batch of concrete on a representative, random basis. Selecting test batches by any means other than random numbers chosen before concrete placement begins is not allowed.
 - (2) Molding four specimens from each sample according to ASTM C 31, and curing under standard moisture and

temperature conditions as specified in Sections 7(a) and (b) of ASTM C 31.

- (3) Testing two specimens at 7 days and two specimens at 28 days according to ASTM C 39, reporting test results averaging strengths of two specimens. However, when one specimen evidences improper sampling, molding or testing, it will be discarded and remaining cylinder considered test result. When high-early-strength concrete is used, specimens will be tested at 3 and 7 days.
- f. Air content: For each strength test, determination of air content of normal weight concrete according to ASTM C 231.
- g. Slump: For each strength test, and whenever consistency of concrete appears to vary, conducting slump test in accordance with ASTM C 143.
- h. Temperature: For each strength test, checking concrete temperature in accordance with ASTM C 1064.
- i. Lightweight concrete: For each strength test, or more frequently when requested by City Engineer, determination of air content by ASTM C 567 and unit weight by ASTM C 567.
- j. Monitoring of current and forecasted climatic conditions to determine when rate of evaporation, as determined by Figure 2.1.5 of ACI 305R, will produce loss of 0.2 pounds of water, or more, per square foot per hour. Testing lab representative will advise Contractor to use hot weather precautions when such conditions will exist during concrete placement, and note on concrete test reports when Contractor has been advised that hot weather conditions will exist.
- k. Class A and D Concrete Shrinkage Tests: Performance of drying shrinkage tests for trial batches as follows:
 - (1) Preparation and Testing of Specimens: Compression and drying shrinkage test specimens will be taken in each case from the same concrete sample; shrinkage tests will be considered a part of the normal compression tests for the project. 4-inch by 4-inch by 11-inch prisms with an effective gage length of 10 inches, fabricated, cured, dried and measured in accordance with ASTM C 157, modified as follows:

- (a) Wet curing: Remove specimens from molds at an age of 23 hours ± 1 hour after trial batching and immediately immerse in water at 70 degrees F ± 3 degrees F for at least 30 minutes.
- (b) Measure within 30 minutes after first 30 minutes of immersion to determine original length (not to be confused with "base length").
- (c) Then submerge in saturated limewater, at 73 degrees F ± 3 degrees F, for 7 days.
- (d) Then measure at age 7 days to establish "base length" for drying shrinkage calculations ("zero" days drying age).
- (e) Calculate expansion (base length expressed as a percentage of original length).
- (f) Immediately store specimens in a temperature- and humidity-controlled room maintained at 73 degrees F, ± 3 degrees F and 50 percent ± 4 percent relative humidity, for the remainder of the test.
- (g) Measure to determine shrinkage, expressed as percentage of base length. Compute the drying shrinkage deformation of each specimen as the difference between the base length (at "zero" days drying age) and the length after drying at each test age. Compute the average drying shrinkage deformation of the specimens to the nearest 0.0001 inch at each test age. If the drying shrinkage of any specimen departs from the average of that test age by more than 0.0004 inch, disregard the results obtained from that specimen. Report results of shrinkage tests to the nearest 0.001 percent of shrinkage.
- (h) Report shrinkage separately for 7, 14, 21, and 28 days of drying after 7 days of moist curing.

D. Additional Testing and Quality Control Services: The following will be performed by an independent commercial testing laboratory employed and paid by the City in accordance with Section 01454 - Testing Laboratory Services, when requested by the City Engineer.

- 1. Checking of batching and mixing operations.

2. Review of manufacturer's report of each cement shipment and conducting laboratory tests of cement.
3. Molding and testing reserve 7-day cylinders or field cylinders.
4. Conducting additional field tests for slump, concrete temperature and ambient temperature.
5. Alkalinity Tests: For concrete used in sanitary structures, one test for each structure. Perform alkalinity tests on concrete covering reinforcing steel on the inside of the pipe or structure in accordance with "Encyclopedia of Industrial Chemical Analysis," Vol. 15, page 230.
6. Contractor shall provide the following testing and quality control services:
 - a. Employ an independent commercial testing laboratory, acceptable to City, to prepare and test design mix for each class of concrete for which material source has been changed.
 - b. Notify commercial testing laboratory employed by City 24 hours prior to placing concrete.
7. Testing of deficient concrete in place:
 - a. When averages of three consecutive strength test results fail to equal or exceed specified strength, or when any individual strength test result falls below specified strength by more than 500 psi, strength of concrete shall be considered potentially deficient and core testing, structural analysis or load testing may be required by City Engineer.
 - b. When concrete in place proves to be deficient, Contractor shall pay costs, including costs due to delays, incurred in providing additional testing and analysis services provided by the City Engineer, or the independent commercial testing laboratory selected by the City.
 - c. Replace concrete work judged inadequate by core tests, structural analysis or load tests at no additional cost to the City.
 - d. Core Tests:
 - (1) Obtain and test cores in accordance with ASTM C 42. Where concrete in structure will be dry under service conditions, air dry cores (temperature 60 to 80 degrees F, relative humidity less than 60 percent) for 7 days before test; test dry. Where concrete in structure will be more than superficially wet under

service conditions, test cores after moisture conditioning in accordance with ASTM C 42.

- (2) Take at least three representative cores from each member or area of concrete in place that is considered potentially deficient. Location of cores shall be determined by Owner's Designated Representative so as to least impair strength of structure. When, before testing, one or more cores shows evidence of having been damaged during or after removal from structure, replace the damaged cores.
 - (3) Concrete in area represented by core test will be considered adequate when average strength of cores is equal to at least 85 percent of specified strength, and when no single core is less than 75 percent of specified strength.
 - (4) Patch core holes in accordance with Section 03350 - Concrete Finishing.
- 8. Structural Analysis: When core tests are inconclusive or impractical to obtain, City Engineer may perform additional structural analysis at Contractor's expense to confirm safety of structure.
 - 9. Load Tests: When core tests and structural analysis do not confirm safety of structure, load tests may be required, and their results evaluated, in accordance with ACI 318
 - 10. Testing by impact hammer, sonoscope, probe penetration tests (Windsor probe), or other nondestructive device may be permitted by City Engineer to determine relative strengths at various locations in structure, to evaluate concrete strength in place, or for selecting areas to be cored. However, such tests, unless properly calibrated and correlated with other test data, shall not be used as basis for acceptance or rejection of structure's safety.

1.07 STORAGE AND HANDLING OF MATERIALS

- A. Cement: Store cement in weathertight buildings, bins or silos to provide protection from dampness and contamination and to minimize warehouse set. When there is any doubt as to expansive potential of shrinkage-compensating cements because of method or length of storage and exposure, laboratory test cement before use.
- B. Aggregate: Arrange and use aggregate stockpiles to avoid excessive segregation or contamination with other materials or with other sizes of like aggregates. Build stockpiles in successive horizontal layers not exceeding 3 feet in thickness. Complete each layer before next is started.

- C. Fine Aggregate: Before using, allow fine aggregate to drain until uniform moisture content is reached.
- D. Admixtures: Store admixtures to avoid contamination, evaporation or damage. For those used in form of suspensions or nonstable solutions, provide suitable agitating equipment to assure uniform distribution of ingredients. Protect liquid admixtures from freezing and other temperature changes that would adversely affect their characteristics.
- E. Lightweight Aggregates: Uniformly predampen lightweight aggregates as necessary to prevent excessive variations in moisture content. Allow predampened aggregates to remain in stockpiles, under continuous fog spray, for minimum of 24 hours before use. Provide adequate drainage in stockpile areas to eliminate excess water and accumulation of contaminated fines.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Cement:
 - 1. Use same brand of cement used in concrete mix design. Use only one brand of each type in each structure, unless otherwise indicated on Drawings.
 - 2. Portland Cement: ASTM C 150, Type I or Type II, gray in color. Use Type III only when specifically authorized by City Engineer in writing. Use Type II in construction of liquid-containing structures and cooling towers, unless shown otherwise on Drawings.
- B. Admixtures:
 - 1. Do not use calcium chloride, thiocyanate or admixtures containing more than 0.05 percent chloride ions.
 - 2. Air-Entraining Admixtures: ASTM C 260, compatible with other admixtures used.
 - 3. Chemical Admixtures: Polymer type, nonstaining, chloride-free admixtures conforming to ASTM C 494, Type A, C, D or E.
 - 4. High-Range Water Reducer (Superplasticizer): ASTM C 494, Type F or G, compatible with and by the same manufacturer as other admixtures.
- C. Mixing Water: Use clean, potable water, free from harmful amounts of oils, acids, alkalis or other deleterious substances, meeting requirements of ASTM C 94.

- D. Aggregates: Use coarse aggregate from only one source, and fine aggregate from only one source, for exposed concrete in any single structure.
1. Coarse Aggregate: Gravel, crushed gravel or crushed limestone conforming to ASTM C 33.
 2. Fine Aggregate: Natural sand complying with ASTM C 33.
 3. Limestone aggregate shall conform to ASTM C 33 and the following additional requirements: Clean, hard, strong and durable particles free of chemicals and coatings of silt, clay, or other fine materials that may affect hydration and bond of cement paste. Select crushed limestone: High-calcium limestone (minimum 95 percent CaCO_3 and maximum 3.5 percent MgCO_3) with maximum Los Angeles Abrasion loss of 38 percent, when tested in accordance with ASTM C 131 or ASTM C 535. Test aggregate for soundness in accordance with ASTM C 88; maximum loss shall not exceed 18 percent after 5 cycles of magnesium sulfate test.
 4. Maximum size of coarse aggregate:
 - a. Normal weight concrete, except as noted below: 1-1/2 inches.
 - b. Formed members 6 inches or less in least dimension: 1/5 least dimension.
 - c. Slabs: 1/3 depth of slab.
 - d. Drilled shafts: 1/3 clearance between reinforcing steel, but not greater than 3/4 inch.
 - e. Concrete fill, seal slabs, and bonded concrete topping in clarifiers: 3/8 inch.
 5. Coarse aggregate for lightweight concrete: ASTM C 330. Grading limits: 3/4 inch to No. 4.
 6. Abrasive Aggregate: Conform to requirements of Section 03350 – Concrete Finishing.
- E. Calcium Chloride: Not permitted.
- F. Evaporation Retardant: Masterbuilders "Confilm", Euclid "Eucobar", or equal.
- G. Miscellaneous Materials:

1. Bonding Agent: Two-component modified epoxy resin.
2. Vapor barrier: 6 mil clear polyethylene film of type recommended for below-grade application.
3. Non-shrink grout: premixed compound consisting of non-metallic aggregate, cement and water-reducing and plasticizing agents; capable of developing minimum compressive strength of 2,400 psi in 48 hours and 7,000 psi in 28 days.

2.02 CONCRETE MIX

- A. Objective: Select proportions of ingredients to produce concrete having proper placability, durability, strength, appearance, and other specified properties.
- B. Mix Design: Employ and pay an independent commercial testing laboratory, acceptable to City, to prepare and test mix designs for each type of concrete specified. Proportion mix design ingredients by weight. Submit mix designs and test results for approval.
 1. During the trial batches, aggregate proportions may be adjusted by the testing laboratory using two coarse aggregate size ranges to obtain the required properties. If one size range produces an acceptable mix, a second size range need not be used. Such adjustments shall be considered refinements to the mix design and shall not be the basis for extra compensation to the Contractor. Concrete shall conform to the requirements of this Section, whether the aggregate proportions are from the Contractor's preliminary mix design, or whether the proportions have been adjusted during the trial batch process. Prepare trial batches using the aggregates, cement and admixtures proposed for the project. Make trial batches large enough to obtain 3 drying shrinkage test specimens and 6 compression test specimens from each batch. Shrinkage testing is required only for Class A and D concrete.
 2. Determine compressive strength by testing 6-inch diameter by 12-inch high cylinders, made, cured and tested in accordance with ASTM C 192 and ASTM C 39. Test 3 compression test cylinders at 7 days and 3 at 28 days. Average compressive strength for the 3 cylinders tested at 28 days for any given trial batch shall be not less than 125 percent of the specified compressive strength.
 3. Perform sieve analysis of the combined aggregate for each trial batch according to of ASTM C 136. Report percentage passing each sieve.
 4. In mix designs for Class A and D concrete, fine aggregate shall not exceed 41 percent of total aggregate by weight.

C. Shrinkage Limitations, Class A and D Concrete

1. Maximum concrete shrinkage for specimens cast in the laboratory from the trial batch: 0.036 percent as measured at 21-day drying age, or 0.042 percent at 28-day drying age. Use for construction only mix designs that meet trial batch shrinkage requirements. Shrinkage limitations apply only to Class A and D concrete.
2. Maximum concrete shrinkage for specimens cast in the field shall not exceed the trial batch maximum shrinkage requirement by more than 25 percent.
3. If the required shrinkage limitation is not met during construction, take any or all of the following actions, at no additional cost to the City, for securing the specified shrinkage requirements: Changing the source or aggregates, cement or admixtures; reducing water content; washing of aggregate to reduce fines; increasing the number of construction joints; modifying the curing requirements; or other actions designed to minimize shrinkage or its effects.

D. Selecting Ingredient Proportions for Concrete:

1. Proportion concrete mix according to ACI 301, Chapter 3.
2. Establish concrete mix design by laboratory trial batches prepared by independent testing laboratory, or on basis of previous field experience in accordance with provisions of ACI 318, Item 5.3; however, minimum cement content for each class of concrete shall not be less than specified.
3. Concrete mix design data submitted for review shall have average 28-day compressive strength calculated in accordance with ACI 318, Item 5.3.2.1. When data is not available to determine standard deviation in accordance with ACI 318, Item 5.3.1, average 28-day strength of mix design shall conform to ACI 318, Table 5.3.2.2.

E. Water-Cement Ratios:

1. Maximum allowable water-cement ratios shall be as follows:
 - a. Concrete for liquid-containing structures: 0.45.
 - b. Concrete subjected to brackish water, salt spray or deicers: 0.40.
 - c. All other concrete: 0.55.
2. Superplasticizer may be added to maintain specified maximum water-cement ratios. Include free water in aggregate in water-cement ratio computations.

- F. Adjustment of Mix Proportions: After sufficient data becomes available during construction, mix may be adjusted upon approval of City Engineer, in accordance with ACI 318, Item 5.5; however, minimum cement content for each class of concrete shall not be less than specified.
- G. Entrained Air: Air-entrain all concrete except drilled shafts and interior slabs on grade. Total air content in accordance with ASTM C 173: 4 to 6 percent.
- H. Consistency, Workability, and Slump:
1. The quantity of water in a batch of concrete shall be just sufficient, with a normal mixing period, to produce concrete which can be worked properly into place without segregation, and which can be compacted by vibratory methods as specified, to give the desired strength, density, impermeability and smoothness of surface. Change the quantity of water as necessary, with variations in the nature or moisture content of the aggregates, to maintain uniform production of a desired consistency. Determine the consistency of the concrete in successive batches by slump tests in accordance with ASTM C 143. Slumps shall be as follows:

Concrete Type	Minimum Slump	Maximum Slump
Portland Cement Concrete:	2"	4"
Concrete to be dosed with superplasticizer:	1"	3"
Normal Weight Concrete after dosing with superplasticizer:	4"	9"
Lightweight Concrete after dosing with superplasticizer:	4"	7"
Drilled Shaft Concrete:	4"*	8"

* Minimum slump where drilled shafts are cast in temporary casings: 5 inches.

2. Specified slump shall apply at time when concrete is discharged at job site. Perform slump tests to monitor uniformity and consistency of concrete delivered to job site; however, do not use as basis for mix design. Do not exceed water-cement ratios specified.
- I. Admixtures: Proportion admixtures according to manufacturer's recommendations. Use of accelerator is permitted when air temperature is less than 40 degrees F. Use of retarder is permitted when temperature of placed concrete exceeds 65 degrees F.
- J. High-Range Water Reducers (Superplasticizers): Use superplasticizer to improve workability of concrete or delay hydration of cement, in accordance with requirements and recommendations of product manufacturer and approved submittals.
- K. Concrete Classification and Strength:

1. Strength: Conform to values for class of concrete indicated on Drawings for each portion of Work. Requirements are based on 28-day compressive strength. If high early-strength concrete is allowed, requirements are based on 7-day compressive strength.
2. Classification:

Class (Normal Weight)	Minimum 28-Day Compressive Strength (psi)	Minimum Cement Content (Pounds per Cubic Yard)
Concrete for Structures Containing Water or Wastewater		
A	4000	564 (6 Sacks)
B	1500	329 (3-1/2 Sacks)
C	3000	470 (5 Sacks)
D	5000	658 (7 Sacks)
H	3000	611 (6-1/2 Sacks)
Concrete for Buildings, Slabs-on-Grade, and Miscellaneous Structures		
AB	4000	Not Applicable
BB	1500	Not Applicable
CB	3000	Not Applicable
DB	5000	Not Applicable

Class (Light Weight)	Minimum 28-Day Compressive Strength (psi)	Minimum Cement Content (Pounds per Cubic Yard)
E	3000	Not Applicable
F	4000	Not Applicable
G	5000	Not Applicable

3. Maximum size aggregate for Class H concrete: 3/8 inch. Maximum size aggregate for all other normal-weight concrete: 1-1/2 inches, except as specified in Paragraph 2.01D.4.
4. When required strength is not obtained with minimum cement content as specified, add cement, lower water-cement ratio or provide other aggregates as necessary.
5. In addition to conforming to specified strength, lightweight concrete must be within specified unit weight limits. Maximum air-dry unit weight is 118 pounds per cubic foot; minimum is 110 pounds per cubic foot unless shown otherwise on Drawings. Determine air-dry unit weight in accordance with ASTM C 567. Correlate air-dry unit weight with fresh unit weight of the same concrete as a basis for acceptance during construction.

L. Use of Classes of Concrete:

1. Use classes of concrete as indicated on the Drawings and in other specifications.
2. Liquid-containing structures: If not otherwise indicated, use the following classes for structures containing water or wastewater and for utility applications in the locations described:
 - a. Class A: All reinforced concrete and where not otherwise defined.
 - b. Class B: Unreinforced concrete used for plugging pipes, seal slabs, thrust blocks and trench dams, unless indicated otherwise.
 - c. Class H: Fill and topping. Where concrete fill thickness exceeds 3 inches in the majority of a placement and is not less than 1.5 inches thick, Class A concrete may be used.
3. All other structures: If not otherwise indicated, use the following classes in the locations described:
 - a. Class AB: All reinforced concrete and where not otherwise defined.
 - b. Class CB: Duct banks; see Section 16402 - Underground Duct Banks for additional requirements.
 - c. Class BB: Unreinforced concrete fill under structures.

2.03 MIXING NORMAL WEIGHT CONCRETE

A. Conform to ACI 301, Chapter 7.

B. Ready-Mixed Concrete:

1. Measure, batch, mix and transport ready-mixed concrete according to ASTM C 94. Plant equipment and facilities shall conform to NRMCA "Certification of Ready Mixed Concrete Production Facilities".
2. Provide batch tickets with information specified in ASTM C 94. Deliver batch ticket with concrete and give to City's on-site testing laboratory representative.

C. Batch Mixing at Site:

1. Mix concrete in batch mixer conforming to requirements of CPMB "Concrete Plant Mixer Standards". Use mixer equipped with suitable charging hopper,

water storage tank and water measuring device. Batch mixer shall be capable of mixing aggregates, cement and water into uniform mass within specified mixing time, and of discharging mix without segregation. Operate mixer according to rated capacity and recommended revolutions per minute printed on manufacturer's rating plate.

2. Charge batch into mixer so some water will enter before cement and aggregates. Keep water running until one-fourth of specified mixing time has elapsed. Provide controls to prevent discharging until required mixing time has elapsed. When concrete of normal weight is specified, provide controls to prevent addition of water during mixing. Discharge entire batch before mixer is recharged.
3. Mix each batch of 2 cubic yards or less for not less than 1 minute and 30 seconds. Increase minimum mixing time 15 seconds for each additional cubic yard or fraction of cubic yard.
4. Keep mixer clean. Replace pick-up and throw-over blades in drum when they have lost 10 percent of original depth.

D. Admixtures:

1. Charge air-entraining and chemical admixtures into mixer as solution using automatic dispenser or similar metering device. Measure admixture to accuracy within ± 3 percent. Do not use admixtures in powdered form.
2. Two or more admixtures may be used in same concrete, provided that admixtures in combination retain full efficiency and have no deleterious effect on concrete or on properties of each other. Inject admixtures separately during batching sequence.
3. Add retarding admixtures as soon as practicable after addition of cement.

E. Temperature Control:

1. When ambient temperature falls below 40 degrees F, keep as-mixed temperature above 55 degrees F to maintain concrete above minimum placing temperature.
2. When water or aggregate has been heated, combine water with aggregate in mixer before cement is added. Do not add cement to mixtures of water and aggregate when temperature of mixture is greater than 100 degrees F.
3. In hot weather, maintain temperature of concrete below maximum placing temperature. When necessary, temperature may be lowered by cooling ingredients, cooling mixer drum by fog spray, using chilled water or well-

crushed ice in whole or part for added water, or arranging delivery sequence so that time of transport and placement does not generate unacceptable temperatures.

4. Submit hot weather and cold weather concreting plans for approval.

2.04 MIXING LIGHTWEIGHT CONCRETE

- A. Determining Absorption of Aggregates: Mixing procedures vary according to total absorption by weight of lightweight aggregates. Determine total absorption by weight before predampening in accordance with ASTM C 127.
- B. Ten Percent or Less Absorption: Follow same requirements as for mixing normal-weight concrete when preparing concrete made with low-absorptive lightweight aggregates having 10 percent or less total absorption by weight. To be low-absorptive, aggregates must absorb less than 2 percent additional water in first hour after mixing.
- C. More Than 10 Percent Absorption: Batch and mix concrete made with lightweight aggregates having more than 10 percent total absorption by weight, as follows:
 1. Place approximately 80 percent of mixing water in mixer.
 2. If aggregates are pre-dampened, add air-entraining admixture and all aggregates. Mix for minimum of 30 seconds, or 5 to 10 revolutions of truck mixer.
 3. When aggregates have not been predampened, mix aggregates and water for minimum of 1 minute and 30 seconds, or 15 to 30 revolutions of truck mixer. Then add air-entraining admixture and mix for additional 30 seconds.
 4. Then, in the following sequence, add specified or permitted admixtures (other than air-entraining agent), all cement, and mixing water previously withheld.
 5. Complete mixing using procedures for normal-weight concrete.

2.05 MASS CONCRETE

- A. Do not use high early-strength cement (Type III) or accelerating admixtures.
- B. Use high-range water-reducing admixture (superplasticizer) to minimize water content and cement content.
- C. Specified water-reducing retarding admixture may be required to prevent cold joints when placing large quantities of concrete, to permit revibration of concrete, to offset

effects of high temperature in concrete or weather, and to reduce maximum temperature or rapid temperature rise.

2.06 EQUIPMENT

- A. Select equipment of size and design to ensure continuous flow of concrete at delivery end. Conform to following equipment and operations requirements.
- B. Truck mixers, agitators and manner of operation: Conform to ASTM C 94. Use of non-agitating equipment for transporting concrete is not permitted.
- C. Belt conveyors: Configure horizontally, or at a slope causing no segregation or loss. Use approved arrangement at discharge end to prevent separation. Discharge long runs without separation into hopper.
- D. Chutes: Metal or metal-lined (other than aluminum). Arrange for vertical-to-horizontal slopes not more than 1 to 2 nor less than 1 to 3. Chutes longer than 20 feet or not meeting slope requirements may be used if concrete is discharged into hopper before distribution.
- E. Do not use aluminum or aluminum-alloy pipe or chutes for conveying concrete.

PART 3 EXECUTION

3.01 SPECIAL CONSIDERATIONS

- A. Concreting Under Water: Not permitted except where shown otherwise on Drawings or approved by City Engineer. When shown or permitted, deposit concrete under water by methods acceptable to the City Engineer so fresh concrete enters mass of previously-placed concrete from within, causing water to be displaced with minimum disturbance at surface of concrete.
- B. Protection from Adverse Weather: Unless adequate protection is provided or City Engineer's approval is obtained, do not place concrete during rain, sleet, snow or freezing weather. Do not permit rainwater to increase mixing water or to damage surface finish. If rainfall occurs after placing operations begin, provide adequate covering to protect Work.

3.02 PREPARATION OF SURFACES FOR CONCRETING

- A. Earth Surfaces:
 - 1. Under interior slabs on grade, install vapor barrier. Lap joints at least 6 inches and seal watertight with tape, or sealant applied between overlapping edges and ends. Repair vapor barrier damaged during placement of

reinforcing and inserts with vapor barrier material; lap over damaged areas at least 6 inches and seal watertight.

2. Other Earth Surfaces: Thoroughly wet by sprinkling prior to placing concrete, and keep moist by frequent sprinkling up to time of placing concrete thereon. Remove standing water. Surfaces shall be free from standing water, mud and debris at the time of placing concrete.

B. Construction Joints:

1. Definition: Concrete surfaces upon or against which concrete is to be placed, where the placement of the concrete has been interrupted so that, in the judgement of the Owner's Designated Representative, new concrete cannot be incorporated integrally with that previously placed.
2. Interruptions: When placing of concrete is to be interrupted long enough for the concrete to take a set, use forms or other means to shape the working face to secure proper union with subsequent work. Make construction joints only where acceptable to the City Engineer.
3. Preparation: Give horizontal joint surfaces a compacted, roughened surface for good bond. Except where the Drawings call for joint surfaces to be coated, clean joint surfaces of laitance, loose or defective concrete and foreign material by hydroblasting or sandblasting (exposing aggregate), roughen surface to expose aggregate to a depth of at least 1/4 inch and wash thoroughly. Remove standing water from the construction joint surface before new concrete is placed.
4. After surfaces have been prepared cover approximately horizontal construction joints with a 3-inch lift of a grout mix consisting of Class A concrete batched without coarse aggregate; place and spread grout uniformly. Place wall concrete on the grout mix immediately thereafter.

- C. Set and secure reinforcement, anchor bolts, sleeves, inserts and similar embedded items in the forms where indicated on Contract Drawings, shop drawings and as otherwise required. Obtain City Engineer's acceptance before concrete is placed. Accuracy of placement is the sole responsibility of the Contractor.

- D. Place no concrete until at least 4 hours after formwork, inserts, embedded items, reinforcement and surface preparation have been completed and accepted by the City Engineer. Clean surfaces of forms and embedded items that have become encrusted with grout or previously-placed concrete before placing adjacent concrete.

- E. Casting New Concrete Against Old: Where concrete is to be cast against old concrete (any concrete which is greater than 60 days of age), thoroughly clean and roughen the surface of the old concrete by hydro-blasting or sandblasting (exposing

aggregate). Coat joint surface with epoxy bonding agent following manufacturer's written instructions, unless indicated otherwise. Unless noted otherwise, this provision does not apply to vertical wall joints where waterstop is installed.

- F. **Protection from Water:** Place no concrete in any structure until water entering the space to be filled with concrete has been properly cut off or diverted and carried out of the forms, clear of the work. Deposit no concrete underwater. Do not allow still water to rise on any concrete until concrete has attained its initial set. Do not allow water to flow over the surface of any concrete in a manner and at a velocity that will damage the surface finish of the concrete. Pumping, dewatering and other necessary operations for removing ground water, if required, are subject to City Engineer's review.
- G. **Corrosion Protection:** Position and support pipe, conduit, dowels and other ferrous items to be embedded in concrete construction prior to placement of concrete so there is at least a 2 inch clearance between them and any part of the concrete reinforcement. Do not secure such items in position by wiring or welding them to the reinforcement.
- H. Where practicable, provide for openings for pipes, inserts for pipe hangers and brackets, and setting of anchors during placing of concrete.
- I. Accurately set anchor bolts and maintain in position with templates while they are being embedded in concrete.
- J. **Cleaning:** Immediately before concrete is placed, thoroughly clean dirt, grease, grout, mortar, loose scale, rust and other foreign substances from surfaces of metalwork to be in contact with concrete.

3.03 HANDLING, TRANSPORTING AND PLACING CONCRETE

- A. Conform to applicable requirements of Chapter 8 of ACI 301 and this Section. Use no aluminum materials in conveying concrete.
- B. **Rejected Work:** Remove concrete found to be defective or non-conforming in materials or workmanship. Replace rejected concrete with concrete meeting requirements of Contract Documents, at no additional cost to the City.
- C. **Unauthorized Placement:** Place no concrete except in the presence of the City Engineer. Notify the City Engineer in writing at least 24 hours before placement of concrete.
- D. **Placement in Wall Forms:**
 - 1. Do not drop concrete through reinforcing steel.

2. Do not place concrete in any form so as to leave an accumulation of mortar on form surfaces above the concrete.
 3. Pump concrete or use hoppers and, if necessary, vertical ducts of canvas, rubber or metal (other than aluminum) for placing concrete in forms so it reaches the place of final deposit without separation. Free fall of concrete shall not exceed 4 feet below the ends of pump hoses, ducts, chutes or buggies. Uniformly distribute concrete during depositing.
 4. Do not displace concrete in forms more than 6 feet in horizontal direction from place where it was originally deposited.
 5. Deposit in uniform horizontal layers not deeper than 2 feet; take care to avoid inclined layers or inclined construction joints except where required for sloping members.
 6. Place each layer while the previous layer is still soft. Rate of placement shall not exceed 5 feet of vertical rise per hour.
 7. Provide sufficient illumination in form interior so concrete at places of deposit is visible from the deck or runway.
- E. **Conveyors and Chutes:** Design and arrange ends of chutes, hopper gates and other points of concrete discharge in the conveying, hoisting and placing system so concrete passing from them will not fall separated into whatever receptacle immediately receives it. Conveyors, if used, shall be of a type acceptable to the City Engineer. Do not use chutes longer than 50 feet. Slope chutes so concrete of specified consistency will readily flow. If a conveyor is used, it shall be wiped clean by a device operated in such a manner that none of the mortar adhering to the belt will be wasted. All conveyors and chutes shall be covered.
- F. **Placement of Slabs:** In hot or windy weather, conducive to plastic shrinkage cracks, apply evaporation retardant to slab after screeding in accordance with manufacturer's instructions and recommendations. Do not use evaporation retardant to increase water content of the surface cement paste. Place concrete for sloping slabs uniformly from the bottom of the slab to the top, for the full width of the placement. As work progresses, vibrate and carefully work concrete around slab reinforcement. Scream the slab surface in an up-slope direction.
- G. **Concrete Temperature:** When placed, not more than 90 degrees F nor less than 55 degrees F for sections less than 12 inches thick, nor less than 50 degrees for all other sections. Do not heat concrete ingredients to a temperature higher than that necessary to keep the temperature of the mixed concrete, as placed, from falling below the specified minimum temperature. When concrete temperature is 85 degrees F or above, do not exceed 60 minutes between introduction of cement to the aggregates and discharge. When the weather is such that the concrete temperature

would exceed 90 degrees F, employ effective means, such as pre-cooling of aggregates and mixing water, using ice or placing at night, as necessary to maintain concrete temperature, as placed, below 90 degrees F.

H. **Cold Weather Placement:** Conform to ACI 306.1 – Standard Specification for Cold Weather Concreting, and the following.

1. Remove snow, ice and frost from surfaces, including reinforcement, against which concrete is to be placed. Before beginning concrete placement, thaw the subgrade to a minimum depth of 6 inches. Warm reinforcement and embedded items to above 32 degrees F prior to concrete placement.
2. Maintain concrete temperature above 50 degrees F for at least 3 days after placement.

3.04 PUMPING OF CONCRETE

- A. If pumped concrete does not produce satisfactory results, in the judgement of the City Engineer, discontinue pumping operations and proceed with the placing of concrete using conventional methods.
- B. **Pumping Equipment:** Use a 2-cylinder pump designed to operate with only one cylinder if one is not functioning, or have a standby pump on site during pumping.
- C. The minimum hose (conduit) diameter: Comply with ACI 304.2R.
- D. Replace pumping equipment and hoses (conduits) that do not function properly.
- E. Do not use aluminum conduits for conveying concrete.
- F. **Field Control:** Take samples for slump, air content and test cylinders at the placement (discharge) end of the line.

3.05 CONCRETE PLACEMENT SEQUENCE

- A. Place concrete in a sequence acceptable to the City Engineer. To minimize effects of shrinkage, place concrete in units bounded by construction joints shown. Place alternate units so each unit placed has cured at least 7 days for hydraulic structures, or 3 days for other structures, before contiguous unit or units are placed, except do not place corner sections of vertical walls until the 2 adjacent wall panels have cured at least 14 days for hydraulic structures and 7 days for other structures.
- B. Level the concrete surface whenever a run of concrete is stopped. To ensure straight and level joints on the exposed surface of walls, tack a wood strip at least 3/4-inch thick to the forms on these surfaces. Carry concrete about 1/2 inch above the

underside of the strip. About one hour after concrete is placed, remove the strip, level irregularities in the edge formed by the strip with a trowel and remove laitance.

3.06 TAMPING AND VIBRATING

- A. Thoroughly settle and compact concrete throughout the entire depth of the layer being consolidated, into a dense, homogeneous mass; fill corners and angles, thoroughly embed reinforcement, eliminate rock pockets and bring only a slight excess of water to the exposed surface of concrete during placement. Use ACI 309R Group 3 immersion-type high-speed power vibrators (8,000 to 12,000 rpm) in sufficient number and with sufficient (at least one) standby units. Use Group 2 vibrators only when accepted by the CityEngineer for specific locations.
- B. Use care in placing concrete around waterstops. Carefully work concrete by rodding and vibrating to make sure air and rock pockets have been eliminated. Where flat-strip type waterstops are placed horizontally, work concrete under waterstops by hand, making sure air and rock pockets have been eliminated. Give concrete surrounding the waterstops additional vibration beyond that used for adjacent concrete placement to assure complete embedment of waterstops in concrete.
- C. Concrete in Walls: Internally vibrate, ram, stir, or work with suitable appliances, tamping bars, shovels or forked tools until concrete completely fills forms or excavations and closes snugly against all surfaces. Do not place subsequent layers of concrete until previously-placed layers have been so worked. Provide vibrators in sufficient numbers, with standby units as required, to accomplish the results specified within 15 minutes after concrete of specified consistency is placed in the forms. Keep vibrating heads from contact with form surfaces. Take care not to vibrate concrete excessively or to work it in any manner that causes segregation of its constituents.

3.07 PLACING MASS CONCRETE

- A. Observe the following additional restrictions when placing mass concrete.
 - 1. Use specified superplasticizer.
 - 2. Maximum temperature of concrete when deposited: 70 degrees F.
 - 3. Place in lifts approximately 18 inches thick. Extend vibrator heads into previously-placed layer.

3.08 REPAIRING SURFACE DEFECTS AND FINISHING

- A. Conform to Section 03350 - Concrete Finishing.

3.09 CURING

- A. Conform to Section 03390 - Concrete Curing.

3.10 PROTECTION

- A. Protect concrete against damage until final acceptance by the City.
- B. Protect fresh concrete from damage due to rain, hail, sleet or snow. Provide such protection while the concrete is still plastic and whenever such precipitation is imminent or occurring.
- C. Do not backfill around concrete structures or subject them to design loadings until all components of the structure needed to resist the loading are complete and have reached the specified 28-day compressive strength, except as authorized otherwise by the City Engineer.

END OF SECTION

CONCRETE FINISHING

PART 1 GENERAL

1 SECTION INCLUDES

- A. Repairing surface defects.
- B. Finishing concrete surfaces including both formed and unformed surfaces.
- C. Sealing concrete surfaces.
- D. Installation of concrete fill and installation of concrete topping in bottoms of clarifiers and thickeners.

2 UNIT PRICES

- A. No separate payment will be made for concrete finishing under this Section. Include payment in unit price for structural concrete.

3 REFERENCES

- A. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar.
- B. ASTM C 881 - Specification for Epoxy-Resin-Base Bonding Systems for Concrete.
- C. ASTM C 1059 - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete.
- D. ASTM D 4587 - Conducting Tests on Paint and Related Coatings and Materials Using a Fluorescent UV-Condensation Light-and Water-Exposure Apparatus.
- E. ASTM E 1155 - Standard Test Method for Determining Floor Flatness and Levelness Using the F Number System.

4 SUBMITTALS

- A. Conform to Section 01330 - Submittal Procedures
- B. Submit manufacturer's technical literature on the following products proposed for use. Include manufacturer's installation and application instructions and, where specified, manufacturer's certification of conformance to requirements and suitability for use in the applications indicated.
 - 1. Floor hardener.
 - 2. Sealer.

3. Epoxy floor topping.
4. Epoxy penetrating sealer.
5. Latex bonding agent.
6. Epoxy adhesive.
7. Abrasive aggregate.
8. Evaporation retardant.

PART 2 PRODUCTS

1 MATERIALS

A. Sealer/Dustproofer (VOC Compliant): Water-based acrylic sealer; non-yellowing under ultraviolet light after 200-hour test in accordance with ASTM D 4587. Conform to local, state and federal solvent emission requirements.

B. Epoxy Floor Topping: Two-component epoxy resin meeting ASTM C 881 Type III, resistant to wear, staining and chemical attack, blended with granite, sand, trap rock or quartz aggregate, trowel-applied over concrete floor. Topping thickness, 1/8 inch; color, gray.

C. Abrasive Aggregate for Nonslip Finish: Fused aluminum oxide grit, or crushed emery aggregate containing not less than 40 percent aluminum oxide and not less than 25 percent ferric oxide. Material shall be factory graded, packaged, rustproof and nonglazing, and unaffected by freezing, moisture and cleaning materials.

D. Epoxy Penetrating Sealer: Low-viscosity, two-component epoxy system designed to give maximum penetration into concrete surfaces. Sealer shall completely seal concrete surfaces from penetration of water, oil and chemicals; prevent dusting and deterioration of concrete surfaces caused by heavy traffic; and be capable of adhering to floor surfaces subject to hydrostatic pressure from below. Color, transparent amber or gray; surface, nonslip.

E. Latex Bonding Agent: Non-redispersable latex base liquid conforming to ASTM C 1059. When used in water and wastewater treatment structures, bonding agent shall be suitable for use under continuously submerged conditions. Conformance and suitability certification by manufacturer is required.

F. Bonding Grout: Prepare bonding grout by mixing approximately one part cement to one part fine sand meeting ASTM C 144 but with 100 percent passing No. 30 mesh sieve. Mix with water to consistency of thick cream. At Contractor's option, a commercially-prepared bonding agent used in accordance with manufacturer's recommendations and instructions may be used. When used in water and wastewater treatment structures, bonding agent shall be suitable for use under continuously submerged conditions. Conformance and suitability certification by manufacturer is required. Submit manufacturer's technical information on proposed bonding agent.

G. Patching Mortar:

1. Make patching mortar of same materials and of approximately same proportions as concrete, except omit coarse aggregate. Substitute white Portland cement for part of gray Portland cement on exposed concrete in order to match color of surrounding concrete. Determine color by making trial patch. Use minimum amount of mixing water required for handling and placing. Mix patching mortar in advance and allow to stand. Mix frequently with trowel until it has reached stiffest consistency that will permit placing. Do not add water.

2. Proprietary compounds for adhesion or specially formulated cementitious repair mortars may be used in lieu of or in addition to foregoing patching materials provided that properties of bond and compressive strength meet or exceed the foregoing and color of surrounding concrete can be matched where required. Use such compounds according to manufacturer's recommendations. When used in water and wastewater treatment structures, material shall be suitable for use under continuously submerged conditions. Conformance and suitability certification by manufacturer is required.

H. Epoxy Adhesive: Two-component, 100 percent solids, 100 percent reactive compound developing 100 percent of strength of concrete, suitable for use on dry or damp surfaces. Epoxy used to inject cracks and as a binder in epoxy mortar shall meet ASTM C 881, Type VI. Epoxy used as a bonding agent for fresh concrete shall meet ASTM C 881, Type V.

I. Non-shrink Grout: See Section 03600 - Structural Grout.

J. Spray-Applied Coating: Acceptable products are Thoro System Products "Thorseal Plaster Mix" or equal. Color: Gray.

K. Concrete Topping: Class H concrete with 3/8-inch maximum coarse aggregate size, as specified in Section 03310 - Structural Concrete.

L. Concrete Fill: Class H concrete with 3/8-inch maximum coarse aggregate size, (Class C where fill thickness exceeds 3 inches throughout a placement), as specified in Section 03310 - Structural Concrete.

M. Evaporation Retardant: Confilm, manufactured by Master Builders; Eucobar, manufactured by Euclid Chemical Company; or equal.

PART 3 EXECUTION

1 AGGREGATE CONCEALMENT

A. Unless indicated otherwise on Drawings or approved by City Engineer, all surfaces to be finished shall be free of exposed aggregate.

2 REPAIRING SURFACE DEFECTS

A. Defective Areas: Repair immediately after removal of forms. Remove honeycombed and other defective concrete down to sound concrete but in no case to a depth less than one inch. Make edges of cuts perpendicular to concrete surface. Thoroughly work bonding grout into the surface with a brush as that the entire surface is covered. Alternatively, a proprietary bonding agent may be used. Use bonding agent in accordance with manufacturer's instructions. While bonding coat is still tacky, apply premixed patching mortar. Thoroughly consolidate mortar into place and strike off to leave patch slightly higher than surrounding surface. To permit initial shrinkage, leave undisturbed for at least 1 hour before final finishing. Keep patched area damp for 7 days. Alternatively, a proprietary cementitious repair mortar may be used and placed in accordance with manufacturer's instructions. Do not use metal tools in finishing patches in formed walls which will be exposed.

B. Tie Holes: Patch holes immediately after removal of forms. After cleaning and roughening with a wire brush on a rotary drill, thoroughly dampen tie hole and fill solid with patching mortar. Taper tie holes shall have the plug, specified in Section 03100 - Concrete Formwork, driven into the hole to the center of the wall before grouting. Completely fill taper tie holes with patching mortar except that non-shrink grout shall be used for all walls in contact with soil or liquid. On wall faces exposed to view, fill the outer 2 inches of the taper tie hole with patching mortar blended to match adjacent concrete.

C. Cracks: Repair cracks in excess of 0.01 inch by pressure injection of moisture-insensitive epoxy-resin system. Submit proposed material and method of repair for approval prior to making repairs.

D. Structural Repair: When required, make structural repairs after prior approval of City Engineer as to method and procedure, using specified epoxy adhesive or approved epoxy mortar.

3 FINISHING OF FORMED SURFACES

A. Unfinished Surfaces: Finish is not required on surfaces concealed from view in completed structure by earth, ceilings or similar cover, unless indicated otherwise on Drawings.

B. Rough Form Finish:

1. No form facing material is required on rough form finish surfaces.
2. Patch tie holes and defects. Chip off fins exceeding 1/4 inch in height.
3. Rough form finish may be used on concrete surfaces which will be concealed from view by earth in completed structure, except concealed surfaces required to have smooth form finish, as shown on Drawings.

C. Smooth Form Finish:

1. Form facing shall produce smooth, hard, uniform texture on concrete. Use plywood or fiberboard linings or forms in as large sheets as practicable, and with smooth, even edges and close joints.

2. Patch tie holes and defects. Rub fins and joint marks with wooden blocks to leave smooth, unmarred finished surface.

3. Provide smooth form finish on the wet face of formed surfaces of water-holding structures, and of other formed surfaces not concealed from view by earth in completed structure, except where otherwise indicated on Drawings. Walls that will be exposed after future construction, at locations indicated on Drawings, shall have smooth form finish. Smooth form finish on exterior face of exterior walls shall extend 2 feet below final top of ground elevation. Exterior face of all perimeter grade beams shall have smooth form finish for full depth of grade beam.

D. Rubbed Finish:

1. Use plywood or fiberboard linings or forms in as large sheets as practicable, and with smooth, even edges and close joints.

2. Remove forms as soon as practicable, repair defects, wet surfaces, and rub with No. 16 carborundum stone or similar abrasive. Continue rubbing sufficiently to bring surface paste, remove form marks and fins, and produce smooth, dense surface of uniform color and texture. Do not use cement paste other than that drawn from concrete itself. Spread paste uniformly over surface with brush. Allow paste to reset, then wash surface with clean water.

3. Use rubbed finish at locations indicated on Drawings, except where rubbed finish is indicated for a wall which will be containing a liquid, use spray-applied coating.

E. Spray-applied Coating: At Contractor's option, in lieu of rubbed finish, spray-applied coating may be applied after defects have been repaired and fins removed. Remove form oil, curing compound and other foreign matter that would prevent bonding of coating. Apply coating in uniform texture and color in accordance with coating manufacturer's instructions.

F. Related Unformed Surfaces: Tops of piers, walls, bent caps, and similar unformed surfaces occurring adjacent to formed surfaces shall be struck smooth after concrete is placed. Float unformed surfaces to texture reasonably consistent with that of formed surfaces. Continue final treatment on formed surfaces uniformly across unformed surfaces.

4 HOT WEATHER FINISHING

A. When hot weather conditions exist, as defined by Section 03310 - Structural Concrete and as judged by the City Engineer, apply evaporation retardant to the surfaces of slabs, topping and concrete fill placements immediately after each step in the finishing process has been completed.

5 FINISHING SLABS AND SIMILAR FLAT SURFACES TO CLASS A, B, AND C TOLERANCES

A. Apply Class A, B, and C finishes at locations indicated on Drawings.

B. Shaping to Contour: Use strike-off templates or approved compacting-type screeds riding on screed strips or edge forms to bring concrete surface to proper contour. See Section 03100 - Concrete Formwork for edge forms and screeds.

C. Consolidation and Leveling: Concrete to be consolidated shall be as stiff as practicable. Thoroughly consolidate concrete in slabs and use internal vibration in beams and girders of framed slabs and along bulkheads of slabs on grade. Consolidate and level slabs and floors with vibrating bridge screeds, roller pipe screeds or other approved means. After consolidation and leveling, do not permit manipulation of surfaces prior to finishing operations.

D. Tolerances for Finished Surfaces: Check tolerances by placing straightedge of specified length anywhere on slab. Gap between slab and straightedge shall not exceed tolerance listed for specified class.

<u>Class</u>	<u>Straightedge Length in Feet</u>	<u>Tolerance in Inches</u>
A	10	1/8
B	10	1/4
C	2	1/4

E. Raked Finish: After concrete has been placed, struck off, consolidated and leveled to Class C tolerance, roughen surface before final set. Roughen with stiff brushes or rakes to depth of approximately 1/4 inch. Notify City Engineer prior to placing concrete requiring initial raked surface finish so that acceptable raked finish standard may be established for project. Protect raked, base-slab finish from contamination until time of topping. Provide raked finish for following:

1. Surfaces to receive bonded concrete topping or fill.
2. Steep ramps, as noted on Drawings.
3. Additional locations as noted on Drawings.

F. Float Finish:

1. After concrete has been placed, struck off, consolidated and leveled, do not work further until ready for floating. Begin floating when water sheen has disappeared, or when mix has stiffened sufficiently to permit proper operation of power-driven float. Consolidate surface with power-driven floats. Use hand floating with wood or cork-faced floats in locations inaccessible to power-driven machine and on small, isolated slabs.
2. After initial floating, re-check tolerance of surface with 10-foot straightedge applied at not less than two different angles. Cut down high spots and fill low spots to Class B tolerance. Immediately re-float slab to a uniform, smooth, granular texture.
3. Provide float finish at locations not otherwise specified and not otherwise indicated on Drawings.

G. Trowel Finish:

1. Apply float finish as previously specified. After power floating, use power trowel to produce smooth surface which is relatively free of defects but which may still contain some trowel marks. Do additional troweling by hand after surface has hardened

sufficiently. Do final troweling when ringing sound is produced as trowel is moved over surface. Thoroughly consolidate surface by hand troweling operations.

2. Produce finished surface free of trowel marks, uniform in texture and appearance and conforming to Class A tolerance. On surfaces intended to support floor coverings, remove defects which might show through covering by grinding.

3. Provide trowel finish for floors which will receive floor covering and additional locations indicated on Drawings.

H. Broom or Belt Finish:

1. Apply float finish as previously specified. Immediately after completing floated finish, draw broom or burlap belt across surface to give coarse transverse scored texture.

2. Provide broom or belt finish at locations indicated on Drawings.

6 FINISHING SLABS AND SIMILAR FLAT SURFACES TO "F-NUMBER SYSTEM" FINISH

A. Shaping to Contour: Use strike-off templates or approved compacting-type screeds riding on screed strips or edge forms to bring concrete surface to proper contour. Edge forms and screeds: Conform to Section 03100 - Concrete Formwork.

B. Consolidation and Leveling: Concrete to be consolidated shall be as dry as practicable. Thoroughly consolidate concrete in slabs and use internal vibration in beams and girders of framed slabs and along bulkheads of slabs on grade. Consolidate and level slabs and floors with vibrating bridge screeds, roller pipe screeds or other approved means. After consolidation and leveling, do not manipulate surfaces prior to finishing operations.

C. Tolerances for Finished Surfaces: Independent testing laboratory will check floor flatness and levelness in accordance with Paragraph 3.12, Field Quality Control.

D. Float Finish:

1. After concrete has been placed, struck off, consolidated and leveled, do not work further until ready for floating. Begin floating when water sheen has disappeared, or when mix has stiffened sufficiently to permit proper operation of power-driven float. Consolidate surface with power-driven floats. Use hand floating with wood or cork-faced floats in locations inaccessible to power-driven machine and on small, isolated slabs.

2. Check tolerance of surface after initial floating with a 10-foot straightedge applied at not less than two different angles. Cut down high spots and fill low spots. Immediately refloat slab to uniform, smooth, granular texture to F_F20/F_L17 tolerance, unless shown otherwise on Drawings.

3. Provide "F-Number System" float finish at locations indicated on Drawings.

E. Trowel Finish:

1. Apply float finish as previously specified. After power floating, use power trowel to produce smooth surface which is relatively free of defects but which may still contain some trowel marks. Do additional trowelings by hand after surface has hardened sufficiently. Do final troweling when ringing sound is produced as trowel is moved over surface. Thoroughly consolidate surface by hand troweling operations.
2. Produce finished surface free of trowel marks, uniform in texture and appearance and conforming to an F_F25/F_L20 tolerance for slabs on grade and F_F25/F_L17 for elevated slabs, unless shown otherwise on Drawings. On surfaces intended to support floor coverings, remove defects, which might show through covering, by grinding.
3. Provide "F-Number System" trowel finish at locations indicated on Drawings.

7 BONDED CONCRETE TOPPING AND FILL

A. Surface Preparation:

1. Protect raked, base-slab finish from contamination until time of topping. Mechanically remove oil, grease, asphalt, paint, clay stains or other contaminants, leaving clean surface.
2. Prior to placement of topping or fill, thoroughly dampen roughened slab surface and leave free of standing water. Immediately before topping or fill is placed, scrub coat of bonding grout into surface. Do not allow grout to set or dry before topping or fill is placed.

B. Concrete Fill:

1. Where concrete fill intersects a wall surface at an angle steeper than 45 degrees from vertical, provide a 1.5-inch deep keyway in the wall at the point of intersection; size keyway so that no portion of the concrete fill is less than 1.5 inches thick. Form keyway in new walls; create by saw cutting the top and bottom lines and chipping in existing walls.
2. Apply wood float finish to surfaces of concrete fill.
3. Provide concrete fill at locations shown on Drawings.

C. Bonded Concrete Topping in Bottom of Clarifiers and Thickeners:

1. Minimum thickness of concrete topping: 1 inch. Maximum thickness when swept in by clarifier and thickener equipment: 3 inches.
2. Compact topping and fill by rolling or tamping, bring to established grade, and float. Topping grout placed on sloping slabs shall proceed uniformly from the bottom of the slab to the top, for the full width of the placement. Coat surface with evaporation retardant as needed between finishing operations to prevent plastic shrinkage cracks.
3. Screed topping to true surface using installed equipment. Protect equipment from damage during sweeping-in process. Perform sweeping-in process under supervision of equipment manufacturer's factory representative. After topping has been screeded, apply

wood float finish. During finishing, do not apply water, dry cement or mixture of dry cement and sand to the surface.

4. As soon as topping or fill finishing is completed, coat surface with curing compound. After the topping is set and sufficiently hard in clarifiers and where required by the City Engineer, fill the tank with sufficient water to cover the entire floor for 14 days.

5. Provide bonded concrete topping in bottom of all clarifiers and thickeners.

8 EPOXY PENETRATING SEALER

A. Surfaces to receive epoxy penetrating sealer: Apply wood float finish. Clean surface and apply sealer in compliance with manufacturer's instructions.

B. Rooms with concrete curbs or bases: Continue application of floor coating on curb or base to its juncture with masonry wall. Rooms with solid concrete walls or wainscots: Apply minimum 2-inch-high coverage of floor coating on vertical surface.

C. Mask walls, doors, frames and similar surface to prevent floor coating contact.

D. When coving floor coating up vertical concrete walls, curbs, bases or wainscots, use masking tape or other suitable material to keep a neat level edge at top of cove.

E. Provide epoxy penetrating sealer at locations indicated on Drawings.

9 EPOXY FLOOR TOPPING

A. Surfaces to receive epoxy floor topping: Apply wood float finish unless recommended otherwise by epoxy floor topping manufacturer. Clean surface and apply epoxy floor topping in compliance with manufacturer's recommendations and instructions. Thickness of topping: 1/8 inch.

B. Rooms with concrete curbs or bases: Continue application of floor coating on curb or base to its juncture with masonry wall. Rooms with solid concrete walls or wainscots: apply 2-inch-high coverage of floor coating on vertical surface.

C. Mask walls, doors, frames and similar surfaces to prevent floor coating contact.

D. When coving floor coating up vertical concrete walls, curbs, bases or wainscots, use masking tape or other suitable material to keep a neat level edge at top of cove.

E. Finished surface shall be free of trowel marks and dimples.

F. Provide epoxy floor topping at locations indicated on Drawings.

10 SEALER/DUSTPROOFER

A. Where sealer or sealer/dustproofer is indicated on Drawings, just prior to completion of construction, apply coat of specified clear sealer/dustproofing compound to exposed interior concrete floors in accordance with manufacturer's instructions.

11 NONSLIP FINISH

A. Apply float finish as specified. Apply two-thirds of required abrasive aggregate by method that ensures even coverage without segregation and re-float. Apply remainder of abrasive aggregate at right angles to first application, using heavier application of aggregate in areas not sufficiently covered by first application. Re-float after second application of aggregate and complete operations with troweled finish. Perform finishing operations in a manner that will allow the abrasive aggregate to be exposed and not covered with cement paste.

B. Provide nonslip finish at locations indicated on Drawings.

12 FIELD QUALITY CONTROL

A. Flatness and levelness of slabs and similar flat surfaces that are indicated on Drawings to receive "F-Number System" finish will be checked by independent testing laboratory employed by City in accordance with Section 01460 - Testing Laboratory Services.

B. Tolerances for "F-Number System" finished surfaces:

1. Floor tolerance shall be determined in accordance with ASTM E 1155.

2. Floor flatness and levelness tolerances:

a. F_F defines maximum floor curvature allowed over 24 inches. Computed on the basis of successive 12-inch elevation differentials, F_F is commonly referred to as the "flatness F-Number."

$$F_F = \frac{4.57}{\text{Maximum difference in elevation, in decimal inches, between successive 12-inch elevation differences.}}$$

b. F_L defines relative conformity of floor surface to horizontal plane as measured over 10-foot distance. F_L is commonly referred to as "levelness F-number."

$$F_L = \frac{12.5}{\text{Maximum difference in elevation, in inches, between two points separated by 10 feet.}}$$

3. Achieve specified overall slab tolerance. Minimum local tolerance (1/2 bay, unless otherwise designated by City Engineer): 2/3 of specified tolerance.
4. Tolerance for floated finish: F_F20/F_L17 , unless otherwise shown on Drawings.
5. Tolerance for troweled finish: F_F25/F_L20 for slabs on grade, and F_F25/F_L17 for elevated slabs, unless otherwise shown on Drawings.

13 CURING

- A. Conform to requirements of Section 03390 - Concrete Curing.

END OF SECTION

CONCRETE CURING

PART 1 GENERAL

1 SECTION INCLUDES

- A. Curing of structural concrete.

2 UNIT PRICES

- A. No separate payment will be made for concrete curing under this Section. Include payment in unit price for structural concrete.

3 REFERENCES

- A. ACI 308 - Standard Practice for Curing Concrete.
- B. ASTM C 171 - Standard Specifications for Sheet Materials for Curing Concrete.
- C. ASTM C 309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
- D. ASTM D 44587 - Conducting Tests on Paint and Related Coatings and Materials Using a Fluorescent UV-Condensation Light-and Water-Exposure Apparatus.

4 DEFINITIONS

- A. Mass Concrete: Concrete sections 4 feet or more in least dimension.

5 SUBMITTALS

- A. Conform to Section 01330 - Submittal Procedures.
- B. Product Data: Submit description of proposed curing method for concrete. When use of membrane-forming compound is proposed, submit manufacturer's technical information including material specifications, installation instructions and recommendations, and evidence that compound is satisfactory for intended application. State locations where curing compound will be used.
- C. When membrane-forming compounds are to be used, submit certification by the manufacturer of compliance with specified requirements and compatibility with toppings, coatings, finishes, and adhesives to be applied.

PART 2 PRODUCTS

1 MATERIALS

A. Membrane-forming Curing Compound: Conform to ASTM C 309, Type 1D, and following requirements.

1. Minimum solids content: 30 percent.
2. Compound shall not permanently discolor concrete. When used for liquid-containing structures, curing compound shall be white-pigmented.
3. When used in areas that are to be coated, or that will receive topping or floor covering, material shall not reduce bond of coating, topping, or floor covering to concrete. Curing compound manufacturer's technical information shall state conditions under which compound will not prevent bond.
4. Conform to local, state and federal solvent emission requirements.

B. Clear Curing and Sealing Compound (VOC Compliant): Conform to ASTM C 309, Type 1, Class B, and the following requirements: 30 percent solids content minimum; non-yellowing under ultraviolet light after 500-hour test in accordance with ASTM D 4587. Sodium silicate compounds are not permitted. Conform to local, state and federal solvent emission requirements.

C. Sheet Material for Curing Concrete: ASTM C 171; waterproof paper, polyethylene film or white burlap-polyethylene sheeting.

D. Curing Mats (for use in Curing Method 2): Heavy shag rugs or carpets, or cotton mats quilted at 4 inches on center; 12 ounce per square yard minimum weight when dry.

E. Water for curing: Clean and potable.

PART 3 EXECUTION

1 CURING PROCEDURES

A. Comply with ACI 308 and the requirements specified herein. Protect freshly-deposited concrete from premature drying and excessively hot or cold temperatures. Maintain minimal moisture loss and relatively constant temperature during time necessary for hydration of cement and proper hardening of concrete.

B. Unformed Surfaces: For concrete surfaces not in contact with forms, use one of following procedures immediately after completion of placement and finishing.

1. Ponding or continuous sprinkling.
2. Absorptive mat or fabric kept continuously wet.
3. Sand or other covering kept continuously wet.
4. Continuous steam bath (not exceeding 150 degrees F at surface of concrete).
5. Vapor mist bath.

6. Membrane-forming curing compound applied according to manufacturer's recommendations. After the curing compound has dried, wet slab surfaces and cover with waterproof paper, polyethylene film, or white burlap-polyethylene sheeting after the application of the curing compound. Tape sheet seams together and provide sufficient weights to keep the sheeting in place. Wet the slab surface again if the sheeting becomes dislodged, and replace the sheeting.

7. Other moisture-retaining coverings as approved by City Engineer.

C. Restrictions on Use of Curing Compounds: Unless curing compound manufacturer certifies that curing compound will not prevent bond to cured surface, do not use curing compound on surfaces that will be rubbed or receive additional concrete, mortar, topping, terrazzo or other cementitious finishing materials, on slabs under resilient floors or built-up roofing, or on surfaces to be waterproofed, sealed, hardened or painted.

D. Curing and Sealing Compounds: At locations indicated, cure exposed interior slabs and troweled slabs receiving mastic-applied adhesives with specified clear curing and sealing compound in accordance with manufacturer's recommendations. Do not store materials directly on curing membranes. Use plywood to protect curing membrane from damage. Immediately repair membranes damaged by foot traffic or other operations.

E. Duration of Curing: Continue curing until cumulative number of days or fractions of days during which ambient temperature is above 50 degrees F has totaled 7. Continue curing of water-retaining structures for a total of 14 days. When high-early-strength concrete has been used, continue curing for total of 3 days. Prevent rapid drying at end of curing period.

F. Formed Surfaces: During the curing period keep wet steel forms heated by sun and wood forms in contact with concrete. When forms are to be removed during curing period, employ curing materials or methods immediately. Continue such curing for remainder of curing period.

G. Temperature:

1. Cold Weather. When mean daily temperature of atmosphere is less than 40 degrees F, maintain temperature of concrete between 50 and 70 degrees F for required curing period. When necessary, make arrangements for heating, covering, insulating or housing concrete work in advance of placement to maintain required temperature and moisture conditions. Prevent damage or injury due to concentration of heat. When combustion heaters are necessary in enclosed or protected area where concrete slabs are being placed, vent heaters.

2. Hot Weather. In advance of placement make arrangements for shading, fog spraying, sprinkling, ponding or installation of windbreaks or wet covering of light color. Take such protective measures as quickly as concrete hardening and finishing operations will allow.

3. Temperature Changes. Control so rate of change in temperature of concrete is as uniform as possible. Do not permit temperature change to exceed 5 degrees F in any one hour or 50 degrees F in any 24-hour period.

H. Protection from Mechanical Injury. During curing period, protect concrete from damaging mechanical disturbances, particularly load stresses, heavy shock, and excessive vibration. Protect finished concrete surfaces from damage caused by construction equipment, materials or methods, and by rain or running water. Do not load self-supporting structures in a way that over stresses concrete.

2 CURING MASS CONCRETE

A. Observe the following additional restrictions when curing mass concrete.

1. Minimum curing period: 2 weeks.

2. When ambient air temperature falls below 32 degrees F, protect surface of concrete against freezing.

3. Do not use steam or other curing methods that will add heat to concrete.

4. Keep forms and exposed concrete continuously wet for at least the first 48 hours after placing, and whenever surrounding air temperature is above 90 degrees F during final curing period.

5. During 2-week curing period, provide necessary controls to prevent ambient air temperature immediately adjacent to concrete from falling more than 30 degrees F in 24 hours.

END OF SECTION

METAL FABRICATIONS

1.0 GENERAL

1.01 SECTION INCLUDES

- A. Bolts, anchors, nuts, sleeves, concrete anchors, scheduled items, and other miscellaneous metal items not specifically included under other sections of these specifications.

1.02 UNIT PRICES

- A. No separate payment will be made for work performed under this section. Include the cost of such work in pay item for which this work is required.
- B. Refer to Section 01270 - Measurement and Payment for unit price procedures and Section 01292 - Schedule of Values.

1.03 REFERENCES

- A. ASTM A36 - Carbon Structural Steel.
- B. ASTM A53 - Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
- C. ASTM A123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- D. ASTM A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- E. ASTM A276 - Stainless Steel Bars and Shapes.
- F. ASTM A307 - Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
- G. ASTM A500 - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
- H. ASTM A501 - Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
- I. ASTM F593 - Stainless Steel Bolts, Hex Cap Screws, and Studs.
- J. ASTM F594 - Stainless Steel Nuts.
- K. AWS A2.0 - Standard Welding Symbols.

L. AWS D1.1 - Structural Welding Code.

M. SSPC - Steel Structures Painting Council.

1.04 SUBMITTALS

A. Submit under provisions of Section 01330 - Submittal Procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.

C. Indicate welded connections using standard AWS A2.0 welding symbols. Indicate net weld lengths.

D. Submit manufacturers technical literature and test reports showing certified capacities for concrete anchors.

E. All steel design shall be consistent with AISC Manual of Steel Construction, latest edition, and Uniform Building Code, latest edition.

1.05 QUALIFICATIONS

A. Prepare Shop Drawings under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State of Texas.

B. Welders' Certificates: Submit under provisions of Section 01330 - Submittal Procedures, certifying welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.06 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on Drawings.

2.0 PRODUCTS

2.01 MATERIALS

A. Steel Shapes and Plate: ASTM A36.

B. Stainless Steel Sections: ASTM A276, Type 316 for non-welded items and Type 316L for welded items.

C. Steel Tubing: ASTM A500 or A501, Grade B.

- D. Pipe: ASTM A53, Grade B, Schedule 40.
- E. Bolts, Nuts, and Washers: ASTM A307, galvanized to ASTM A153 for galvanized components.
- F. Stainless Steel Bolts and Nuts: Bolts per ASTM F593, Type 316; nuts per ASTM F594, Type 316; UNC coarse threads.
- G. Concrete Anchors: Concrete anchors are inserted into holes drilled in hardened concrete and shall be one of the following types:
 - 1. Adhesive Anchors: Concrete anchors that are submerged, in splash zones, in enclosed spaces over liquids, or anchoring vibrating equipment shall be epoxy adhesive anchors. Adhesive anchors may be used at all locations where concrete anchors are required. Epoxy systems shall be Sika/FI System with Sikadur Injection Gel Epoxy, Master Builders Concrecive Epoxy Cartridge Dispensing System and Concrecive Paste LPL, or equal. Threaded rods shall be ASTM F593 Type 316 studs. Where adhesive anchors, or connected metal, are exposed to direct sunlight, the anchors shall be certified to maintain at least 90 percent of their rated strength (tested at 73 degrees F) when tested at 160 degrees F.
 - 2. Expansion Anchors: Where concrete anchors are indicated and adhesive anchors are not required, wedge type anchors made with ASTM A276, Type 316 Stainless Steel shall be used. Anchors shall be KWIK Bolt II By Hilti, Inc. or approved equal.
- H. Welding Materials: AWS D1.1; type required for materials being welded.
- I. Steel members in contact with liquids either continuously or intermittently must have a minimum thickness of 1/4".
- J. All aluminum must be type 5052, 6061, 6063, or 214 alloy unless otherwise noted or approved.
- K. Shop and Touch-Up Primer: Compatible with systems specified in Section 09900 - Painting or Section 09915 - Protective Coatings.
- L. Handrail pipe shall be standard, galvanized, seamless pipe of the size and weight shown on the mechanical plans. Handrail assemblies and anchors shall be designed to resist a load of 50 pounds per linear foot uniform load or 200 pounds concentrated load, which ever produces greater stresses, applied in any direction at the top and to transfer this load through the supports to the structure.

2.02 FABRICATION

- A. Fit and shop assemble in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- D. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- E. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.03 FINISHES

- A. Prepare surfaces to be primed in accordance with SSPC SP 2.
- B. Do not prime surfaces in direct contact with concrete or where field welding is required.
- C. After fabrication and prior to galvanizing, all sharp edges and corners of cut or sheared edges shall be dulled by at least one pass of a power grinder.
- D. Galvanize, after completion of welded fabrication, in accordance with ASTM A123, structural steel members. Provide minimum 1.25 oz/sq ft galvanized coating.

3.0 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Beginning of installation means erector accepts existing conditions.

3.02 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Supply items required to be cast into concrete or embedded in masonry with setting templates, to appropriate sections.

- C. All stainless steel threads to be coated with an anti-seizing compound prior to installing the nuts.
- D. Metal Grating panels shall be stored on blocking so that no metal touches the ground and water cannot collect thereon. The panels shall be protected against bending under their own weight or superimposed loads.

3.03 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Field weld components indicated on shop drawings.
- D. Perform field welding in accordance with AWS D1.1.
- E. Obtain Engineer approval prior to site cutting or making adjustments not scheduled.
- F. After erection, prime welds, abrasions, and surfaces not shop primed except surfaces to be in contact with concrete.
- G. Handrails
 - 1. Splices. In general, the railings shall be fabricated in the lengths shown on the Plans and in accordance with details shown thereon. If the Contractor wishes to splice pipe in a single panel unit for the purpose of handling or adoption of available pipe, the splice must be approved by the Engineer. Splices, whether field or shop, shall be full butt welded splices.
 - 2. Alignment. The rail shall be set up and nuts loosely tightened. The rail shall then be aligned both horizontally and vertically and the nuts tightened firmly. After the rail is aligned and the nuts tightened, all nuts shall be tack-welded to the base plates.
 - 3. Anchor Bolts. Anchor bolts shall be set to the exact positions shown on the Plans. Templates shall be used to hold the anchor bolts in place during concreting operations.
 - 4. Completed handrail shall be painted with two coats of aluminum paint.

3.04 ERECTION TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.

END OF SECTION

FIBERGLASS REINFORCED GRATING

1.0 GENERAL

1.01 SECTION INCLUDES

This section specifies requirements for all materials, fabrication and erection of fiberglass reinforced plastic (FRP) grating including all necessary accessories required for a complete installation as shown or specified. See the plans for where FRP grating is required. Provide supports, fasteners and appurtenances for a complete system meeting performance requirements of this specification.

1.02 UNIT PRICES

Unless noted in the Bidsheet, no separate payment will be made for work under this section. Include payment in unit price for applicable work as noted on the Bidsheet.

1.03 REFERENCES

- A. Metal Fabrications, Section 05 500

1.04 PERFORMANCE REQUIREMENTS

- A. Maximum allowable deflection under 150 pounds per square foot live load shall be 1/240 of span. Components shall be sized for single span.

1.05 SUBMITTALS

- A. Product Data: Provide span and deflection tables.
- B. Shop Drawings: Indicate details of thickness and spacing of bars, top surface treatment, color, hold-down clip, side clips, manufacturer's name and grating type. Show fabrication details, component supports, openings, perimeter construction details, and tolerances.
- C. Submit two 12" x 12" section of grating taken from the manufacturer's stock.

2.0 PRODUCTS

2.01 GRATING

- A. Grating shall be of a one piece molded construction with tops and bottoms of bearing bars and cross bars in the same plane. Grating shall have a square mesh pattern providing bidirectional strength. Grating shall be reinforced with continuous rovings of equal number of layers in each direction. Percentage of glass (by weight) shall not exceed 35% so as to achieve maximum corrosion resistance, and as required to maintain the structural requirements of the CONTRACT. After molding, no dry glass fibers shall be visible on any surface of bearing bars or cross bars. All bars shall be smooth and uniform with no evidence of fiber orientation irregularities, resin rich or resin starved areas.
- C. The resin matrix shall be fire retardant isophthalic polyester with a polyester surfacing veil wrap over the continuous strand mat meeting Class 1 flame spread rating (tunnel test) of 25 or less per ASTM E 84 and shall meet self-extinguishing requirements of ASTM D 635.
- D. The grating shall be resistant to the effects of ultraviolet light attack in an outdoor environment. This shall be accomplished by providing a UV stabilizer in the resin and surface veil, and by a UV coating of UV stabilized polyurethane based paint.
- E. The walking surface of the grating shall be a nonskid surface of quartz grit.
- F. The grating shall be capable of supporting a uniform live load of 150 psf or a concentrated load of 300 plf. Maximum deflection under live load shall be span length/240 but not to exceed 0.25 inches.
- G. Color shall be gray unless otherwise indicated on the drawings.
- H. Solid FRP plate shall be 1/4 inch plate bonded to 1 3/4 inch grating for a total thickness of 2 inches.

2.02 ANCILLARY MATERIALS

- A. Clips and Bolts. Provide 316 stainless steel saddle type clip hold-down fasteners and side panel clips with stainless steel bolts or studs. 316 stainless steel self-drilling screws or power actuated fastening with FCM grating disc (SS) may be substituted for bolts or studs. Provide a minimum of two hold-down clips on each end of each piece of grating. For grating continuous over intermediate supports, provide a minimum of two hold-down clips at each intermediate support.
- B. Curb Angle. Provide fiberglass curb angle unless noted otherwise. The curb angle shall have a built-in continuous anchor for placement in concrete. The resin shall be a fire-retardant vinyl ester with a UV inhibitor. The angle shall have a surface veil with a UV coating.

2.03 FABRICATION

- A. Work must be performed in accordance with reviewed shop drawings as modified for actual field measurements.
- B. Form grating into sections of sizes indicated or as necessary for proper access and handling. Unless otherwise shown on the drawings, all panels shall be removable and shall not exceed 100 pounds in weight. Maximum width shall be 48 inches; maximum length shall be three spans. Provide for a maximum of ¼-inch spacing between adjacent sections.
- C. Provide accurately cut openings no greater than 12 inches in gratings to suit penetration of piping, equipment and other items of work. Grating shall be laid out so that openings are centered on a joint between adjacent sections of grating, and the size of opening shall not be wider than one third of grating panel width. Cutouts with dimensions of 4 inches or less may be made in the field.
 - . Cuts shall be clean and smooth without fins, beads, or other projections. Crossbars shall be cut off flush with the outside face of the bearing bar.
- D. All cuts or sanded surfaces shall be liberally coated with resin containing air-inhibiting additives and compatible with the resin matrix used in the bars.
- E. Banding of supported ends of grating will not be required.
- F. Provide abrasive nosing at edges of grating which form the top tread of stairs.

3.0 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with reviewed shop drawings. Verify that supports are correctly positioned. Grating shall fit on seats and support beams without binding or rocking. Fasten grating with hold-down clips as specified and detailed. Where required, sides of adjacent panels shall be tied together, with removable clips, to prevent differential deflections between adjacent panels.
- B. Crossbars and bearing bars of adjacent panels shall align. After installation, there shall be no more than ¼ inch clearance between panels. All bearing bars shall be parallel.
- C. After installation, the grating shall be protected as required to prevent damage during completion of the contract. Any damaged material must be replaced without additional cost to the Owner.

- E. Install components in accordance with manufacturer's directions.

END OF SECTION



CITY COUNCIL AGENDA FORM

Meeting Date: July 14, 2025
Prepared by: _____
Department: City Clerk

Agenda Item: 8.IV.
Reviewed by: _____

AGENDA ITEM DESCRIPTION:

Awarding the Request for Qualifications (RFQ) LM 25-03 for Engineering / Architecture / Surveying Services regarding the Texas Water Development Board loan - *Public Works / Finance*

STAFF BRIEFING:

City placed a Request for Qualifications (RFQ) for Engineering / Architecture / Surveying Services and received 7 responses. Public Works will present their recommendation for the engineering services based on their review of the statements provided.

The companies that submitted requests:

- Adico, LLC
- Aster, LP
- Bleyl Engineering
- Dunaway
- LJA Engineering, Inc.
- Oller Engineering, Inc.
- Othon, Inc.

HISTORY:

07.11.2025 - received email from TWDB/Stifel indicating that a contract is needed by 07.16.2025 to satisfy TWDB Loan requirements

FISCAL IMPACT:

City of La Marque, TX Series 2025 TWDB CWSRF L1001953 \$9,985,000

**Request for Qualifications (RFQ) for
Engineering/Architecture/Surveying Services
LM _____**

June 3, 2025

Re: Proposed Contract Funding for the FY25 Texas Community Development Fund)

Dear Prospective Bidders:

Attached is a copy of the City La Marque's Request for Qualifications for Engineering/Architecture/Surveying Services. These services are being solicited to assist the City of La Marque in its application and project implementation of a contract, if awarded, for the 2023-2024 Drinking Water State Revolving Fund (DWSRF) and/or/ Clean Water State Revolving Fund (CWSRF) programs from the Texas Water Development Board (TWDB). The City of La Marque will be applying for such funding to support the following Citywide Infrastructure Projects in the City of La Marque.

The City seeks to afford the opportunity for qualified SBE, MBE, and WBE firms to propose to provide the services described herein.

The submission requirements for this proposal are also included on the attached Request for Qualifications (RFQ) form. Firms and/or individuals should have past experience with federally funded programs.

Please submit (Three copies one (1) original and three (3) copies) of your proposal to:

City of La Marque
City Clerk
1111 Bayou Rd.
La Marque, TX 77568

Or Electronically:

<http://submitbid.cityoflamarque.org>

The deadline for submission of proposals is 10:00 am on June 18, 2025. The City of La Marque reserves the right to negotiate with any and all persons or firms submitting proposals, per the Texas Professional Services Procurement Act and the Texas Grant and Contract Management Standards.

The City of La Marque is an Affirmative Action/Equal Opportunity Employer.

Sincerely,

Kierra Nance, City Clerk

Request for Qualifications (RFQ) for Engineering/Architectural/Surveying Services

The City of La Marque is seeking to enter into an engineering/architectural/surveying services contract with a state-registered firm for engineering/architect/surveying. The following outlines this request for qualifications.

- I. Scope of Work - The [engineering/architectural/surveying] contract will encompass all project-related engineering/architectural/surveying services to the City of La Marque including but not limited to the following:

- Preliminary and final design plans and specifications;
- Preparation of the bid packet;
- Conduct all field testing and inspections (interim and final); and
- Other special services.

Please specify actual tasks to be performed under each of these categories. A copy of the project description for these Citywide Infrastructure Improvements is attached.

- II. Statement of Qualifications - The City of La Marque is seeking to contract with a competent engineering/architectural/surveying firm, registered to practice in the State of Texas, that has had experience in the following areas:

- Municipal construction including but not limited to wastewater, streets, and general infrastructure projects;
- Registered and in good standing as a professional engineer per the Texas Engineering Practice Act
- Federally-funded construction projects; and
- Projects located in this general region of the state
- Engineer/Firm is not debarred or suspended from participating in federal or federally assisted projects in the System for Award Management (SAM) www.SAM.gov.

As such, please provide within your proposal with a list of past local government clients, as well as resumes of all engineers/architects/surveyors that will or may be assigned to this project if you receive the engineering/architectural/surveying services contract award.

Also, please provide a copy of your current certificate of insurance for professional liability.

- III. Evaluation Criteria - The proposals received will be evaluated and ranked according to the following criteria:

<u>Criteria</u>	<u>Maximum Points</u>
Experience	60
Work Performance	25
Capacity to Perform	<u>15</u>
Total	100

- IV. For this RFQ, Respondent's qualifications will be evaluated, and the most qualified Respondent will be selected, subject to negotiation of fair and reasonable compensation.
- V. Additional Information

1. This contract is contingent upon release of funds from the Texas Water Development Board (TWDB).

2. Any contract or contracts awarded under this Invitation for Bid (IFB) or Request for Proposals (RFP) are expected to be funded in part by a loan from the TWDB. Neither the State of Texas nor any of its departments, agencies, or employees are or will be a party to this IFB, RFP, or any resulting contract.

3. This contract is subject to the Environmental Protection Agency's (EPA) Disadvantaged Business Enterprise (DBE) Program, which includes EPA approved fair share goals for Minority and Women-owned Business Enterprise (M/WBE) firms. EPA rules require that applicants and prime contractors make a good faith effort to award a fair share of contracts, subcontracts, and procurements to M/WBEs through the demonstration of the six affirmative steps. For more details of the DBE program please visit www.txdb.texas.gov/dbe. The current fair share goals for the State of Texas are as follows:

CATEGORY	MBE	WBE
CONSTRUCTION	8.0%	8.0%
EQUIPMENT	8.0%	8.0%
SERVICES	8.0%	8.0%
SUPPLIES	8.0%	8.0%

- For costs of architectural/engineering (A/E) professional services, negotiations must occur after the initial selection of the engineer or architect as price cannot be used as a selection factor. (See 2 CFR 200.320(b)(2)(iv) and Texas Government Code § 2254.004)

V. Deadline for Submission	
RFP NOTICE DATE:	June 4, 2025
VENDOR QUESTIONS DUE:	June 11th, 2025 - 5:00 pm CST
QUESTIONS ANSWERED BY:	June 16th, 2025 – 5:00 pm CST
PROPOSAL DUE DATE:	June 18 th , 2025 – 10:00 am CST
PROPOSAL OPENING	June 18th, 2025 – 10:30 am CST
RESPONSE REQUIREMENTS	
QUESTIONS & ANSWERS ONLY – SOLE POINT OF CONTACT	
The Entity will allow written questions and requests for clarification of this solicitation. Questions must be submitted by email to the Sole Point of Contact listed below. Respondents' names will be removed from questions in any responses released.	
SOLE POINT OF CONTACT NAME:	City Clerk
ADDRESS:	1111 Bayou Road, La Marque, Texas 77568
EMAIL:	bids@cityoflamarque.org
PHONE:	409-938-9259
DELIVERY OF RESPONSE PROPOSAL – POINT OF CONTACT	

For email delivery , the Subject Line of the email should include the Respondent's Name, RFP number, and time/due date of RFP, and the completed response and all attachments emailed to the following point of contact:	
NAME:	
TITLE:	City Clerk
EMAIL ADDRESS:	Bidsubmit.cityoflamarque.org
If mailed , sealed proposals (an original and 3 copies) should be submitted on the original forms provided. Each response must be sealed and placed in a properly identified envelope with the Respondent's Name, RFP number, and time/due date of RFP.	
For mail or hand delivery: Deliver response and all attachments to:	
NAME:	
TITLE:	City Clerk
ADDRESS:	1111 Bayou Road, La Marque, Texas 77568

DISCLAIMER: This sample draft document was developed for TxCDBG grant projects and does not include all applicable provisions. This document has important legal consequences. Please consult with your legal counsel with respect to its completion or modification to ensure that it is in compliance with any appropriate local, state and federal laws applicable.

Sample Contract

ENGINEERING/ARCHITECTURAL/SURVEYOR SERVICES

PART I AGREEMENT

THIS AGREEMENT, entered into this ____ day of _____, by and between the CITY/COUNTY OF _____, hereinafter called the "City"/"County", acting herein by _____ hereunto duly authorized, and _____ hereinafter called "Firm," acting herein by _____.

WITNESSETH THAT:

WHEREAS, the City/County of _____ desires to [implement/construct/etc.] the following: _____ [describe project] under the general direction of the Texas Community Development Block Grant (hereinafter called "TxCDBG") Program administered by the Texas Department of Agriculture (TDA); and Whereas the City/County desires to engage _____ to render certain engineering/surveyor/architectural services in connection with the TxCDBG Project, Contract Number _____.

NOW THEREFORE, the parties do mutually agree as follows:

1. Scope of Services

The Firm will perform the services set out in Part II, Scope of Services.

2. Time of Performance - The services of the Firm shall commence on _____. In any event, all of the services required and performed hereunder shall be completed no later than _____.

3. Local Program Liaison - For purposes of this Agreement, the [e.g. *City Manager/County _____*] or equivalent authorized person will serve as the Local Program Liaison and primary point of contact for the Firm. All required progress reports and communication regarding the project shall be directed to this liaison and other local personnel as appropriate.

4. Access to Records - The U.S. Department of Housing and Urban Development (HUD), Inspectors General, the Comptroller General of the United States, the Texas Department of Agriculture (TDA), and the City/County, or any of their authorized representatives, shall have access to any documents, papers, or other records of the Firm which are pertinent to the TxCDBG award, in order to make audits, examinations, excerpts, and transcripts, and to closeout the City/County's TxCDBG contract with TDA.

5. Retention of Records - The Firm shall retain all required records for three years after the City/County makes its final payment and all pending matters are closed.
6. Compensation and Method of Payment - The maximum amount of compensation and reimbursement to be paid hereunder shall not exceed \$_____. Payment to the Firm shall be based on satisfactory completion of identified milestones in Part III - Payment Schedule of this Agreement.
7. Indemnification – The Firm shall comply with the requirements of all applicable laws, rules and regulations, and shall exonerate, indemnify, and hold harmless the City/County and its agency members from and against any and all claims, costs, suits, and damages, including attorney's fees, arising out of the Firm's performance or nonperformance of the activities, services or subject matter called for in this Agreement, and shall assume full responsibility for payments of Federal, State and local taxes on contributions imposed or required under the Social Security, worker's compensation and income tax laws.
9. Miscellaneous Provisions
 - a. This Agreement shall be construed under and accord with the laws of the State of Texas, and all obligations of the parties created hereunder are performable in _____ County, Texas.
 - b. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, executors, administrators, legal representatives, successors and assigns where permitted by this Agreement.
 - c. In any case one or more of the provisions contained in this Agreement shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision thereof and this Agreement shall be construed as if such invalid, illegal, or unenforceable provision had never been contained herein.
 - d. If any action at law or in equity is necessary to enforce or interpret the terms of this Agreement, the prevailing party shall be entitled to reasonable attorney's fees, costs, and necessary disbursements in addition to any other relief to which such party may be entitled.
 - e. This Agreement may be amended by mutual agreement of the parties hereto and a writing to be attached to an incorporated into this Agreement.
10. Extent of Agreement

This Agreement, which includes Parts I-V, [*and if applicable*, including the following exhibits/attachments: ☐] represents the entire and integrated agreement between the City/County and the Firm and supersedes all prior negotiations, representations or agreements, either written or oral. This Agreement may be amended only by written instrument signed by authorized representatives of both City/County and the Firm.

IN WITNESSETH WHEREOF, the parties have executed this Agreement by causing the same to be signed on the day and year first above written.

BY: _____
 (Local City/County Official)

 (Printed Name)

 (Title)

BY: _____
 (Firm/Contractor's Authorized Representative)

 (Printed Name)

 (Title)

PART II

SCOPE OF SERVICES

The Firm shall render the following professional services necessary for the development of the project:
(Choose appropriate contracted services)

SCOPE OF SERVICES

1. Attend preliminary conferences with the City/County regarding the requirements of the project.
2. Determine necessity for acquisition of any additional real property/easements/right-of-ways (ROWS) for the TxCDBG project and, if applicable, furnish to the City/County:
 - a. Name and address of property owners;
 - b. Legal description of parcels to be acquired; and
 - c. Map showing entire tract with designation of part to be acquired.
3. Make any necessary surveys of existing rights-of-way, topography, utilities, or other field data required for proper design of the project. Provide consultation and advice as to the necessity of the City/County providing or obtaining other services such as auger borings, core borings, soil tests, or other subsurface explorations; laboratory testing and inspecting of samples or materials; other special consultations. The Firm will review any tests required and act as the City/County's representative in connection with any such services.
4. Prepare railroad/highway permits.
5. Prepare a preliminary engineering/architectural study and report on the project in sufficient detail to indicate clearly the problems involved and the alternate solutions available to the City/County, to include preliminary layouts, sketches and cost estimates for the project, and to set forth clearly the Firm's recommendations; to be completed within _____ days of execution of this Agreement.
6. Furnish the City/County copies of the preliminary report, if applicable (additional copies will be furnished to the City/County at direct cost of reproduction).
7. Make periodic visits, no less than every 30 days during the construction period, to the construction site to observe the progress and quality of the work, to ensure that the work conforms with the approved plans and specifications, and to determine if the work is proceeding in accordance with the Agreement.
8. Furnish the City/County a written monthly status report at least seven (7) days prior to the regularly scheduled council/commissioner's court meeting until the project is closed by TDA. The format for this report is attached to this Agreement as Exhibit 1.
9. Submit detailed drawings and plans/specifications to appropriate regulatory agency(ies) and obtain clearance.
10. Prepare bid packet/contract documents/advertisement for bids. At the time the bid packet is completed, the Firm shall also furnish to the City/County an updated written Estimate of Probable Costs for the Project.
11. Make 10-day call to confirm prevailing wage decision.
12. Incorporate any and all wage rate modifications or supersedes via bid addendum (if applicable).
13. Conduct bid opening and prepare minutes.
14. Tabulate, analyze, and review bids for completeness and accuracy.
15. Accomplish construction contractor's eligibility verification through www.SAM.gov.
16. Conduct pre-construction conference and prepare copy of report/minutes.
17. Issue Notice to Proceed to construction contractor.
18. Provide in all proposed construction contracts deductive alternatives where feasible, so that should the lowest responsive base bid for construction exceed the funds available, deductive alternatives can be taken to reduce the bid price.

19. Design for access by persons with disabilities for those facilities to be used by the public in accordance with Public Law 504.
20. Use TDA-approved forms for instructions to bidders, general conditions, contract, bid bond, performance bond, and payment bond.
21. Consult with and advise the City/County during construction; issue to contractors all instructions requested by the City/County; and prepare routine change orders if required, at no charge for engineering services to the City/County when the change order is required to correct errors or omissions by the Firm; provide price analysis for change orders; process change orders approved by City/County and the Firm and submit to TDA for approval prior to execution with the construction contractor.
22. Review shop and working drawings furnished by contractors for compliance with design concept and with information given in contract documents (contractors will be responsible for dimensions to be confirmed and correlated at job site).
23. Resolve all payment requests within 14 days of receipt of signed pay request from the construction contractor.
24. Based on the Firm's on-site observations and review of the contractor's applications for payment, determine the amount owed to the contractor in such amounts; such approvals of payment to constitute a representation to the City/County, based on such observations and review, that the work has progressed to the point indicated and that the quality of work is in accordance with the plans, specifications and contract documents.
25. Recommend that a 10% retainage is withheld from all payments on construction contracts until final acceptance by the City/County and approval by TDA, unless State or local law provides otherwise.
26. Prepare Certificate of Construction Completion and Clean Lien Certificate. A Clean Lien Certificate may be prepared for each of the Prime Contractor(s) and each of the subcontractor(s).
27. Conduct interim/final inspections.
28. Revise contract drawings to show the work as actually constructed, and furnish the City/County with a set of "record drawings" plans.
29. The Firm will provide a copy of the final project record drawing(s) engineering schematic(s), as constructed using funds under this contract. These maps shall be provided in digital format containing the source map data (original vector data) and the graphic data in files on machine readable media, such as compact disc (CD), which are compatible with computer systems owned or readily available to the owner. The digital copy provided shall not include a digital representation of the engineer's seal but the accompanying documentation from the Firm shall include a signed statement of when the map was authorized, that the digital map is a true representation of the original sealed document, and that a printed version with the seal has been provided to the City/County. In addition, complete documentation as to the content and layout of the data files and the name of the software package(s) used to generate the data and maps shall be provided to the owner in written form.

SUBCONTRACTS

1. No work under this Agreement shall be subcontracted by the Firm without prior approval, in writing, from the City/County.
2. The Firm shall, prior to proceeding with the work, notify the City/County in writing of the name of any subcontractors proposed for the work, including the extent and character of the work to be done by each.
3. If any time during progress of the work, the City/County determines that any subcontractor is incompetent or undesirable, the City/County will notify the Firm who shall take reasonable and immediate steps to satisfactorily cure the problem, substitute performance, or cancel such subcontract. Subletting by subcontractors shall be subject to the same regulations. Nothing

contained in this Agreement shall create any contractual relation between any subcontractor and the City/County.

4. The Firm will include in all contracts and subcontracts in excess of \$150,000 a provision which requires compliance with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). The provisions shall require reporting of violations to TDA and to the Regional Office of the Environmental Protection Agency (EPA).
5. The Firm will include in all contracts and subcontracts in excess of \$150,000 provisions or conditions which will allow for administrative, contractual or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as may be appropriate.
6. The Firm will include in all contracts and subcontracts in excess of \$10,000 provisions addressing termination for cause and for convenience by the City/County including the manner by which it will be effected and the basis for settlement..
7. The Firm will include in all contracts and subcontracts provisions requiring compliance with the following, if applicable:
 - a. Prime construction contracts in excess of \$2,000, compliance with the Davis-Bacon Act, as amended (40 U.S.C.3141-3144, 3146-3148) as supplemented by Department of Labor regulations (29 CFR part 5);
 - b. Prime construction contracts in excess of \$2,000, compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR part 3)
 - c. Contracts greater than \$10,000, the inclusion of the Equal Opportunity clause provided under 41 CFR 60-1.4(b) (Executive Order 11246);
 - d. Section 3 of the Housing and Urban Development Act of 1968;
 - e. Contracts exceeding \$100,000, compliance with the Byrd Anti-Lobbying Amendment (31 U.S.C. 1352);
 - f. For contracts in excess of \$100,000 that involve the employment of mechanics or laborers, compliance with the Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708), including work week requirements and safety conditions for workers, as supplemented by Department of Labor regulations (29 CFR Part 5); and
8. The Firm will include in all negotiated contracts and subcontracts a provision which indicates that funds will not be awarded under this contract to any party which is debarred, suspended, or otherwise excluded from or ineligible for participation in federal assistance programs under Executive Order 12549 and 2 CFR Part 2424. A certification shall be provided and received from each proposed subcontractor under this contract and its principals.
9. The Firm will include in all negotiated contracts and subcontracts a provision to the effect that the City/County, TDA, the Texas Comptroller of Public Accounts, the Comptroller General of the United States, the U.S. Department of Housing and Urban Development (HUD), or any of their duly authorized representatives, shall have access to any books, documents, papers and records of the contractor which are directly pertinent to that specific contract, for the purpose of making audit, examination, excerpts, and transcriptions.
10. The Firm will include in all contracts and subcontracts a requirement that the contractor maintain all relevant project records for three (3) years after the City/County has made final payment to the contractor and all other pending matters are closed.

STANDARD OF PERFORMANCE AND DEFICIENCIES

1. All services of the Firm and its independent professional associates, consultants and subcontractors will be performed in a professional, reasonable and prudent manner in

accordance with generally accepted professional practice. The Firm represents that it has the required skills and capacity to perform work and services to be provided under this Agreement.

2. The Firm represents that services provided under this Agreement shall be performed within the limits prescribed by the City/County in a manner consistent with that level of care and skill ordinarily exercised by other professional consultants under similar circumstances.
3. Any deficiency in Firm's work and services performed under this contract shall be subject to the provisions of applicable state and federal law. Any deficiency discovered shall be corrected upon notice from City/County and at the Firm's expense if the deficiency is due to Firm's negligence. The City/County shall notify the Firm in writing of any such deficiency and provide an opportunity for mutual investigation and resolution of the problem prior to pursuit of any judicial remedy. In any case, this provision shall in no way limit the judicial remedies available to the City/County under applicable state or federal law.
4. The Firm agrees to and shall hold harmless the City/County, its officers, employees, and agents from all claims and liability of whatsoever kind or character due to or arising solely out of the negligent acts or omissions of the Firm, its officers, agents, employees, subcontractors, and others acting for or under the direction of the Firm doing the work herein contracted for or by or in consequence of any negligence in the performance of this Agreement, or by or on account of any omission in the performance of this Agreement.

PART III

PAYMENT SCHEDULE

City shall reimburse the Firm for professional services provided upon completion of the following project milestones per the following percentages of the maximum contract amount:

Milestone	% of Contract Fee
• Approval of Preliminary Engineering Plans and Specifications by City/County.	20%
• Approval of Plans and Specifications by Regulatory Agency(ies).	30%
• Completion of bid advertisement and contract award.	20%
• Completion of construction staking.	10%
• Completion of Final Closeout Assessment and submittal of "As Builts" to City/County.	10%
• Completion of final inspection and acceptance by the City/County.	10%
Total	100%

NOTE: Percentages of payment listed here are general guidelines based on engineering services typically provided. These are negotiable, and should serve only as a guide. Payment schedule should be tied directly to the actual Scope of Work identified in Part II - Scope of Services.

SPECIAL SERVICES

Special Services shall be reimbursed under the following hourly rate schedule: (List all applicable services to include overhead charge).

Registered Surveyor	\$ _____
Survey Crew (3 members)	\$ _____
Project Engineer	\$ _____
Engineering Technician	\$ _____
Project Representative	\$ _____
Draftsman	\$ _____

The fee for all other Special Services shall not exceed a total of _____ and No/100 Dollars (\$_____). The payment for these Special Services shall be paid as a lump sum, per the following schedule:

1. The Firm shall be paid upon completion of surveying, necessary field data, and acquisition data, if applicable, the sum of _____ and No/100 Dollars (\$_____).
2. The Firm shall be reimbursed the actual costs of necessary testing based on itemized billing statements from the independent testing laboratory, plus a _____ percent (____%) overhead charge. All fees for testing shall not exceed a total of _____ and No/100 Dollars (\$_____).
3. The payment requests shall be prepared by the Firm and be accompanied by such supporting data to substantiate the amounts requested.
4. Any work performed by the Firm prior to the execution of this Agreement is at the Firm's sole risk and expense.

PART IV

TERMS AND CONDITIONS

1. Termination of Agreement for Cause. If the Firm fails to fulfill in a timely and proper manner its obligations under this Agreement, or if the Firm violates any of the covenants, conditions, agreements, or stipulations of this Agreement, the City/County shall have the right to terminate this Agreement by giving written notice to the Firm of such termination and specifying the effective date thereof, which shall be at least five days before the effective date of such termination. In the event of termination for cause, all finished or unfinished documents, data, studies, surveys, drawings, maps, models, photographs and reports prepared by the Firm pursuant to this Agreement shall, at the option of the City/County, be turned over to the City / County and become the property of the City / County. In the event of termination for cause, the Firm shall be entitled to receive reasonable compensation for any necessary services actually and satisfactorily performed prior to the date of termination.

Notwithstanding the above, the Firm shall not be relieved of liability to the City/County for damages sustained by the City/County by virtue of any breach of the Agreement by the Firm, and the City/County may set-off the damages it incurred as a result of the Firm's breach of the contract from any amounts it might otherwise owe the Firm.

2. Termination for Convenience of the City/County.

City/County may at any time and for any reason terminate Contractor's services and work at City/County's convenience upon providing written notice to the Contractor specifying the extent of termination and the effective date. Upon receipt of such notice, Contractor shall, unless the notice directs otherwise, immediately discontinue the work and placing of orders for materials, facilities and supplies in connection with the performance of this Agreement.

[Parties should include the manner by which such termination will be effected and the basis for settlement or any other terms and conditions concerning payment upon such termination.]

3. Changes. The City/County may, from time to time, request changes in the services the Firm will perform under this Agreement. Such changes, including any increase or decrease in the amount of the Firm's compensation, must be agreed to by all parties and finalized through a signed, written amendment to this Agreement.
4. Resolution of Program Non-Compliance and Disallowed Costs. In the event of any dispute, claim, question, or disagreement arising from or relating to this Agreement, or the breach thereof, including determination of responsibility for any costs disallowed as a result of non-compliance with federal, state or TxCDBG program requirements, the parties hereto shall use their best efforts to settle the dispute, claim, question or disagreement. To this effect, the parties shall consult and negotiate with each other in good faith within 30 days of receipt of a written notice of the dispute or invitation to negotiate, and attempt to reach a just and equitable solution satisfactory to both parties. If the matter is not resolved by negotiation within 30 days of receipt of written notice or invitation to negotiate, the parties agree first to try in good faith to settle the matter by mediation administered by the American Arbitration Association under its Commercial Mediation Procedures before resorting to arbitration, litigation, or some other dispute resolution procedure. The parties may enter into a written amendment to this Amendment and choose a mediator that is not affiliated with the American Arbitration Association. The parties shall bear the costs of such mediation equally. *[This section may also provide for the qualifications of the mediator(s), the locale of meetings, time limits, or any other item of concern to the parties.]* If the matter is not resolved through such mediation within 60 days of the initiation of that procedure, either party may proceed to file suit.

5. Personnel.

- a. The Firm represents that he/she/it has, or will secure at its own expense, all personnel required in performing the services under this Agreement. Such personnel shall not be employees of or have any contractual relationship with the City/County.
- b. All of the services required hereunder will be performed by the Firm or under its supervision and all personnel engaged in the work shall be fully qualified and shall be authorized or permitted under State and Local law to perform such services.
- c. None of the work or services covered by this Agreement shall be subcontracted without the prior written approval of the City/County. Any work or services subcontracted hereunder shall be specified by written contract or agreement and shall be subject to each provision of this Agreement.

6. Assignability. The Firm shall not assign any interest on this Agreement, and shall not transfer any interest in the same (whether by assignment or novation), without the prior written consent of the City/County thereto; Provided, however, that claims for money by the Firm from the City/County under this Agreement may be assigned to a bank, trust company, or other financial institution without such approval. Written notice of any such assignment or transfer shall be furnished promptly to the City/County.

7. Reports and Information. The Firm, at such times and in such forms as the City/County may require, shall furnish the City/County such periodic reports as it may request pertaining to the work or services undertaken pursuant to this Agreement, the costs and obligations incurred or to be incurred in connection therewith, and any other matters covered by this Agreement.

8. Records and Audits. The Firm shall insure that the City/County maintains fiscal records and supporting documentation for all expenditures of funds made under this contract in a manner that conforms to 2 CFR 200.300-.309, 24 CFR 570.490, and this Agreement. Such records must include data on the racial, ethnic, and gender characteristics of persons who are applicants for, participants in, or beneficiaries of the funds provided under this Agreement. The Firm and the City/County shall retain such records, and any supporting documentation, for the greater of three years from closeout of the Agreement or the period required by other applicable laws and regulations.

9. Findings Confidential. All of the reports, information, data, etc., prepared or assembled by the Firm under this contract are confidential and the Firm agrees that they shall not be made available to any individual or organization without the prior written approval of the City/County.

10. Copyright. No report, maps, or other documents produced in whole or in part under this Agreement shall be the subject of an application for copyright by or on behalf of the Firm.

11. Compliance with Local Laws. The Firm shall comply with all applicable laws, ordinances and codes of the State and local governments, and the Firm shall save the City/County harmless with respect to any damages arising from any tort done in performing any of the work embraced by this Agreement.

12. Conflicts of interest.

- a. Governing Body. No member of the governing body of the City/County and no other officer, employee, or agent of the City/County, who exercises any functions or responsibilities in

connection with administration, construction, engineering, or implementation of TxCDBG award between TDA and the City / County, shall have any personal financial interest, direct or indirect, in the Firm or this Agreement; and the Firm shall take appropriate steps to assure compliance.

- b. Other Local Public Officials. No other public official, who exercises any functions or responsibilities in connection with the planning and carrying out of administration, construction, engineering or implementation of the TxCDBG award between TDA and the City/County, shall have any personal financial interest, direct or indirect, in the Firm or this Agreement; and the Firm shall take appropriate steps to assure compliance.
- a. The Firm and Employees. The Firm warrants and represents that it has no conflict of interest associated with the TxCDBG award between TDA and the City/County or this Agreement. The Firm further warrants and represents that it shall not acquire an interest, direct or indirect, in any geographic area that may benefit from the TxCDBG award between TDA and the City/County or in any business, entity, organization or person that may benefit from the award. The Firm further agrees that it will not employ an individual with a conflict of interest as described herein.

13. Debarment and Suspension (Executive Orders 12549 and 12689)

The Firm certifies, by entering into this Agreement, that neither it nor its principals are presently debarred, suspended, or otherwise excluded from or ineligible for participation in federally-assisted programs under Executive Orders 12549 (1986) and 12689 (1989). The term "principal" for purposes of this Agreement is defined as an officer, director, owner, partner, key employee, or other person with primary management or supervisory responsibilities, or a person who has a critical influence on or substantive control over the operations of the Firm. The Firm understands that it must not make any award or permit any award (or contract) at any tier to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in Federal assistance programs under Executive Order 12549, "Debarment and Suspension."

Federal Civil Rights Compliance.

14. Equal Opportunity Clause (applicable to federally assisted construction contracts and subcontracts over \$10,000).

During the performance of this contract, the Firm agrees as follows:

- a. The Firm will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Firm will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Firm agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- b. The Firm will, in all solicitations or advertisements for employees placed by or on behalf of the Firm, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

- c. The Firm will not discourage or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.
 - d. The Firm will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Firm's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
 - e. The Firm will comply with all provisions of Executive Order 11246 of September 24, 1965, "Equal Employment Opportunity," and of the rules, regulations, and relevant orders of the Secretary of Labor.
 - f. The Firm will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
 - g. In the event of the Firm's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Firm may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
 - h. The Firm will include the portion of the sentence immediately preceding paragraph (a) and the provisions of paragraphs (a) through (h) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Firm will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, That in the event a Firm becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the Firm may request the United States to enter into such litigation to protect the interests of the United States.
15. Civil Rights Act of 1964. Under Title VI of the Civil Rights Act of 1964, no person shall, on the grounds of race, color, religion, sex, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

16. Section 109 of the Housing and Community Development Act of 1974. The Firm shall comply with the provisions of Section 109 of the Housing and Community Development Act of 1974. No person in the United States shall on the ground of race, color, national origin, religion, or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under this title.
17. Section 504 of the Rehabilitation Act of 1973, as amended. The Firm agrees that no otherwise qualified individual with disabilities shall, solely by reason of his/her disability, be denied the benefits of, or be subjected to discrimination, including discrimination in employment, under any program or activity receiving federal financial assistance.
18. Age Discrimination Act of 1975. The Firm shall comply with the Age Discrimination Act of 1975 which provides that no person in the United States shall on the basis of age be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.
19. Byrd Anti-Lobbying Amendment (31 U.S.C. 1352) (if contract greater than or equal to \$100,000) The Firm certifies that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining this contract. The Firm shall disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award.

20. Economic Opportunities for Section 3 Residents and Section 3 Business Concerns.

- (a) The work to be performed under this Contract is subject to the requirements of section 3 of the Housing and Urban Development (HUD) Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.
- (b) The parties to this Contract agree to comply with HUD's regulations in 24 CFR part 75, which implement section 3. As evidenced by their execution of this Contract, the parties to this Contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 75 regulations.
- (c) The Contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 75, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 75. The Contractor will not subcontract with any subcontractor where the Contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 75.
- (d) The Contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the Contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 75 require employment opportunities to be directed, were not filled to circumvent the Contractor's obligations under 24 CFR part 75. Minimum expectations of effort to direct employment opportunities to such workers are identified in the TxCDBG Project Implementation Manual.
- (e) Noncompliance with HUD's regulations in 24 CFR part 75 may result in sanctions, termination of this Contract for default, and debarment or suspension from future HUD assisted contracts.

PART V

PROJECT TIME SCHEDULE

ENGINEERING/ARCHITECTURAL/SURVEYOR PROFESSIONAL SERVICES

Year 1: Preliminary Phase (Months 1-12)

Objective: Conduct initial project preparation, surveys, and conceptual design.

Duration: 12 months

Task	Duration	Timeline	Responsible Party	Deliverable
Kick-off Meeting	1 month	Months 1	Project Manager	Meeting Notes, Initial Plan
Project Scope Development	2 months	Months 2-3	Engineering Team	Draft Scope of Work
Stakeholder Consultation	2 months	Months 4-5	Architect/Surveyor	Stakeholder Input Report
Field Surveys and Site Analysis	3 months	Months 6-8	Surveyor	Survey Reports
Conceptual Design Drafting	4 months	Months 9-12	Architectural/Engineering	Draft Conceptual Design

Year 2: Design and Bid Phase (Months 13-24)

Objective: Finalize designs, conduct environmental assessments, and prepare for procurement.

Duration: 12 months

Task	Duration	Timeline	Responsible Party	Deliverable
Environmental Impact Analysis	3 months	Months 13-15	Environmental Engineer	Environmental Report
Review and Approval of Concept Design	3 months	Months 16-18	Project Team/Stakeholders	Final Approved Design
Preparation of Bid Documents	3 months	Months 19-21	Engineering/Legal Team	Final Bid Package
Bid Advertisement	1 month	Month 22	Project Manager	Advertisement Copies
Bid Review and Contractor Selection	2 months	Months 23-24	Evaluation Committee	Selected Contractor

Year 3: Construction and Close-Out Phase (Months 25-36)

✓ **Objective:** Oversee construction, perform quality control, and ensure project close-out.

Duration: 12 months

Construction Implementation

Task	Duration	Timeline	Responsible Party	Deliverable
Pre-construction Meetings	1 month	Month 25	Project Manager/Contractor	Meeting Notes, Schedule Plan
Construction Implementation	9 months	Months 26-34	Contractor	Progress Reports
Quality Control and Inspections	Ongoing	Months 26-34	Engineering/Surveyor Team	Inspection Reports

Close-Out Activities

Task	Duration	Timeline	Responsible Party	Deliverable
Final Inspections	1 month	Month 35	Surveyor/Engineering Team	Final Inspection Report
Punch List Completion	1 month	Month 35	Contractor	Completed Punch List
Submission of As-Built Drawings	1 month	Month 36	Architect/Engineering Team	As-Built Drawings
Project Close-Out Report	1 month	Month 36	Project Manager	Final Close-Out Document

Exhibit 1.

MONTHLY STATUS REPORT

Grant Recipient: _____ Date Submitted: _____

Grant No.: _____ Reporting Period: _____

Project Status:

Date of Last Inspection: _____

Name of Inspector: _____

Inspection Description:

Projected Date of Construction Completion: _____

Amount of Last Pay Request: _____

Date of Last Pay Request: _____

Status of Last Pay Request: _____

List of Subcontractors Onsite

Name

Date Cleared by Grant Administrator

_____	_____
_____	_____
_____	_____

**This report may be e-mailed or faxed to the Grant Recipient*

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the 18W.D. H.B. 23.8-h Leg., August 5, 2010. (16c, J86b) Mairel S 091 Neall a o o c w o a n c : e ' M i n c h a p e r 176, L O C a l G o v e r n m e n t c o o e , D y a v e n o o r n a s a l t . d i e s s r e l a t i o n s h i p a s o e n n e o s e c t i o n 176.001(1-8) w i t h a l o a l l g o v e r n m e n t a l e n t i t y ' a i C I l r l e v o o a o r m e e l S r e q u i r e m e n t s s e c t i o n 176.006(a).

2) i a w 1 r 11 s q . t 8 6 t c m a r e m u s t o e n 1 E 1 C 1 w t 1 1 t n e r e o o r s a a n i N 6 t r a l o r m 1 r l e k l C 8 l E f f i l 1 8 t a J n o t 1 a 1 t r a n t n e n n D u 5 r e s s c a y a r t e r t n e o a : 1 8 l r l e v e n t : W D e O O m e 6 a w a e 0 1 t a c t s t n a t r t r e t n e s t a t e n t e r t o o e 1 1 1 e c 1 . s e e s e c u o n 1 1 6 . 0 0 6 (a - - 1) , L O C a l G o v e r n m e n t c o a e .

A v e n t t : W o x r w n n s a n 0 1 e n s - e t n e v e r y J O r 1 1 n G W 1 r y v l c t a : l e s s e c b o n 176.006, L e c : 8 1 1 G o v e r n m e n t c o o e . M c c e n s e l . 1 1 0 8 r f i t s s e c t o o t s a r r r s o e m e a r o r .

1. Name of vendor who has a business relationship with local government entity.

D

OFFICE USE ONLY

O. io

Check this box if you are filing an update to a previously filed questionnaire. (The law requires that you file an updated Conflict of Interest questionnaire with the appropriate filing authority no later than the 7th business day after the date on which you became aware that the originally filed questionnaire was ROI 1 or inaccurate.)

1. Name of local government officer about whom the information is being disclosed

Name of Officer

Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ.

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

Yes ☐ No ☐

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer? If the taxable income is not received from the local government entity?

Yes ☐ No ☐

Describe each employment or business relationship that the vendor, named in Section 1, maintains with a corporation or other business entity with respect to which the local ve. lili8 officer serves as an officer or director, or holds an ownership interest of one percent or more.

Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(8), including gifts described in Section 176.003(1).

1

Signature of vendor, OOI DuS1086\$Wun.. e government entity

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.senate.state.tx.us/Docs/LG/htm/LG_176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1)(a): "Business relationship" means a connection between two or more parties based on noncommercial activity of one of the parties. The term does not include a connection based on:

- (A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;
- (B) a transaction conducted at a price and subject to terms available to the public; or
- (C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.001(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

(2) He or she:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds \$2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed;

or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than \$100 in the 12-month period preceding the date the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with an aggregate value specified in Section 176.003(a)(2)(B), excluding any gift described by Section 176.006(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

Sample - Engineer/Architect/Surveyor Rating Sheet

Grant Recipient _____
 Name of Respondent _____
 Evaluator's Name _____

TxCDBG Contract No. _____
 Date of Rating _____

Experience -- Rate the respondent for experience in the following areas:

<u>Factor</u>	<u>Max.Pts.</u>	<u>Score</u>	<u>Comments</u>
1. Has previously designed _____ type of projects	20	_____	
2. Has worked on federally funded construction projects	10	_____	
3. Has worked on projects that were located in this general region.	10	_____	
Note: Location for A/E (Architect/Engineer) may be a selection criterion provided its application leaves an appropriate number of qualified firms, given the nature and size of the project, to compete for the contract. 2 CFR 200.319(b)			
4. Extent of experience in project construction management	15	_____	
5. Current Certification of TxCDBG Project Implementation Training	5	_____	
Subtotal, Experience	60	=====	

Work Performance

<u>Factor</u>	<u>Max.Pts.</u>	<u>Score</u>
1. Past projects completed on schedule	10	_____
2. Manages projects within budgetary constraints	5	_____
3. Work product is of high quality	10	_____
Subtotal, Performance	25	=====

NOTE: Information necessary to assess the respondent on these criteria should be gathered by contacting past/current clients.

Capacity to Perform

<u>Factor</u>	<u>Max.Pts.</u>	<u>Score</u>
1. Staff Level / Experience of Staff	5	_____
2. Adequacy of Resources	5	_____
3. Professional liability insurance is in force	5	_____
Subtotal, Capacity to Perform	15	=====

TOTAL SCORE

<u>Factor</u>	<u>Max.Pts.</u>	<u>Score</u>
☐ Experience	60	_____
☐ Work Performance	25	_____
☐ Capacity to Perform	15	_____
Total Score	100	=====

Addendum #1
06/16/2025
RFQ LM 25-03 Engineering / Architecture / Surveying Services

The deadline for this bid posting has been extended from June 18, 2025 to July 7, 2025.

CITY OF LA MARQUE

REQUEST FOR QUALIFICATIONS PROFESSIONAL ENGINEERING SERVICES

RELATED TO PREPARATION OF

2023-2024 DRINKING WATER STATE REVOLVING FUND
AND/OR
CLEAN WATER STATE REVOLVING FUND
TEXAS WATER DEVELOPMENT BOARD

STATEMENT OF QUALIFICATIONS



DUE: MONDAY, JULY 7, 2025 @ 10 AM

TABLE OF CONTENTS

- I. TRANSMITTAL LETTER
- II. STATEMENT OF QUALIFICATIONS
- III. FIRM QUALIFICATIONS AND STAFF
- IV. REQUIRED DOCUMENTATION
 - a) CERTIFICATE OF INSURANCE FOR PROFESSIONAL LIABILITY
 - b) SAM.GOV
 - c) CONFLICT OF INTEREST QUESTIONNAIRE, FORM CIQ
 - d) CERTIFICATION REGARDING LOBBYING
 - e) DISCLOSURE OF LOBBYING ACTIVITIES
 - f) CERTIFICATE OF INTERESTED PARTIES, FORM 1295

TRANSMITTAL LETTER

Thursday, July 3, 2022

Kierra Nance
City Clerk
City of La Marque
1111 Bayou Rd.
La Marque, TX 77567
submitbid@cityoflamarque.org

Re: Request for Qualifications for Engineering Services – 2023-2024 Drinking Water State Revolving Fund (DWSRF) and/or Clean Water State Revolving Fund (CWSRF) programs from the Texas Water Development Board (TWDB)
City of La Marque, TX
Statement of Qualifications for Engineering Services

Dear Ms. Nance:

Adico, LLC is pleased to submit for your review and consideration our Statement of Qualifications for Engineering Services to assist the City in its application and project implementation of a contract, if awarded, from the Texas Water Development Board for the 2023-2024 Drinking Water State Revolving Fund and/or Clean Water State Revolving Fund for citywide infrastructure projects in the City of La Marque.

Adico understands the Scope of Work as detailed in the Request for Qualifications (RFQ) for Engineering services as advertised on June 3, 2025. Adico acknowledges our firm is a qualified, experienced, state licensed engineering firm and able to perform these services. Adico has not had a record of substandard work or engaged in any unethical practices within the last five years.

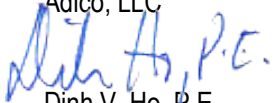
We hope, after your review of our Statement of Qualifications, that we have provided a glimpse of our professional engineering services for the City of La Marque's upcoming projects. We have no doubt that Adico, LLC, a small and minority owned business, can provide the city with competent, proficient, and valuable professional engineering services.

Our contact information is below:

Dinh V. Ho, P.E.
Adico, LLC
205 E. Edgewood Dr.
Friendswood, TX 77578
Ph: 832-895-1093
Email: dinh@adico-llc.com

We appreciate your time and consideration and look forward to hearing from you.

Sincerely,
Adico, LLC



Dinh V. Ho, P.E.
TBPE Firm No. 16423

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS



I. PROGRAM DESCRIPTION

The City of La Marque is seeking to enter an engineering services contract with a State of Texas-registered engineer to assist the City in its application and project implementation of a contract, if awarded, from the Texas Water Development Board for the 2023-2024 Drinking Water State Revolving Fund (DWSDF) and/or Clean Water State Revolving Fund (CWSRF) programs. The City of La Marque will be applying for such funding to support citywide infrastructure projects in the City of La Marque.

This contract is contingent upon the release of funds from the Texas Water Development Board (TWBD). Any contracts or contracts awarded under this Request for Proposals are expected to be funded by a loan from the TWBD.

This contract is subject to the Environmental Protection Agency's (EPA) Disadvantaged Business Enterprise (DBE) Program, which includes EPA approved fair share goals for Minority and Women-owned Business Enterprise (M/WBE) firms. EPA rules require that applicants and prime contractors make a good faith effort to award a fair share of contracts, subcontracts, and procurements to M/WBEs through the demonstration of the six affirmative steps.

For the cost of engineering professional services, negotiations must occur after the initial selection of the engineer as price cannot be used as a selection factor.

II. SCOPE OF WORK

Adico, LLC understands the Scope of Work listed in the Request for Qualifications for Engineering Services. The engineering contract will encompass all project-related engineering services to the City, including but not limited to the following:

1. Attend preliminary conferences with the City/County regarding the requirements of the project.
2. Determine necessity for acquisition of any additional real property/easements/right-of-ways (ROWs) for the TxCDBG project and, if applicable, furnish to the City/County:
 - a. Name and address of property owners;
 - b. Legal description of parcels to be acquired; and
 - c. Map showing entire tract with designation of part to be acquired.
3. Make any necessary surveys of existing rights-of-way, topography, utilities, or other field data required for proper design of the project. Provide consultation and advice as to the necessity of the City/County providing or obtaining other services such as auger borings, core borings, soil tests, or other subsurface explorations; laboratory testing and inspecting of samples or materials; other special consultations. The Firm will review any tests required and act as the City/County's representative in connection with any such services.
4. Prepare railroad/highway permits.
5. Prepare a preliminary engineering/architectural study and report on the project in sufficient detail to indicate clearly the problems involved and the alternate solutions available to the City/County, to include preliminary layouts, sketches and cost estimates for the project, and to set forth clearly the Firm's recommendations; to be completed within _____ days of execution of this Agreement.
6. Furnish the City/County copies of the preliminary report, if applicable (additional copies will be furnished to the City/County at direct cost of reproduction).

STATEMENT OF QUALIFICATIONS



7. Make periodic visits, no less than every 30 days during the construction period, to the construction site to observe the progress and quality of the work, to ensure that the work conforms with the approved plans and specifications, and to determine if the work is proceeding in accordance with the Agreement.
8. Furnish the City/County a written monthly status report at least seven (7) days prior to the regularly scheduled council/commissioner's court meeting until the project is closed by TDA. The format for this report is attached to this Agreement as Exhibit 1.
9. Submit detailed drawings and plans/specifications to appropriate regulatory agency(ies) and obtain clearance.
10. Prepare bid packet/contract documents/advertisement for bids. At the time the bid packet is completed, the Firm shall also furnish to the City/County an updated written Estimate of Probable Costs for the Project.
11. Make 10-day call to confirm prevailing wage decision.
12. Incorporate any and all wage rate modifications or supersedes via bid addendum (if applicable).
13. Conduct bid opening and prepare minutes.
14. Tabulate, analyze, and review bids for completeness and accuracy.
15. Accomplish construction contractor's eligibility verification through www.SAM.gov.
16. Conduct pre-construction conference and prepare copy of report/minutes.
17. Issue Notice to Proceed to construction contractor.
18. Provide in all proposed construction contracts deductive alternatives where feasible, so that should the lowest responsive base bid for construction exceed the funds available, deductive alternatives can be taken to reduce the bid price.
19. Design for access by persons with disabilities for those facilities to be used by the public in accordance with Public Law 504.
20. Use TDA-approved forms for instructions to bidders, general conditions, contract, bid bond, performance bond, and payment bond.
21. Consult with and advise the City/County during construction; issue to contractors all instructions requested by the City/County; and prepare routine change orders if required, at no charge for engineering services to the City/County when the change order is required to correct errors or omissions by the Firm; provide price analysis for change orders; process change orders approved by City/County and the Firm and submit to TDA for approval prior to execution with the construction contractor.
22. Review shop and working drawings furnished by contractors for compliance with design concept and with information given in contract documents (contractors will be responsible for dimensions to be confirmed and correlated at job site).
23. Resolve all payment requests within 14 days of receipt of signed pay request from the construction contractor.
24. Based on the Firm's on-site observations and review of the contractor's applications for payment, determine the amount owed to the contractor in such amounts; such approvals of payment to constitute a representation to the City/County, based on such observations and review, that the work has progressed to the point indicated and that the quality of work is in accordance with the plans, specifications and contract documents.
25. Recommend that a 10% retainage is withheld from all payments on construction contracts until final acceptance by the City/County and approval by TDA, unless State or local law provides otherwise.
26. Prepare Certificate of Construction Completion and Clean Lien Certificate. A Clean Lien Certificate may be prepared for each of the Prime Contractor(s) and each of the subcontractor(s).

STATEMENT OF QUALIFICATIONS



27. Conduct interim/final inspections.
28. Revise contract drawings to show the work as actually constructed, and furnish the City/County with a set of "record drawings" plans.
29. The Firm will provide a copy of the final project record drawing(s) engineering schematic(s), as constructed using funds under this contract. These maps shall be provided in digital format containing the source map data (original vector data) and the graphic data in files on machine readable media, such as compact disc (CD), which are compatible with computer systems owned or readily available to the owner. The digital copy provided shall not include a digital representation of the engineer's seal but the accompanying documentation from the Firm shall include a signed statement of when the map was authorized, that the digital map is a true representation of the original sealed document, and that a printed version with the seal has been provided to the City/County. In addition, complete documentation as to the content and layout of the data files and the name of the software package(s) used to generate the data and maps shall be provided to the owner in written form.

SUBCONTRACTS

1. No work under this Agreement shall be subcontracted by the Firm without prior approval, in writing, from the City/County.
2. The Firm shall, prior to proceeding with the work, notify the City/County in writing of the name of any subcontractors proposed for the work, including the extent and character of the work to be done by each.
3. If any time during progress of the work, the City/County determines that any subcontractor is incompetent or undesirable, the City/County will notify the Firm who shall take reasonable and immediate steps to satisfactorily cure the problem, substitute performance, or cancel such subcontract. Subletting by subcontractors shall be subject to the same regulations. Nothing contained in this Agreement shall create any contractual relation between any subcontractor and the City/County.
4. The Firm will include in all contracts and subcontracts in excess of \$150,000 a provision which requires compliance with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). The provisions shall require reporting of violations to TDA and to the Regional Office of the Environmental Protection Agency (EPA).
5. The Firm will include in all contracts and subcontracts in excess of \$150,000 provisions or conditions which will allow for administrative, contractual or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as may be appropriate.
6. The Firm will include in all contracts and subcontracts in excess of \$10,000 provisions addressing termination for cause and for convenience by the City/County including the manner by which it will be effected and the basis for settlement..
7. The Firm will include in all contracts and subcontracts provisions requiring compliance with the following, if applicable:
 - a. Prime construction contracts in excess of \$2,000, compliance with the Davis-Bacon Act, as amended (40 U.S.C.3141-3144, 3146-3148) as supplemented by Department of Labor regulations (29 CFR part 5);
 - b. Prime construction contracts in excess of \$2,000, compliance with the Copeland "Anti- Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR part 3)

STATEMENT OF QUALIFICATIONS



- c. Contracts greater than \$10,000, the inclusion of the Equal Opportunity clause provided under 41 CFR 60-1.4(b) (Executive Order 11246);
 - d. Section 3 of the Housing and Urban Development Act of 1968;
 - e. Contracts exceeding \$100,000, compliance with the Byrd Anti-Lobbying Amendment (31 U.S.C. 1352);
 - f. For contracts in excess of \$100,000 that involve the employment of mechanics or laborers, compliance with the Contract Work Hours and Safety Standards Act (40 U.S.C. 3701–3708), including work week requirements and safety conditions for workers, as supplemented by Department of Labor regulations (29 CFR Part 5); and
8. The Firm will include in all negotiated contracts and subcontracts a provision which indicates that funds will not be awarded under this contract to any party which is debarred, suspended, or otherwise excluded from or ineligible for participation in federal assistance programs under Executive Order 12549 and 2 CFR Part 2424. A certification shall be provided and received from each proposed subcontractor under this contract and its principals.
 9. The Firm will include in all negotiated contracts and subcontracts a provision to the effect that the City/County, TDA, the Texas Comptroller of Public Accounts, the Comptroller General of the United States, the U.S. Department of Housing and Urban Development (HUD), or any of their duly authorized representatives, shall have access to any books, documents, papers and records of the contractor which are directly pertinent to that specific contract, for the purpose of making audit, examination, excerpts, and transcriptions.
 10. The Firm will include in all contracts and subcontracts a requirement that the contractor maintain all relevant project records for three (3) years after the City/County has made final payment to the contractor and all other pending matters are closed.

STANDARD OF PERFORMANCE AND DEFICIENCIES

1. All services of the Firm and its independent professional associates, consultants and subcontractors will be performed in a professional, reasonable and prudent manner in accordance with generally accepted professional practice. The Firm represents that it has the required skills and capacity to perform work and services to be provided under this Agreement.
2. The Firm represents that services provided under this Agreement shall be performed within the limits prescribed by the City/County in a manner consistent with that level of care and skill ordinarily exercised by other professional consultants under similar circumstances.
3. Any deficiency in Firm's work and services performed under this contract shall be subject to the provisions of applicable state and federal law. Any deficiency discovered shall be corrected upon notice from City/County and at the Firm's expense if the deficiency is due to Firm's negligence. The City/County shall notify the Firm in writing of any such deficiency and provide an opportunity for mutual investigation and resolution of the problem prior to pursuit of any judicial remedy. In any case, this provision shall in no way limit the judicial remedies available to the City/County under applicable state or federal law.
4. The Firm agrees to and shall hold harmless the City/County, its officers, employees, and agents from all claims and liability of whatsoever kind or character due to or arising solely out of the negligent acts or omissions of the Firm, its officers, agents, employees, subcontractors, and others acting for or under the direction of the Firm doing the work herein contracted for or by or in consequence of any negligence in the performance of this Agreement, or by or on account of any omission in the performance of this Agreement.

STATEMENT OF QUALIFICATIONS



III. STATEMENT OF QUALIFICATIONS

The City of La Marque is seeking an engineering firm that meets certain criteria, including the following:

- Firm experience with municipal construction, including but not limited to wastewater, streets and general infrastructure projects:
- Registered and in good standing as professional engineer per the Texas Engineering Practice Act
- Experience with federally funded construction projects in this region
- Engineering firm that is not debarred or suspending from participating in federal or federally assisted projects in the System for Award Management (SAM)

Adico confirms that we meet these requirements and submit our qualification package for your consideration. An overview of our firm and experience is included in our qualification package.

Our Firm:

Our staff of 20 experienced and knowledgeable employees have afforded the firm with a large portfolio of different types of development projects. We have experience with clients in both the public and private sector. Our projects include planning, preliminary and final design of single family residential, multi-family residential, commercial site development, retail and mixed use, detention facilities, wastewater treatment plants, water plants, and capital infrastructure improvement projects. All our projects include options for contract management and construction phase services.

Our dedicated staff has worked with numerous local government clients. Our current client list includes:

- City of Iowa Colony
- City of La Marque
- City of West Columbia
- Brazoria County Drainage District No. 5
- Village of Bonney
- City of Dickinson

Adico currently serves as City Engineer or District Engineer for the abovementioned municipalities. As City Engineer, one of our primary responsibilities is to collaborate with city officials in identifying the needs of the city and provide recommendations on expansion/repairs of city infrastructure and capital improvement projects. As city engineer, Adico is in a unique position to view the overall landscape of a city and address needs and concerns of its citizens and provide standards of new development while preserving the identity of its citizens. Ensuring that infrastructure keeps pace with growth and evolving needs is key to maintaining a city's livability and functionality.

Company Profile

Adico, LLC is a consulting civil engineering firm based in Friendswood, TX. Adico holds Texas Historically Utilized Business (HUB) certificate and is a Minority Business Enterprise (MBE). Our combined professional experience offers over 50 years of civil engineering expertise in the Houston metropolitan area. Our ambition is simple, we want to use our engineering expertise to create a highly efficient, cost-effective product to, at minimum, exceed our clients' expectations. We have worked with numerous public and private entities to produce projects we are proud to call our own. Smart design, functionality, and budget and time consciousness has been a key staple to our success and the reason for several repeat clients. Availability and constant communication with our clients have been the most important component to our success. In our many years in the business, we have developed strong strategic and prosperous partnerships working with fellow engineers, architects, construction contractors,

STATEMENT OF QUALIFICATIONS



utility districts and governmental agencies to provide clients with the ultimate result of successful projects with thoughtful design.

We offer a wide range of professional civil engineering services. These services include:

- Project conception and initial planning
- Preliminary feasibility studies
- Stage 2 feasibility study
- Preliminary design through final design
- Preparation of construction documents
- Construction phase services

Adico, LLC has consulted on numerous projects, both small and large. Our clients have a vast portfolio of projects throughout the Houston metropolitan area and are proud to have consulted on many of these complex, exclusive and highly unique projects. To name a few, below is a sample of our consulting services:

- Municipality consulting
- Disaster Recovery consulting
- Educational facilities
- Utility analysis
- Drainage analysis
- Street design and construction management
- Sidewalks and parking lots
- Road and bridges
- Storm water management and system design
- Wastewater treatment plants
- Single family residential land development
- Education facilities
- Commercial site development, including office space, warehouse, strip centers, gas stations, etc.

Core Values:

Adico's core values are constant communication and developing lasting professional relationships. Our diverse staff offer professional services working in various specialties to come together and provide the ultimate service of meeting our client's goals. We have never tried to cut on either quality, the pace of work or any other construction aspects. We stay true to fulfill our promise of efficiency and quality service.

Quality:

We believe our attention to details ensures our success. We always aim to "do it right" the first time and eliminate unnecessary steps, to save time and money. From conception of a project, we derive and commit to a game plan that fits the needs of our clients' interests. Our game plan foresees most constraints with time, money and schedule. Market awareness and communication are the key to a successful project.

Pace:

Adico is a prepared firm. We know that most projects are time sensitive. Maintaining an accurate and steady schedule can make or break a project. Our clients are assured that with our representation on the project, the

STATEMENT OF QUALIFICATIONS



project will be delivered in a time sensitive manner. Accuracy and attention to detail is not thwarted when we are given a timeline for completion. As experienced professionals, skillful execution is essential to our success.

Firm Staff and Ability to Perform:

Adico, LLC was formed in 2015 with our principal as its sole employee. In ten years, through building advantageous professional relationships and dedication to our craft, we have rapidly grown into a 20-person staff. We pride ourselves on our expertise in our field and producing quality work that results in repeat clients and referrals. Included in our staff is our principal, Dinh V. Ho, two senior project managers, three project engineers, three design engineers, four project designers, four field inspectors, and three administrative personnel. Our team has decades of experience in hazard mitigation projects at all levels, including planning, designing, and pre and post construction activities for both private and public entities.

Adico recognizes our field, Civil Engineering, is ever changing and always ensures we are knowledgeable to change and adapt to them. Our team is diverse and skilled with over 50 years of solid working experience in due diligence, design, pre and post construction activities and obtaining governmental approvals. The team has built and maintained lasting relationships that have paved the way for our success as a firm.

Resumes of staff and municipal references are available in the firm brochure in the latter portion of this SOQ.

Experience and Qualifications

Adico has recent experience with applying for and being selected for several CDBG-MIT Projects. We have worked with grant writers such as GrantWorks, on the development of grant applications and providing documentation, as necessary. We have been selected for several Engineering contracts, specifically related to CDBG-MIT (Mitigation), CDBG-DR (Disaster Recovery), and CDBG-HMA (Hazard Mitigation Assistance) through various FEMA programs. We have also been selected for the Texas Water Development Board (TWDB) Flood Infrastructure Board (FIF) grant programs.

• FEMA GRANT PROJECTS

As mentioned, Adico has been awarded several CDBG-MIT and HMA projects recently. A brief description of a few is below:

- Iowa Colony, CDBG-DR/MIT Contract No. 24-065-009-E166
 - Regional Mitigation Program (MOD)
 - Drainage Improvements: Iowa Colony Boulevard and Chocolate Bayou West Fork Tributary 101-05-00
 - Reference: Robert Hemminger
 - Status: Bid Phase
- La Marque, CDBG-DR Contract No. 20-065-105-C287
 - Westlawn and Highland Subdivision Drainage Improvements
 - Reference: Cesar Garcia, City Manager
 - Status: Completed 2024
- La Marque, CDBG-MIT Contract No. 22-085-003-D223

STATEMENT OF QUALIFICATIONS

- Hurricane Harvey Flood HUD Mitigation (HMID)
- Citywide Sanitary Manhole and Pipeline Rehabilitation
- Citywide Lift Stations Upgrade
- Reference: Cesar Garcia, City Manager
- Status: Under construction, 50% complete
- La Marque, La Marque, HMGP DR 4485-0402
 - Stormwater Master Drainage Plan
 - Reference: Cesar Garcia, City Manager
 - Status: Project Kickoff initiated June 2024
- City of West Columbia, Application and Pre-Award
 - Citywide Sanitary Sewer Rehabilitation & WWTP
 - Reference: Debbie Sutherland, City Manager
 - Status: Pre-Award Phase
- City of West Columbia – BRIC Application and Pre-Award
 - Stormwater Master Drainage Plan
 - Reference: Debbie Sutherland, City Manager
 - Status: Pre-Award Phase
 - Identified drainage projects that suffered repetitive flooding issues
 - Status: Under construction, 2023

All Adico grant related projects are located within Harris, Brazoria and Galveston counties.

IV. EVALUATION CRITERIA

Adico understands that qualification packages will be evaluated and ranked according to the criteria noted within the RFQ.

V. SAMPLE CONTRACT, PAYMENT SCHEDULE, TERMS AND CONDITIONS, FEDERAL CIVIL RIGHTS COMPLIANCE, PROJECT TIME SCHEDULE FOR ENGINEERING SERVICES, MONTHLY STATUS REPORT

Adico has reviewed these items and have no objections adhering to the requirements.

FIRM PROFILE AND STAFF



Consulting Engineering Services:

Civil Engineers, Project Managers, Construction Management

HISTORY & BACKGROUND

FIRM HISTORY

Dinh Ho, P.E., founded Adico, LLC in 2015 after 20 years of working for both small and large engineering firms in the Houston metropolitan area. Dinh took his experience and relationships and formed Adico with a vision of building a team that provides quality consulting engineering services with an emphasis in customer relationships and availability.

Since 2015, Adico has grown from a single employee to an 18-person team. Adico is thoughtful in its growth and expansion and are selective in the projects we choose. We never want to sacrifice quality of work for more projects. The primary goal is to provide quality engineering services, build lasting relationships, and provide constant communication and availability to our clients.

Adico's knowledgeable and diverse staff has extensive experience which includes planning, design and construction of water distribution, wastewater collection, stormwater systems and roadways for municipalities, utility districts, and private clients.



BRAZORIA COUNTY DRAINAGE DISTRICT #5



BONNEY, TEXAS

MUNICIPAL CONSULTING CITY ENGINEERING

City of Iowa Colony, Texas

City of La Marque, Texas

City of Bonney, Texas

City of West Columbia, Texas

City of Dickinson, Texas

EDUCATION

Katy Independent School District

Alvin Independent School District

Huffman Independent School District

Sheldon Independent School District

New Caney Independent School District

Port Neches-Groves Independent School District

INFRASTRUCTURE

Harris County

Harris County Flood Control District

Galveston County

City of Alvin

City of La Marque

City of Iowa Colony

Harris County MUD No. 148

ENGINEERING SERVICES

SITE DEVELOPMENT

- Retail & Mixed Use
- Townhomes and Multi-Family Projects
- Offices and Medical Facilities
- Education

TRANSPORTATION & TRAFFIC

- Roadways Geometrics
- Construction Sequencing
- Traffic Control Plans
- Utility Relocations
- Signing & Pavement Markings
- Railroad Design and Studies
- Construction Management/ Administration

PLANNING

- Master Planning
- Feasibility Studies
- Land Use Planning and Approvals
- Capital Improvements
- Major Thoroughfare Planning

CIVIL ENGINEERING

- Site Planning and Utilities
- Site Development
- Stormwater Drainage System
- Waste/Wastewater System
- Pump Station Design
- Wastewater Treatment Plan
- Pedestrian Facilities Planning
- Roadway Design
- Construction Administration

WATER RESOURCES

- Storm Water Management Plans
- Channels
- Storm Sewer Systems
- Detention Basins
- Storm Water Pump Stations
- Water Amenities and Water Quality Ponds
- NPDES Permits/FEMA Submittals
- Storm Water Pollution Prevention Plans

LAND DEVELOPMENT

- Feasibility Analysis
- Water Treatment and Distribution
- Wastewater Collection and Treatment
- Storm Water Management
- Erosion/Sedimentation Controls
- Roadway Design
- Traffic Engineering
- Construction Administration

GRANT PROJECT EXPERIENCE

CITY OF IOWA COLONY

- 12" and 8" Water Line Extension along Iowa Colony Blvd. Kelly Leigh
- Regional Mitigation Program (MOD) - Drainage Improvements for Iowa Colony Blvd. and Chocolate Bayou West Fork Tributary
- Ames Road Bridge Replacement

CITY OF LA MARQUE

- Citywide Sanitary Sewer Rehabilitation
- Westlawn and Highland Subdivision Drainage
- Mayhan Park Boat Ramp
- Jefferson St. Paving Improvements
- Citywide Solar Lighting Improvements
- Citywide Asphalt Paving Improvements
- FM 519 TxDOT Sidewalk Project

CITY OF WEST COLUMBIA

- Rainbow Subdivision Water Line Improvements
- Citywide Sanitary Sewer Rehabilitation & Wastewater Treatment Plant

CITY OF BRAZORIA

- Water Line Improvements

KATY ISD

- Flood Damage Mitigation Study—5 campuses

HUFFMAN ISD

- Repair and Replacement of Chiller Pad
- Flood Remediation of Existing Facilities

FEATURED PROJECTS



City of Iowa Colony

Owner: City of Iowa Colony

Location: Ames Rd. at South Hayes Creek

Overview: Ames Rd. Bridge Replacement at South Hayes Creek

Cost Estimate: \$300,000

Contact: Robert Hemminger

Status: Completed 2024

Responsibilities:

- Topographic Survey
- Drainage Analysis
- Prepare construction plans
- Provide traffic control plans
- Provide cost estimate
- Coordinate with review agencies to gain approval on construction plans
- Bid phase services
- Construction phase services

FEATURED PROJECTS



GLO GRANT LIFT STATIONS UPGRADE

Owner: City of La Marque

Location: Throughout the City of La Marque

Overview: Adico provides design and construction phase services for 21 lift stations; converting the lift stations to self-priming pumps, increasing their capacity to eliminate overflow, and add emergency back-up pumps to each station to operate during power outages, further eliminating back up and overflow.

Cost Estimate: \$11,000,000.00

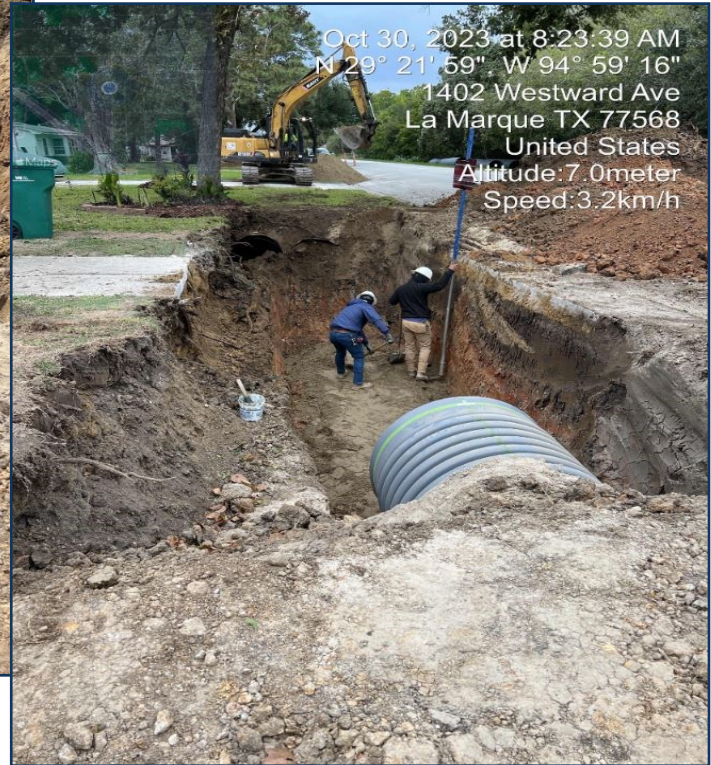
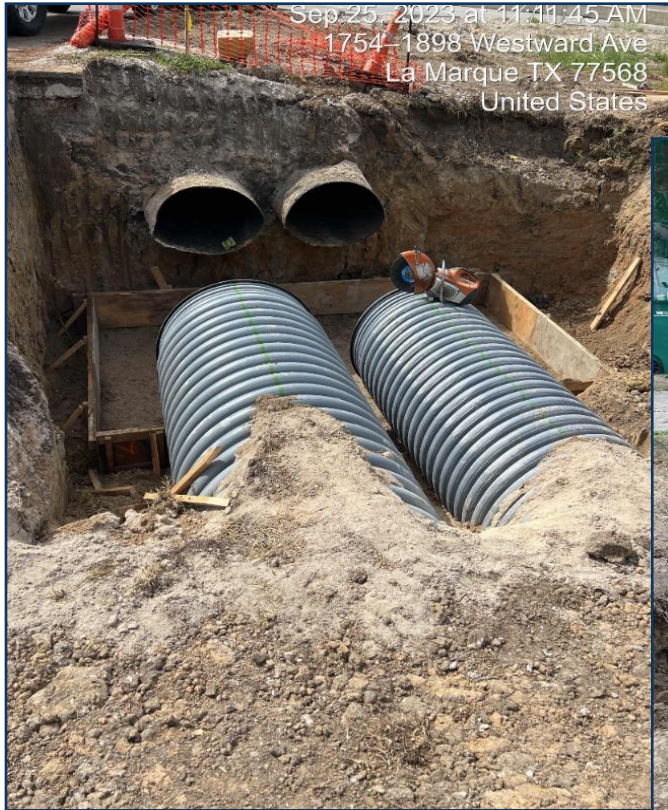
Contact: Rick Sailer

Status: To Be Completed 2025

Responsibilities:

- Engineering Support
- Final Design
- Site Analysis
- Drainage Analysis
- Utility Extension
- Paving, Grading, & Drainage Structures
- Permitting & Platting
- Underground Utilities
- Construction Phase Services
- Bid & Award Support
- Stormwater Pump Station
- Offsite Roadway Improvements

FEATURED PROJECTS



GLO Westlawn and Highland

Owner: City of La Marque

Location: Westlawn and Highland Subdivision Drainage

Overview: Drainage Improvements

Cost Estimate: \$1,700,000.00

Contact: Rick Sailer

Status: Completed July 2023

Responsibilities:

- Preliminary Engineering
- Preliminary and Final Design
- Bidding services—includes but not limited to conducting bid, attending bid meetings, bid opening, tabulation, recommendation, and preparing construction contracts.
- Construction Phase services—includes but not limited to reviewing contractor submittals, observe construction providing reports to the city, respond to RFI's, consultation and advise to the city, inspections throughout and after construction, and preparation of record drawings.

FEATURED PROJECTS



Rainbow Subdivision Waterline Replacement

Owner: City of West Columbia

Location: Rainbow Subdivision

Overview: Waterline Replacement

Cost Estimate: \$285,000

Contact: Debbie Sutherland

Status: Under construction

Responsibilities:

- Preliminary Engineering
- Preliminary and Final Design
- Bidding services—includes but not limited to conducting bid, attending bid meetings, bid opening, tabulation, recommendation, and preparing construction contracts.
- Construction Phase services—includes but not limited to reviewing contractor submittals, observe construction providing reports to the city, respond to RFI's, consultation and advise to the city, inspections throughout and after construction, and preparation of record drawings.

FEATURED PROJECTS



Drainage Improvements on Iowa Colony Blvd. and Chocolate Bayou West Fork Tributary

Owner: City of Iowa Colony

Location: Iowa Colony Blvd.

Overview: Drainage Improvements

Cost Estimate: \$1,800,000

Contact: Robert Hemminger

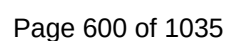
Responsibilities:

- Preliminary Engineering
- Preliminary and Final Design
- Bidding services—includes but not limited to conducting bid, attending bid meetings, bid opening, tabulation, recommendation, and preparing construction contracts.
- Construction Phase services—includes but not limited to reviewing contractor submittals, observe construction providing reports to the city, respond to RFI's, consultation and advise to the city, inspections throughout and after construction, and preparation of record drawings.

TEAM PROFILE

Adico, LLC was formed in 2015 with our principal as its sole employee. In ten years, through building advantageous professional relationships and dedication to our craft, we have rapidly grown into a 20-person staff. We pride ourselves on our expertise in our field and producing quality work that results in repeat clients and referrals. Included in our staff is our principal, Dinh V. Ho, two senior project managers, three project engineers, three design engineers, four project designers, four field inspectors, and three administrative personnel. Our team has decades of experience in hazard mitigation projects at all levels, including planning, designing, and pre and post construction activities for both private and public entities.

Adico recognizes our field, Civil Engineering, is ever changing and always ensures we are knowledgeable to change and adapt to them. Our team is diverse and skilled with over 50 years of solid working experience in due diligence, design, pre and post construction activities and obtaining governmental approvals. The team has built and maintained lasting relationships that have paved the way for our success as a firm.



TEAM PROFILE—RESUME



DINH V. HO, P.E., CFM

PRINCIPAL IN CHARGE

Education: B. S. in Civil Engineering, Lamar University

Licensing: Texas No. 93895

Project Commitment: 100%

Dinh Ho, P.E. brings over 20-years of civil engineering experience in site and land development. He is responsible for overseeing design and management of projects ranging from education to municipalities. His experience includes coordination with surveyors, architects, and other professionals in the preparation of development plans; preparation and review of contractor's bid packages for street paving, sewer, storm water, water utility improvement, franchise utility improvement, and supervision of construction activities

PROJECT EXPERIENCE

- City Engineer, Iowa Colony, TX
- City Engineer, La Marque, TX
- City Engineer, Dickinson, TX
- City Engineer, West Columbia, TX
- City Engineer, Village of Bonney, TX
- District Engineer, Brazoria County Drainage District No. 5
- Iowa Colony Water and Sanitary Master Plan
- Iowa Colony Master Drainage Plan
- Iowa Colony Waterline Extension
- Iowa Colony Impact Fee Study

ADICO
CONSULTING ENGINEERS

TEAM PROFILE—RESUME



PHASITH (SID) NANTHAVONG, P.E.

SENIOR PROJECT MANAGER

Education: B.S. in Engineering Technology in Structural Analysis and Design, University of Houston

Licensing: Texas No. 99284

Project Commitment: 100%

Sid offers over 20-years of experience as a project engineer and project manager in civil engineering. Sid provides extensive knowledge in design and development of commercial site development and municipal projects. His overall experience includes floodplain, mitigation, stormwater detention design, conveyance analysis, stormwater quality/stormwater pollution prevention design, site grading, utility, design layout, roadway design, site investigation and due diligence for land acquisition.

PROJECT EXPERIENCE

- UPS Expansion, La Marque, TX
- 35 Acre Mobile Home Community, Arcola, TX
- 10 Commercial development and utility extension, Baytown, TX
- Fort Bend County MUD 225, Rosenberg, TX
- Memorial Green Residential and Commercial Development, Houston, TX
- Quadvest Water Line and Sanitary Extension, Old Town Springs, TX
- Halliburton North Belt Campus Improvement, Houston, TX
- Milner Road Improvement, Houston, TX
- West Road Extension & Detention, Harris County
- North Sanitary Sewer Extension and Lift Stations and Sanitary Force Main, Lake Jackson, TX

ADICO
CONSULTING ENGINEERS

TEAM PROFILE—RESUME



BRENT BERTHIER, P.E.

SENIOR PROJECT MANAGER

Education: B.E. in Civil Engineering, South Bank University and University of Westminster

Years with Firm: 2021

Project Commitment: 100%

Brent provides 20 years of vast engineering experience and skill. More specifically, his area of interest and expertise lies in wastewater treatment plant design and construction administration. Brent has successfully served as project design engineer, senior project manager, and construction administrator for many WWTP projects. These duties include planning, estimating, design, bidding, contract administration, and construction administration for both municipalities and public projects.

PROJECT EXPERIENCE:

- Iowa Colony Water and Sanitary Master Plan
- Westwood Subdivision Drainage improvements
- City of La Marque Mahan Park Improvements
- City of La Marque GLO Grant Lift Stations Upgrade
- Iowa Colony Waterline Extension
- City of La Marque Street Lighting Study
- City of La Marque Main St. Waterline Replacement
- City of La Marque Main St. Sanitary Sewer Rehab @ Bayou and Eriksson
- Westlawn Subdivision Drainage Improvements
- West Columbia Rainbow Subdivision Drainage Improvements

ADICO
CONSULTING ENGINEERS

REFERENCES

Mayor Raymond Cantu
Village of Bonney
19025 FM 521
Bonney, TX 77583
rcantu@bonneytexas.gov

Mr. Chaise Carey
Assistant City Manager
City of Dickinson
403 Hwy 3
Dickinson, TX 77539
ccarey@dickinsontexas.gov

Debbie Sutherland
City Manager
City of West Columbia
521 E. Brazos Ave.
West Columbia, TX 77486
citymanager@westcolumbiatx.org

Lisa Kassman
Executive Director Facilities, Planning
& Construction
Katy Independent School District
elisabethakassman@katyisd.org

Robert Hemminger
City Manager
City of Navasota
200 E. McAlpine Dr.
Navasota, TX 77868
rhemminger@navasotatx.gov

Kayleen Rosser
City Secretary
City of Iowa Colony
3144 Meridiana Pkwy.
Iowa Colony, TX 77583
krosser@iowacolonytx.gov

REQUIRED DOCUMENTATION

Insert Certificate of Insurance



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

8/8/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Worthen Insurance Group 104 Melody Lane Friendswood TX 77546		CONTACT NAME: Molly Murphy PHONE (A/C, No, Ext): (281) 991-0055 E-MAIL: molly@wortheninsurance.com ADDRESS: INSURER(S) AFFORDING COVERAGE INSURER A: Accredited Surety and Casualty Company Inc INSURER B: HISCOX INS CO INC INSURER C: Starstone National Insurance Company INSURER D: INSURER E: INSURER F:		FAX (A/C, No): NAIC # 26379 10200 25496
INSURED Adico LLC 2114 El Dorado Blvd Unit #400 Friendswood, TX 77546-6505				

COVERAGES**CERTIFICATE NUMBER:****REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☒ POLICY ☐ PRO-JECT ☐ LOC OTHER:	Y	Y	1ABPTX05127961702	12/02/2023	12/02/2024	EACH OCCURRENCE \$1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$50,000 MED EXP (Any one person) \$5,000 PERSONAL & ADV INJURY \$Included GENERAL AGGREGATE \$2,000,000 PRODUCTS - COMP/OP AGG \$Excluded \$
	AUTOMOBILE LIABILITY ☐ ANY AUTO ☐ OWNED AUTOS ONLY ☒ HIRED AUTOS ONLY ☐ SCHEDULED AUTOS ☒ NON-OWNED AUTOS ONLY	Y	Y	1ABPTX05127961702	12/02/2023	12/02/2024	COMBINED SINGLE LIMIT (Ea accident) \$1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
	UMBRELLA LIAB ☒ OCCUR ☒ EXCESS LIAB ☐ CLAIMS-MADE DED RETENTION \$	Y		87469P231ALI	12/02/2023	12/02/2024	EACH OCCURRENCE \$1,000,000 AGGREGATE \$1,000,000 \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y / N ☐	N / A				PER STATUTE E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$
B	Professional Liability	Y	Y	P100.268.683.10	05/15/2024	05/15/2025	Each Occurrence 2,000,000 General Aggregate 2,000,000

CERTIFICATE HOLDER**CANCELLATION**

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

© 1988-2015 ACORD CORPORATION. All rights reserved.

**Insert System for Award Management (SAM) record
search for company name and company principal**



ADICO, LLC

Unique Entity ID R7NFBQ6JJK7	CAGE / NCAGE 85QA5	Purpose of Registration All Awards
Registration Status Active Registration	Expiration Date Aug 26, 2025	
Physical Address 3205 Tyler CT Friendswood, Texas 77546-5678 United States	Mailing Address 2114 El Dorado BLVD Suite 400 Friendswood, Texas 77546-6505 United States	

Business Information

Doing Business as (blank)	Division Name Adico, Llc	Division Number 1
Congressional District Texas 36	State / Country of Incorporation Texas / United States	URL www.adico-llc.com

Registration Dates

Activation Date Aug 29, 2024	Submission Date Aug 26, 2024	Initial Registration Date Aug 15, 2018
--	--	--

Entity Dates

Entity Start Date Aug 1, 2014	Fiscal Year End Close Date Dec 31
---	---

Immediate Owner

CAGE (blank)	Legal Business Name (blank)
------------------------	---------------------------------------

Highest Level Owner

CAGE (blank)	Legal Business Name (blank)
------------------------	---------------------------------------

Executive Compensation

In your business or organization's preceding completed fiscal year, did your business or organization (the legal entity to which this specific SAM record, represented by a Unique Entity ID, belongs) receive both of the following: 1. 80 percent or more of your annual gross revenues in U.S. federal contracts, subcontracts, loans, grants, subgrants, and/or cooperative agreements and 2. \$25,000,000 or more in annual gross revenues from U.S. federal contracts, subcontracts, loans, grants, subgrants, and/or cooperative agreements?

No

Does the public have access to information about the compensation of the senior executives in your business or organization (the legal entity to which this specific SAM record, represented by a Unique Entity ID, belongs) through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986?

Not Selected

Proceedings Questions

Is your business or organization, as represented by the Unique Entity ID on this entity registration, responding to a Federal procurement opportunity that contains the provision at FAR 52.209-7, subject to the clause in FAR 52.209-9 in a current Federal contract, or applying for a Federal grant opportunity which contains the award term and condition described in 2 C.F.R. 200 Appendix XII?

Yes

Does your business or organization, as represented by the Unique Entity ID on this specific SAM record, have current active Federal contracts and/or grants with total value (including any exercised/unexercised options) greater than \$10,000,000?

No

Within the last five years, had the business or organization (represented by the Unique Entity ID on this specific SAM record) and/or any of its principals, in connection with the award to or performance by the business or organization of a Federal contract or grant, been the subject of a Federal or State (1) criminal proceeding resulting in a conviction or other acknowledgment of fault; (2) civil proceeding resulting in a finding of fault with a monetary fine, penalty, reimbursement, restitution, and/or damages greater than \$5,000, or other acknowledgment of fault; and/or (3) administrative proceeding resulting in a finding of fault with either a monetary fine or penalty greater than \$5,000 or reimbursement, restitution, or damages greater than \$100,000, or other acknowledgment of fault?

Not Selected

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

FORM CIQ

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of vendor who has a business relationship with local governmental entity.

ADICO, LLC

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 Name of local government officer about whom the information is being disclosed.

Name of Officer

4 Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☒ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☒ No

5 Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7 _____
Signature of vendor doing business with the governmental entity

Date

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at <http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm>. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

- (A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;
- (B) a transaction conducted at a price and subject to terms available to the public; or
- (C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds \$2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed;
or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than \$100 in the 12-month period preceding the date the officer becomes aware that:

- (i) a contract between the local governmental entity and vendor has been executed; or
- (ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

Certification Regarding Lobbying

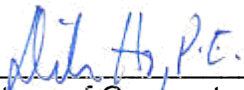
(To be submitted with each bid or offer exceeding \$100,000)

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (a) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (b) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (c) The undersigned shall require that the language paragraph 1 and 2 of this anti-lobbying certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995).

The Contractor, _____, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801 et seq., apply to this certification and disclosure, if any.



Signature of Contractor's Authorized Official

DINH V. HO, PRINCIPAL

Printed Name and Title of Contractor's Authorized Official

07072025

Date

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitations for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Included prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.
(b) Enter the full names of the individual(s) performing services, and include full address if different from 10(a). Enter Last Name, First Name, and Middle Initial (MI).
11. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503

Disclosure of Lobbying Activities

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352

(See reverse for public burden disclosure)

Type of Federal Action: <u> B </u> a. contract b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance	Status of Federal Action: <u> A </u> a. bid/offer/application b. initial award c. post-award	Report Type: <u> A </u> a. initial filing b. material change
Name and Address of Reporting Entity: <u> X </u> Prime <u> </u> Subawardee Tier <u> </u> , if Known: ADICO, LLC 2114 EL DORADO BLVD., SUITE 400 FRIENDSWOOD, TX 77546 Congressional District, if known:		If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime: Congressional District, if known:
Federal Department/Agency:	7. Federal Program Name/Description: CFDA Number, if applicable: _____	
Federal Action Number, if known:	9. Award Amount, if known: \$ _____	
10. a. Name and Address of Lobbying Registrant (if individual, last name, first name, MI):	b. Individuals Performing Services (including address if different from No. 10a) (last name, first name, MI):	
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.	Signature: <u> Dinh V. Ho, P.E. </u> Print Name: <u> DINH V. HO </u> Title: <u> PRINCIPAL </u> Telephone No.: <u> 832-895-1093 </u> Date: <u> 07072025 </u>	
Federal Use Only	Authorized for Local Reproduction Standard Form - LLL (Rev. 7-97)	

(To be completed by awarded vendor)

CERTIFICATE OF INTERESTED PARTIES		FORM 1295	
Complete Nos. 1 - 4 and 6 if there are interested parties. Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.		OFFICE USE ONLY Must file online at www.ethics.state.tx.us/File	
1 Name of business entity filing form, and the city, state and country of the business entity's place of business.			
2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.			
3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.			
4			
Name of Interested Party	City, State, Country (place of business)	Nature of Interest (check applicable)	
		Controlling	Intermediary
5 Check only if there is NO Interested Party. ☐			
6 UNSWORN DECLARATION			
My name is _____, and my date of birth is _____.			
My address is _____, _____, _____, _____, _____.			
(street) (city) (state) (zip code) (country)			
I declare under penalty of perjury that the foregoing is true and correct.			
Executed in _____ County, State of _____, on the _____ day of _____, 20____.			
(month) (year)			
_____ Signature of authorized agent of contracting business entity (Declarant)			
ADD ADDITIONAL PAGES AS NECESSARY			

THIS CERTIFIES THAT

Adico, LLC



* Nationally certified by the: **HOUSTON MINORITY SUPPLIER DEVELOPMENT COUNCIL**

*NAICS Code(s): 541330

* Description of their product/services as defined by the North American Industry Classification System (NAICS)

10/15/2024

Issued Date

HS18160

Certificate Number

10/15/2025

Expiration Date

A handwritten signature in black ink, appearing to read "Ying McGuire", is positioned above the name and title of the NMSDC CEO and President.

Ying McGuire
NMSDC CEO and President

A handwritten signature in blue ink, appearing to read "Ingrid M. Robinson", is positioned above the name and title of the NMSDC President.

Ingrid M. Robinson, President

By using your password (NMSDC issued only), authorized users may log into NMSDC Central to view the entire profile: <http://nmsdc.org>

Certify, Develop, Connect, Advocate.

* MBEs certified by an Affiliate of the National Minority Supplier Development Council, Inc.®

June 18, 2025

Ms. Kierra Nance
City Clerk
City of La Marque
1111 Bayou Road
La Marque, TX 77568

RE: RFQ #2025-3 – Engineering/Architectural/Surveying Services for Citywide Infrastructure Projects. Category Field Testing and Inspection

Dear Procurement Services Department,

On behalf of ATSER LP, I am pleased to submit our Statement of Qualifications in response to RFQ #2025-3 for Engineering/Architectural/Surveying Services to support the City of La Marque in its application and implementation of funding through the Drinking Water State Revolving Fund (DWSRF) and/or Clean Water State Revolving Fund (CWSRF) programs. ATSER is honored by the opportunity to bring **over three decades of proven excellence in municipal infrastructure development, quality assurance, and engineering project delivery to this important initiative.**

With extensive experience in federally funded construction projects across Texas, ATSER has successfully supported municipalities and public agencies such as **Harris County Flood Control District, Houston Public Works, and several other cities throughout the state.** Our team understands the regulatory frameworks, documentation requirements, and stakeholder coordination essential for projects funded by the Texas Water Development Board (TWDB). Our in-house certified laboratories (AASHTO and A2LA accredited) ensure reliable results and timely reporting that align with state and federal expectations.

ATSER is fully equipped and available to support the City of La Marque through every project phase—from preliminary design and permitting to bidding, construction oversight, and project closeout. With a team of over 60 certified engineers, technicians and inspectors and a fleet of 50+ fully equipped vehicles, **we have the capacity to manage multiple concurrent projects while ensuring personalized service.** We are a certified SBE and MBE firm, deeply committed to delivering inclusive, high-quality, and cost-effective solutions.

We appreciate the opportunity to contribute to La Marque's infrastructure improvement goals and are confident in our ability to deliver successful project outcomes. Please do not hesitate to contact me if additional information or clarification is needed.

Sincerely,



David Frederick Martinez
CEO | Principal
amartinez@atser.com
(281) 999-9961



FIRM QUALIFICATIONS AND FEDERAL COMPLIANCE EXPERTISE

Since 1993, ATSER LP has established itself as a trusted engineering firm known for delivering high-quality, cost-effective, and federally compliant infrastructure solutions across Texas. Headquartered in Houston, ATSER has successfully partnered with municipalities and public agencies on essential public works initiatives, including water and wastewater systems, drainage improvements, street reconstruction, and public facility upgrades. Our client portfolio includes Harris County Flood Control District, the City of Houston, Houston Public Works, the Houston Airport System, the Houston Sports Authority, and multiple cities across Texas and the Gulf Coast Region.

Our experience in water treatment and distribution systems aligns directly with the City of La Marque's goals under the Drinking Water State Revolving Fund (DWSRF) and Clean Water State Revolving Fund (CWSRF) programs. ATSER has successfully delivered more than 50 complex utility infrastructure projects, managing all phases from design and permitting to construction oversight and closeout—with a strong emphasis on compliance, documentation, and timely delivery.

To support project performance, transparency, and federal reporting, ATSER utilizes its proprietary Manage-IT™ software—a purpose-built system that integrates Project Management, Construction Engineering Inspection (CEI), Construction Materials Testing (CMT), and real-time documentation control. This platform ensures seamless coordination with city staff and TWDB requirements while improving data accuracy and responsiveness in the field.

Our laboratories are fully accredited by the American Association for Laboratory Accreditation (A2LA) and AASHTO, enabling reliable geotechnical, concrete, asphalt, and soil testing services. These accreditations affirm our commitment to precision, consistency, and regulatory compliance—essential qualities in projects funded through TWDB and other state or federal programs.

ATSER's extensive experience with federally funded projects includes collaborations with Houston Public Works (EPA), the Houston Airport System (FAA), the Harris County Flood Control District (FEMA), and work performed under programs supported by CDBG funding. This depth of experience uniquely positions ATSER to support the City of La Marque in delivering infrastructure improvements that meet the highest standards of funding accountability, quality assurance, and long-term sustainability.

Understanding of Compliance in Administering Federally Funded Projects

Given that this project is expected to receive federal funding through the Texas Water Development Board (TWDB), ATSER's approach prioritizes full regulatory compliance while maintaining rigorous cost and schedule control. Our methodology integrates:

- **Construction Inspections:** ATSER provides Quality Assurance (QA) inspections to ensure construction activities meet all applicable local, state, and federal standards. Our inspectors verify that work is performed in accordance with contract documents, technical specifications, and environmental regulations. Daily inspection assignments are distributed based on scheduled critical work and the inspector's specific certifications and experience. ATSER applies a strategic mix of full-time, hold-point, and spot inspections to ensure thorough coverage of all construction activities.
- **Detailed Recordkeeping and Transparent Reporting:** We ensure all documentation aligns with TWDB's funding and reporting requirements, including field reports, photographic evidence, and material testing logs. Reports are securely tracked and archived using our proprietary Manage-IT™ software, which also integrates directly with agency platforms for streamlined oversight.
- **Proven Cost-Control Measures:** We implement strict cost monitoring to ensure that all expenditures stay within budget and that DBE commitments are met and documented. Through the use of burn rate tracking and cost-to-complete forecasting, we enable proactive budget management. Financial status updates are provided during monthly progress meetings with city staff and stakeholders.

- **Regular Progress Assessments:** We conduct **weekly and monthly progress meetings** to review construction status, resolve field issues, and maintain alignment with project milestones. **Daily huddles** are held to communicate immediate priorities, safety concerns, and critical work zones to the field team.

Knowledge of Local Regulatory Agencies and Their Requirements

ATSER has a proven track record of aligning with stringent regulatory requirements across Texas, including extensive experience with **TxDOT, Harris County Engineering, Houston Public Works, Harris County Flood Control District,** and the **Cities of Houston and Galveston**, ensuring full compliance with both state and federal guidelines. Our team is also highly familiar with the regulatory landscape of the **Gulf Coast region**, including **Brazoria County and the City of La Marque**, where we understand the specific demands of local permitting, zoning, and utility coordination.

This regional expertise positions us as a trusted partner in managing **compliance and approval processes** for public infrastructure projects—particularly those involving **water and wastewater treatment, stormwater systems, and flood mitigation**. We are well-versed in the requirements of the following agencies, which are pivotal to securing approvals and ensuring long-term project success in the area:

- ✓ **Texas Commission on Environmental Quality (TCEQ)**
- ✓ **Texas Parks and Wildlife Department**
- ✓ **U.S. Army Corps of Engineers**
- ✓ **Environmental Protection Agency (EPA)**
- ✓ **Occupational Safety and Health Administration (OSHA)**
- ✓ **U.S. Fish and Wildlife Service**
- ✓ **Local coastal commissions, planning and zoning departments, and utility companies**

We have successfully navigated these regulatory pathways in past projects, including water facility upgrades for the **City of Houston** and **flood mitigation improvements with Harris County Flood Control District**. These efforts required strict compliance with **TCEQ standards, floodplain regulations, and federal environmental policies**—a level of precision and coordination that we are fully prepared to apply to the **City of La Marque's infrastructure initiatives**.

FIRM EXPERIENCE IN MUNICIPAL CONSTRUCTION

ATSER brings over 30 years of hands-on experience in **municipal construction projects** across Texas, with a strong portfolio that includes more than **200 infrastructure initiatives**, many of which were funded through **federal and state programs**. Our expertise spans **wastewater systems, roadway reconstruction, storm drainage, and general public works improvements**, reinforcing our deep understanding of municipal priorities and regulatory requirements. We have successfully partnered with agencies such as **Houston Public Works, the City of Pasadena, Harris County Engineering, and Harris County Flood Control District**, consistently delivering on-time and within budget while maintaining strict compliance with technical standards and funding guidelines.

Our municipal experience includes both **horizontal and vertical construction** elements, from underground utility installations and street widening projects to pump station upgrades and flood mitigation infrastructure. Whether serving as a **prime contractor or subcontractor**, ATSER adapts to each municipality's workflow and coordinates effectively with city engineers, utility departments, and third-party stakeholders to ensure successful outcomes.

For the **City of La Marque**, this experience translates into a reliable partner capable of managing **street, wastewater, and infrastructure upgrades** with the precision, compliance, and responsiveness expected in publicly funded programs.

Our strong regional presence and proven track record with Gulf Coast municipalities position us to integrate seamlessly into the city's infrastructure improvement efforts.

RECENT RELEVANT EXPERIENCE IN TEXAS / PUBLIC INFRASTRUCTURE/ FEDERALLY FUNDED

The following table highlights ATSER's recent and relevant experience across the state of Texas, specifically within **public infrastructure and federally funded projects**. These projects span a variety of sectors—including municipal, county, transportation, education, and aviation—and demonstrate our capabilities as both a **prime and subconsultant**. Each engagement was completed within the last several years, reflecting our team's current capacity, technical expertise, and deep understanding of federal and local regulatory requirements—key strengths for delivering on complex infrastructure initiatives such as those planned by the City of La Marque.

<i>CLIENT</i>	<i>PROJECTS</i>	<i>PRIME</i>	<i>SUB</i>
<i>Harris County Engineering Department</i>	+25	✓	
<i>Harris County Flood Control District</i>	+8	✓	
<i>Harris County Toll Road Association</i>	+3	✓	
<i>City of Houston</i>	+14	✓	
<i>METRO</i>	+4	✓	
<i>United Airlines</i>	+3	✓	
<i>The City of Pasadena</i>	+4	✓	
<i>TxDOT</i>	+1		✓
<i>Houston Airport Systems</i>	+7		✓
<i>Texas Medical Center</i>	+1		✓
<i>Montgomery County, Texas</i>	+6		✓
<i>Montessori Schools in Texas</i>	+2		✓
<i>Bellville, Texas</i>	+2		✓
<i>Other Municipalities</i>	+11		✓

SELECTED RECENT PROJECTS

Project 1



METRO

Name: METRO BOOST Initiative

Location: Houston, TX, several locations

Services: Provide CMT and inspection services for Terminal B Transformation (TBT) program

Date: 2023 - On-going

Project Owner/Client: METRO

Point of Contact/Reference: Mohammad Zaheri

Email & Phone Number: Mohammad.Zaheri@ridemetro.org | (713) 652-7910

**\$35 M
BUDGET**

Project Overview:

The METRO BOOST initiative is an ambitious program designed to enhance the public transit experience in Harris County, focusing on improving accessibility, reliability, and safety for riders. As part of this initiative, METRO is upgrading bus stops along key routes, incorporating features like solar-powered shelters and digital signage. These upgrades aim to provide a better customer experience while also encouraging increased ridership. Beyond the new shelters and markers, the BOOST program includes enhancements such as improved sidewalks, crosswalks, and wheelchair-accessible ramps, ensuring a more inclusive transit system. The initiative is part of a broader strategy to modernize public transportation and meet community needs, aligning with METRO's commitment to fiscal responsibility and transparency.



Scope of Work:

ATSER LP was contracted by METRO to provide construction materials testing (CMT) and inspection services for a variety of projects under a 5-year agreement. These services were rendered across multiple critical infrastructure projects, ensuring compliance with quality and safety standards. The scope of work includes: **i). BOOST 82 Westheimer Road (Phases 1 & 3):** Testing and inspection for over 19 miles of roadway repairs and street reconstruction. **ii). BOOST 54 Scott Street:** Inspection and materials testing for 11 miles of reconstructed and repaired sidewalks, roadways, and rail systems. **iii). Emergency Bridge Repairs:** Inspection and testing for emergency repairs conducted on bridges along Fulton, Fannin, Kuhlman, and Main streets to ensure their functional operation. **iv). METRO MOW Facility:** Testing and inspection services for the construction of a new 30,000-square-foot Maintenance of Way (MOW) facility to support the METRO Red, Green, and Purple rail system lines. ATSER's role involved ensuring the quality and integrity of construction materials, verifying compliance with project specifications, and supporting the successful completion of these diverse and high-impact transit projects.

ATSER Impact:

The METRO BOOST initiative emphasizes the importance of **Construction Material Testing (CMT) and inspection** services across large-scale public infrastructure projects. ATSER LP's role in providing comprehensive testing and inspection ensures that all aspects of the METRO BOOST projects meet rigorous safety and quality standards.

Specifically, projects such as BOOST 82 Westheimer Road and BOOST 54 Scott Street involve extensive modifications to transit infrastructure, where ATSER's expertise in verifying the quality and compliance of construction materials proves essential. These projects align closely with the METRO BOOST initiative's broader objectives of enhancing public transit accessibility, reliability, and safety. Furthermore, ATSER's involvement in emergency bridge repairs and the construction of the new METRO Maintenance of Way (MOW) Facility showcases our extensive capabilities and underscores our critical role in the successful implementation of vital infrastructure upgrades. These efforts are crucial for **modernizing, rehabilitating, expanding, and constructing** Harris County's transit.

Project 2



THE CITY OF
PASADENA

Project Name: Engineering Services for Paving & Drainage Improvement

Location: Preston Boulevard, Shaver II, Shaver III, and Red Bluff,
Pasadena, Texas

Services: Geotechnical Studies

Construction Date: Aug 2022- Jan 2023

Project Owner: The City of Pasadena | Binkley & Barfield
Consulting Engineers

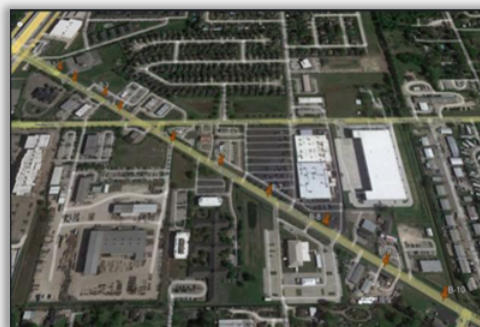
Point of Contact/Reference: Steve Albert, PE ENV

Telephone Number: (713) 869-3433 x1304 **Email:** tv@binkleybarfield.com

**\$19 M
BUDGET**

Project Overview

This project involved comprehensive geotechnical evaluations for **proposed paving improvements across multiple locations in Pasadena, Texas, including Preston Avenue, Shaver Street, and Red Bluff Road**. Each section required the replacement of storm sewers and the reconstruction of pavement using rigid pavement, along with the installation of drainage systems. ATSER's role encompassed geotechnical services for site characterization, laboratory testing, and engineering recommendations to inform the pavement and drainage designs.



Scope of Work

The scope of work for the Pasadena, Texas paving project involved ATSER performing detailed geotechnical evaluations at multiple locations including Preston Avenue, Shaver Street, and Red Bluff Road. **This entailed drilling nine to ten exploratory borings per section to a depth of 15 feet, crucial for characterizing subsurface conditions. Laboratory tests on these soil samples assessed moisture content, liquid and plastic limits, soil classification, and unconfined compressive strength, important for supporting new rigid pavement and drainage systems.** Piezometers were also installed to monitor groundwater levels continuously, aiding in the design of effective drainage solutions.

ATSER provided tailored engineering recommendations for each project section, developed in compliance with Pasadena's Public Works Design Criteria Manual. This segmentation **allowed for alignment with the phased construction schedule, facilitating timely decision-making and efficient project execution.** This approach not only optimized timelines but ensured that designs met local standards and adapted to environmental and infrastructural challenges.

ATSER Impact:

ATSER's experience managing and ability to conduct thorough testing, analyze subsurface conditions, and produce detailed reports will support the foundation and drainage design for the convention center project. By adhering to local authority requirements and producing precise data on soil boring logs, stratification, and groundwater conditions, ATSER is well-positioned to meet the engineering demands of the convention center project. **Furthermore, ATSER's experience in providing practical geotechnical recommendations, such as excavation methods, bearing pressures, and foundation types, ensures structural integrity and design efficiency. Our history of successfully delivering geotechnical services for large infrastructure projects makes us well-equipped to transition seamlessly into this complex and high-stakes project.**

Project 3



**Harris County
Engineering
Department**

Project Name: Testing and Inspection Services to Ascertain Specification Compliance for Job No. 23/0420 - Treaschwig Road A (Phase 1) - from 1000' West of Aldine Westfield Road to West of Count Precinct 3

**\$20 M
BUDGET**

Location: Houston, TX, Harris County Precinct #3

Services: Construction Material Testing CMT and Materials Engineer Services

Construction Date: June 2024 – Under Construction

Project Owner/Client: Harris County Engineering/EOR EHRA/Contractor Main Lane Industries LTD

Point of Contact/Reference: Corey Ritter (Harris County Engineering Department CMT Manager)

Telephone Number: (713) 274-1559 **Email:** corey.ritter@eng.hctx.net

Project Overview:

The Treaschwig Road A project involved the widening of Treaschwig Road from a two-lane asphalt roadway to a four-lane concrete boulevard between west of Aldine-Westfield Road and west of Cypress Creek. The construction began on April 10 and aimed to enhance traffic flow and accessibility in the area. Key features included a new sidewalk along the north side, a raised median for improved safety, and a traffic signal at the intersection of Treaschwig Road and Trilby Way. Additionally, the project



Incorporated curb and gutter systems with storm sewer drainage to manage runoff effectively, along with a large detention basin near Cypress Creek to mitigate flooding risks. The project was designed to accommodate future traffic demands, promote safer pedestrian access, and improve overall infrastructure resilience in the community.

Scope of Work:

The construction material testing and materials engineering scope for the Treaschwig Road A project is intricately linked to the target construction work, ensuring that each phase of the project adheres to the required quality standards. This project involves widening Treaschwig Road to enhance traffic flow, improve pedestrian safety, and bolster infrastructure resilience. The following tests will be conducted to support these objectives: **i). Report of Water Content and Density of Soil by In-Place Nuclear Method (ASTM D6938):** This test will evaluate the moisture content and density of the soil in the roadway's subgrade. Proper compaction is vital for a stable foundation in the new four-lane boulevard, crucial for handling increased traffic and ensuring durability. **ii). Report of Density of In-Place Bituminous Pavement by the Nuclear Method (ASTM D6938):** Conducting this test will ensure that the density of the asphalt pavement meets project specifications. Given that the project incorporates new road surfaces to enhance traffic flow and safety, achieving the correct pavement density is vital for maximizing strength, longevity, and performance under varying traffic conditions. **iii). Compressive Strength of Cement Stabilized Material (ASTM D-1633):** This test assesses the compressive strength of cement-stabilized materials for constructing curbs, gutters, and other structures. Based in Houston, our team's approach is effective, conducting essential assessments in soil moisture, density, gradation, moisture content, stabilization, and compressive strength. These proactive measures, paired with close communication and schedule oversight, support timely and successful project completion.

ATSER Impact:

ATSER played a **critical role** in ensuring the **successful delivery** of the Treaschwig Road A project by providing **comprehensive Construction Materials Testing (CMT) and Materials Engineering services** that directly supported the project's **performance, durability, and compliance objectives**. ATSER's **close coordination with the construction team** allowed for **real-time test result reporting, immediate issue resolution, and adjustments when needed** to keep the project **on schedule** and within **compliance thresholds**. Our **expertise in managing field variability**, especially in **storm-sensitive zones near Cypress Creek**, was essential in validating that **compaction, drainage systems, and structural materials** were **resilient under future traffic demands and environmental stressors**. Ultimately, ATSER's **quality-driven approach** helped ensure that the **widened roadway, pedestrian infrastructure, and drainage improvements** delivered **long-term reliability and safety** for the Treaschwig corridor.

Project 4



The City of
Houston

Project Name: Waterline Replacement. No. S-000035-0268-3

Location: Houston, TX, Harris County Precinct #3

Services: Geotechnical Engineering

Construction Date: May 2021- Feb 2022

Project Owner/Client: City of Houston Public Works

Point of Contact/Reference: Jaffri Hasnain, P.E

Telephone Number: (832) 395 - 2272

Email: corey.ritter@eng.hctx.net

**\$3.2 M
BUDGET**

Project Overview:

This project focuses on the comprehensive upgrade of the existing water line system in the Neartown Montrose and Plainview subdivision areas of Houston, Texas. **Spanning an approximate alignment of 37,640 feet, the initiative involves the replacement of older pipelines with new 6-inch and 8-inch service lines, complete with necessary appurtenances.** The goal is to enhance the reliability and efficiency of water delivery in this region while ensuring minimal disruption to the community and adherence to current engineering standards.



Scope of Work:

The scope of work for the geotechnical recommendations on the water line replacement project in the Neartown Montrose and Plainview subdivision areas encompasses a comprehensive array of tasks designed to ensure the successful installation of new 6-inch and 8-inch service lines across a 37,640-foot alignment. **This includes conducting 62 detailed soil borings to map and analyze soil stratigraphy and collecting samples for laboratory testing to determine their physical and engineering properties according to ASTM standards.** Water levels will be monitored during drilling to assess the need for dewatering systems during construction.

The project also involves designing trenchless and trench utility installations, providing recommendations for the **most effective methods such as directional drilling, pipe jacking, or auger tunneling based on the analyzed soil conditions.** Pavement assessments will be conducted to design new asphaltic and concrete pavements following city guidelines, ensuring durability and cost-effectiveness. The entire process will be documented in comprehensive reports that outline methodologies, findings, and specific geotechnical recommendations, providing crucial support and guidance for the construction phases to ensure a reliable upgrade to the water infrastructure.

ATSER Impact:

The Treaschwig Road A and **Garth Road Section 1 & 2** projects share key similarities, showcasing our expertise in roadway construction and materials engineering. Both expand two-lane roads into four-lane concrete boulevards, improving traffic flow and safety. Treaschwig Road included curb and gutter systems, raised medians, and sidewalks—features mirrored in the **Garth Road Section 1&2 project**, which includes a 5-foot sidewalk and raised medians. Both projects address stormwater management with underground storm sewers and detention systems. Our materials testing on Treaschwig Road, including soil density and asphalt strength, ensures structural integrity and compliance—critical for **Garth Road's** improved alignment and drainage. These parallels highlight our capability to deliver high-quality, efficient roadway improvements.

Project 5



HCFCD

Project Name: Engineering Services to Provide Materials Engineering and Testing Services in Support of a Drainage Improvements Projects in the Cloverleaf Area

Location: Cloverleaf Neighborhood, Houston, Texas

Services: Quality Assurance, Construction Engineering Inspection and Construction Material Testing

Construction Date: 2024 – Under Construction

Project Owner/Client: Harris County Flood Control District

Point of Contact/Reference: Iraj Mostamand P.E. [Manager, Construction Division] and Steven Wright [Construction Technician]

Telephone Number: (346) 286-4824 | (346) 286-4821

Email: iraj.mostamand@hcfcd.hctx.net | steven.wright@hcfcd.hctx.net

**\$21.1 M
BUDGET**

Project Overview:

The Cloverleaf Area Drainage Improvements project, led by Engineer of record CDM Smith, is focused on enhancing stormwater management and flood mitigation in the northern portion of the Cloverleaf neighborhood.

The project includes the construction of a new storm sewer box culvert along Nancy Rose Street, extending from Gainesville Street to Hillsboro Street, and continuing west along Hillsboro to the end of the street. This

culvert is designed to capture neighborhood drainage and convey stormwater efficiently to a new detention basin, which will ultimately drain into Carpenters Bayou (N100-00-00). Additional infrastructure improvements involve the installation of cast-in-place and precast concrete inlet structures, re-grading of local drainage ditches, and the removal and replacement of driveway culverts. Work also includes enhancing roadside ditches and upgrading the sanitary sewer system within the project boundaries: Alderson Street to the north, Hershe Street to the south, Hollywood Street to the west, and Sam Houston Tollway to the east. The project's primary objective is to improve stormwater drainage, reduce flooding risks, and ensure a more resilient drainage system for the Cloverleaf community.



Scope of Work:

Our Q/A, CEI and CMT scope of work includes **soil testing and compaction verification to confirm stability for subgrade, drainage ditches, and culverts; concrete strength and durability testing for cast-in-place and precast structures, such as storm sewer culverts and inlet structures; and asphalt density and stability tests where needed.** We maintain comprehensive documentation of test results, inspections, and compliance checks accessible to stakeholders via our Manage-IT™ system integrated with Harris County's eBuilder platform. Additionally, we ensure continuous coordination with Harris County Flood Control District (HCFCD) representatives, providing regular updates to facilitate timely adjustments for project success.

ATSER Impact:

Our rigorous Quality Assurance, Construction Engineering Inspection and Construction Material Testing services directly contribute to the project's effectiveness and reliability. By ensuring the structural integrity of essential components such as the new storm sewer box culverts and concrete inlet structures, ATSER plays a critical role in optimizing the functionality and resilience of the drainage system. **Our proactive coordination with the Harris County Flood Control District and the seamless integration of our Manage-IT™ system with Harris County's eBuilder platform enable continuous monitoring and real-time reporting, ensuring compliance and facilitating timely project adjustments.** Through our comprehensive testing protocols and dedicated oversight, ATSER significantly bolsters project outcomes, providing the Cloverleaf community with a robust and efficient drainage system designed to withstand severe weather conditions and protect against flooding, thus enhancing community safety and infrastructure resilience.

Project 6



**HARRIS
COUNTY
ENGINEER**

Project Name: Testing and Inspection Services to Ascertain Specification Compliance for Job No. 23/0293 - Asphalt Package 2023-2 for Harris County Precinct 3 – UPIN 23103MF2WQ01

Location: Precinct 3

Services: Construction Material Testing and Construction Engineering Inspection

Construction Date: December 2023 - Ongoing

Project Owner/Client: Harris County | Office the County Engineer

Point of Contact/Reference: Corey Ritter

Telephone Number: (7143) 274-1559 **Email:** corey.ritter@eng.hctx.net

**\$8 M
BUDGET**

Project Overview

The Harris County Engineering Department has initiated a significant \$8 million full depth reconstruction project along various locations throughout Precinct 3, aiming to **enhance the infrastructure of roads such as Dallas Road, Hannah Nash Road, Louis Road, Old Atascocita Road, Marshal Road, Ramsey Road, and Smith Road.** This project, managed by CMT Manager Corey Ritter, began in December 2023 and is ongoing, focusing on the application and testing of Asphaltic Concrete Pavement across these crucial transport links. ATSER has been appointed to provide comprehensive construction materials testing and inspection services to ensure that all pavement installations meet the required specifications and standards.

Scope of Work

ATSER's role in this extensive project involves a range of specialized services aimed at **verifying the quality and compliance of the roadway materials and construction methods used.** Services include in-place density testing on bituminous concrete bases and surface repairs, alongside a suite of laboratory asphalt tests such as determination of density, maximum theoretical gravity, and Superpave specimen molding. Additionally, the scope covers extensive soil sampling for various materials like cement-stabilized sand and stabilized base, testing for optimum lime content, and bulk specific gravity testing on asphalt cores. **Certified technicians and inspectors are tasked with daily inspections, batch plant sampling, and thorough documentation of any discrepancies against project specifications to ensure seamless communication and resolution with Harris County Engineering Department.**



ATSER Impact:

Through its expert services, ATSER is significantly impacting the quality and progress of this infrastructure project. By deploying its certified technicians and inspectors, ATSER ensures that all construction materials meet the rigorous standards necessary for a project of this scale. The daily field reports generated by ATSER not only confirm conformance with construction plans but also meticulously record any deviations, which are promptly communicated to Harris County for review. **This proactive approach in managing and documenting the testing and inspection processes underlines ATSER's commitment to maintaining high standards and delivering reliable results, thus directly contributing to the enhancement of Harris County's roadway infrastructure.**

WORKLOAD CAPACITY

ATSER is fully equipped to manage the scope and demands of the City of La Marque’s infrastructure improvement initiatives. Our team includes approximately **50 highly skilled inspectors, engineers, and laboratory technicians**, supported by a fleet of **over 56 operational vehicles**. This mobility ensures that personnel can **quickly access project sites**, perform daily inspections, and coordinate efficiently with city staff—minimizing delays and maximizing field presence throughout the duration of the contract.

To illustrate our readiness and team structure, we will provide a **project-specific organizational chart** outlining the roles, responsibilities, and reporting lines of all personnel assigned to support the City of La Marque’s project. This chart will clearly demonstrate how resources are allocated to maintain accountability and ensure continuity.

Understanding the importance of uninterrupted service, ATSER has developed a **redundancy model** that includes **cross-trained staff** across all core service areas. This means that in the event of personal leave or illness, our field operations are not disrupted—qualified team members are ready to step in and maintain momentum without compromising quality or compliance.

Our internal resource planning ensures that **no subcontractors will be necessary**, and we can deliver all required services **in-house** with full control over quality and staffing. This approach aligns with La Marque’s goals for reliability, consistency, and direct accountability under federally funded programs. By leveraging our robust internal team and proactive workforce management strategies, ATSER guarantees stable staffing and high-performance execution from project kickoff through final closeout.

Available Field Equipment and Testing Resources

To further support field operations, ATSER maintains a wide inventory of **specialized testing equipment and vehicles** that are readily available to deploy. This equipment enhances our ability to perform a **full range of construction material testing and inspection activities** required for TWDB-funded infrastructure projects. In addition to our main laboratories, ATSER operates a **satellite field laboratory**, which can be mobilized as needed to **perform immediate on-site analysis** or to **preserve the integrity of collected samples**. This capability ensures faster turnaround times, real-time quality assurance, and enhanced control over testing conditions. The table below highlights key assets in our fleet and field equipment inventory:

Vehicles		Density Devices		Special	Foundation	
Field/Work Vehicles	Trailer Mounted Coring Rig	Nuclear Density Gauge	Non-Nuclear Impedance Gauge	F-Meter Floor Flatness	Drilled Slurry Kit (Ph, Flow, Sand Content, SG)	Grout Viscosity
56	1	21	2	2	16	5



***Let us be your
business partner, and
together we will
elevate your projects
to the next level.***

Summary of ATSER's Technician Certifications

Material	Multiple	Concrete		Aggregate		Other	Hot Mix	
Certificate	TxDOT Precerts	ACI Field	ACI Strength	ACI Aggregate Level 1	ACI Base Level 1	ACI Adhesive Anchor List	TxAPA Level 1A	TxAPA Level 1B
Certified Employees	17 with 102 Certifications	24	2	2	2	2	19	21

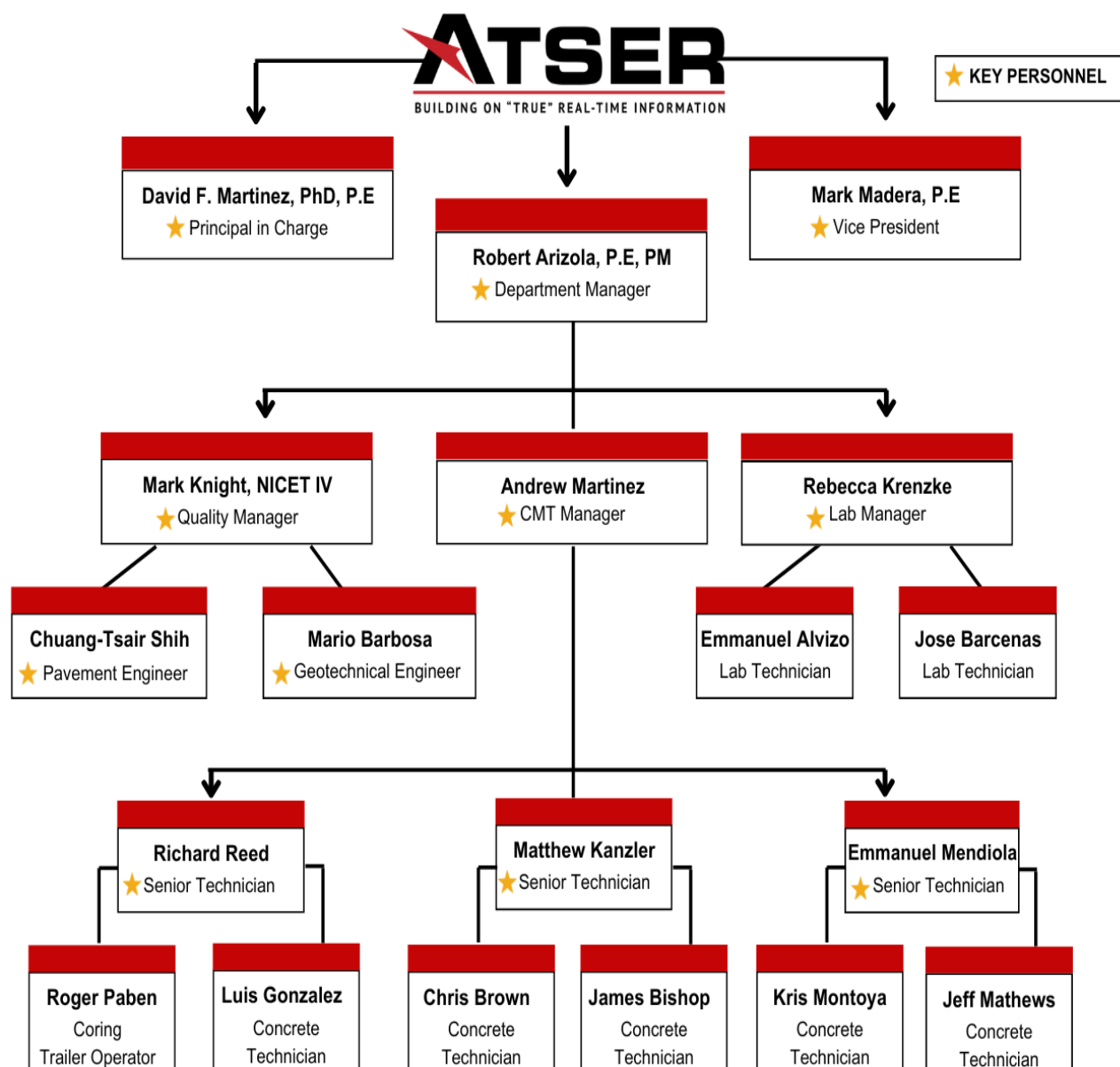
Material	Soils			NICET			Post Tension	Welding Inspector
Certificate	SB101	SB102	SB103	NICET II	NICET III	NICET IV	LEVEL 1 Unbonded	C.W.I
Certified Employees	17	19	5	2	1	1	1	1

ATSER is a registered engineering firm in good standing with the Texas Board of Professional Engineers and Land Surveyors.



PROPOSED PROJECT TEAM STRUCTURE

Organizational Chart



Please find the personnel resumes in the following pages.



DAVID F. MARTINEZ, Ph.D., P.E.

Principal-in-Charge, Chief Executive Officer

Bio

Dr. Martinez is a nationally recognized civil/geotechnical engineer with 35+ years of experience leading public infrastructure initiatives. An industry innovator, he provides hands-on, executive oversight for all operations, focusing on quality assurance/control (QA/QC), regulatory compliance, resource allocation. His work and leadership emphasizes construction materials testing (CMT), construction, engineering, & inspection (CEI), and Geotech engineering for public authorities for successful delivery. He leads large-scale, multi-phase projects involving roadway reconstruction, flood mitigation, utility replacement, site development, while supporting ADA-accessibility. With his guidance as trusted advisor to stakeholders, he navigates the team through all stages, from Geotech study/CMT to final QA/coordination, integrating advanced project controls using ATSER's project management information system, Manage-IT™, a technology supported by his CMT technologies U.S. patents. With expertise in soil, aggregate, asphalt, concrete materials performance, pavement design, and foundation engineering, he strategically applies these towards projects that ensure robust, compliant, and long-term, durable infrastructure outcomes.

Ph.D. in Civil Engineering,
Century University

M.S. in Civil Engineering,
Texas A&M University

Professional Engineer
Texas No. 63920

Key Responsibilities

- Executive-level QA/QC and risk management
- Regulatory compliance and agency coordination
- Final review of CMT, CEI, & Geotech deliverables
- Contract negotiation and program oversight

Skillset

- Geotechnical investigations and soil behavior analysis
- CMT testing-soil, asphalt, concrete, and masonry
- Lab quality assurances/controls and testing protocols
- Public-sector project management, team leadership
- Pavement design and forensic evaluation
- Structural foundation design and analysis

Certifications

Texas Department of Transportation (TxDOT):

11.1.1-Roadway Construction Management, Inspection

12.1.6-Embankment/Subgrade/Backfill/Base Production

12.1.7-Embankment/Subgrade/Backfill/Base Placement

12.1.1-Asphaltic Concrete Production

12.1.3-Materials Engineering

12.2.1-Concrete Plant Inspection, Testing

22.4.1-QA/QC Process Verification for OVTI

Project Experience

METRO BOOST Initiative – On-Call Contract, Houston, TX | Budget: \$35 Million | 2023 – Ongoing
As Principal-in-Charge for ATSER's role in the METRO BOOST Initiative supporting the Terminal B Transformation (TBT) program, Dr. Martinez has overseen the delivery of construction materials testing (CMT) and inspection services across multiple METRO corridors. His leadership focused on resource coordination, quality oversight, and maintaining METRO's strict schedule for high-volume urban infrastructure.

A key challenge included maintaining testing accuracy and responsiveness across dispersed and concurrent job sites with evolving scopes. He addressed this through proactive field management protocols and centralized reporting systems that aligned with METRO's digital project management requirements. Under his guidance, his team provided real-time field support and documentation that directly contributed to maintaining schedule compliance and safety benchmarks, enhancing the reliability of transit infrastructure throughout the region.

DAVID F. MARTINEZ, Ph.D., P.E.

Principal-in-Charge, Chief Executive Officer

Project Experience

Cloverleaf Area Drainage Improvements, *Neighborhood, Houston, TX* | \$21.1 Million | 2024 – Ongoing
Dr. Martinez leads ATSER's team in providing comprehensive QA, CEI, and construction materials testing services in support of flood mitigation and roadway upgrades. He ensures technical accuracy, risk mitigation, and seamless coordination among inspectors, lab personnel, and the client.



The urban density and legacy drainage conflicts posed challenges in coordinating field inspections during utility relocations and heavy rainfall events. Dr. Martinez proactively engaged with County stakeholders to implement weather-contingent scheduling and adaptive inspection protocols.

ATSER's impact has been instrumental in validating the construction quality of culverts, inlets, and subgrade work, helping reduce future flooding risks and reinforcing the County's safety goals.

Project Experience

Treaschwig Road Segment-A, Ph-1, Job-23/0420 *Harris County-Prec3, Houston, TX* | 2024 – Ongoing.
Dr. Martinez serves as Principal for this project, leading ATSER's delivery of CMT/materials engineering services along this major arterial corridor. His responsibilities include ensuring quality control across pavement, utility, and subgrade work zones while coordinating ATSER's lab and field teams.

One key challenge involved managing testing logistics in active traffic zones with unpredictable site conditions and utility conflicts. He implemented a flexible testing response strategy paired with digital quality workflows that minimized disruptions and maintained compliance with project specifications.

ATSER's contributions provided timely quality data to support real-time decisions and schedule adherence.





Mark Madera, P.E.

Vice President of Engineering

Bio

Mr. Madera is a seasoned civil engineer with 38+ years of experience delivering infrastructure projects through executive leadership in geotechnical and CMT services and QA/QC oversight. He proactively directs operations across major municipal and public facility projects. He brings a unique blend of TxDOT institutional knowledge and private sector insight, supporting critical efforts through subsurface investigations, foundation and pavement design, and meticulous compliance with standards: ASTM, AASHTO, TxDOT, county, city & public agencies. His leadership is instrumental in development initiatives, where he supports critical infrastructure rehabilitation with technically sound, timely engineering solutions. He excels at integrating field work with QA frameworks, leading multi-disciplinary teams, ensuring regulatory alignment across complex projects. His clear, direct approach results in code-compliant infrastructure that exceeds client goals, and the communities served.

B.S. in Civil Engineering
Texas A&M University

Professional Engineer
Texas No. 61822

Key Responsibilities

- Directs firm's Geotechnical engineering & CMT programs
- Oversees Field/Lab Ops, compliance-reg. standards/specs
- Executive oversight & QC strategies for construction
- Agency collaboration; deliver cost-effective solutions

Skillset

- Strategic leadership across Geotech/CMT/civil scopes
- Subsurface investigations, design, slope stability analysis
- Construction materials testing standards keen oversight
- QA/QC enforcement, constructability reviews, audits
- Coordination with public agencies/private stakeholders
- Technical reporting, team collaboration, mitigate risks

Certifications

- 11.1.1 - Roadway Construction Management, Inspection
- 11.2.1 - Bridge Construction, Management, Inspection
- 11.3.1 - Construction Superintendent
- 11.4.1 - Environmental Inspections
- 11.5.1 - Construction Scheduling Project Manager
- 11.6.1 - Construction Schedule Support-General
- 11.7.1 - Construction Sched Spt-Schedule Roadway Design
- 11.8.1 - Construction Sched-CM,Bridge/MultiLvl Interchange
- 11.9.1 - Railroad Coordination Mgmt During Construction
- 11.10.1 - Construction Record Keeper
- 12.1.3 - Materials Engineering
- 2.4.3 - U.S. Coast Guard/Army Corps-Engineers permits
- 4.5.1 - Constructability Review
- 17.5.1 - Civil Engineering
- 18.2.1 - Subsurface Utility Engineering/Investigation
- 18.3.1 - Utility Adjustment Coordination
- 18.4.1 - Utility Engineering
- 18.5.1 - Utility Construction Management/Verification
- 21.1.1 - Right of Way Acquisition Services
- 22.1.1 - Owner Verification Testing/Inspection-PM
- 22.2.1 - Chief Inspector
- 23.8.1 - Claims Analysis and Management
- 23.11.1 - Plan Review
- 1.8.1 - Public Involvement
- 2.4.3 - U.S. Coast Guard/Army Corps-Engineers permits
- 4.5.1 - Constructability Review

Project Experience

Treaschwig Road Segment-A, Phase-1, Job-23/0420 *Harris County-Precinct-3, Houston, TX | 2024 – Ongoing*
Mr. Madera directed the firm's construction materials testing and engineering support services. His responsibilities include technical plan reviews, coordination of laboratory procedures, and oversight of testing protocols for pavement, base, subgrade, and drainage installations.

One of the project's major challenges was ensuring continuous testing coverage during staged construction activities along a heavily traveled corridor. Mr. Madera addressed this by deploying mobile inspection teams and real-time reporting tools to optimize field-lab coordination.

ATSER's contributions under his leadership have strengthened quality assurance during key construction phases and ensured reliable, specification-compliant infrastructure delivery.

Mark Madera, P.E.

Vice President of Engineering

Project Experience

METRO BOOST Initiative – On-Call Contract, Houston, TX | Budget: \$35 Million | 2023 – Ongoing. Mr. Madera provides technical leadership and operational oversight for ATSER's work on this Initiative, which supports Houston's high-priority transit corridor improvements under the Terminal-B Transformation program. He supervises multidisciplinary teams performing field inspection & CMT testing across multiple concurrent sites.



A key challenge involved managing fluctuating work volumes and stringent scheduling across various urban zones with active transit operations.

Mr. Madera implemented scalable staffing strategies and standardized testing workflows, enabling ATSER to maintain efficiency and meet METRO's aggressive deadlines.



Mr. Madera's leadership ensured that ATSER's quality services consistently supported specification compliance, reduced rework risk, and upheld the long-term performance goals of Houston's transit infrastructure.

Project Experience

Cloverleaf Area Drainage Improvements, Neighborhood, Houston, TX | \$21.1 Million | 2024 – Ongoing. Mr. Madera is instrumental in managing ATSER's materials engineering, construction materials testing, and quality assurance services for this major drainage improvement effort in the flood-prone Cloverleaf neighborhood. He leads the integration of QA/QC procedures with CEI and CMT scopes, overseeing test scheduling, lab coordination, and field issue resolution.

A core challenge was coordinating inspection activities around inclement weather and utility coordination delays in a dense residential area. Mr. Madera implemented adaptive field procedures and prioritized testing of time-sensitive components like storm sewer tie-ins and reinforced concrete structures.

His oversight has ensured that ATSER's services provide accurate, timely data that supports Harris County's goal of reducing flood risks and improving neighborhood resilience.



Robert Arizola, P.E., P.M.

Department Manager

Bio

Mr. Arizola brings 35 years of engineering experience with deep specialization in geotechnical engineering and construction materials testing (CMT) for civil infrastructure, public works, and utility improvement projects. He provides leadership and technical oversight across a variety of municipal, county, and public authority-led initiatives. His vast expertise spans soil exploration, foundation evaluations, materials compliance, and utility impact assessments, with a strength in coordinating multidisciplinary teams to meet regulatory, safety, and quality assurance and quality controls standards. His extensive list of certifications reinforces his hands-on proficiency in field/ lab operations. He consistently demonstrates a successful record of managing complex urban and suburban infrastructure challenges for agencies.

B.S. in Civil Engineering,
Texas A&M University

Professional Engineer
Texas No. 63994

Key Responsibilities

- Leads cross-functional teams to deliver Geotech/CMT services on infrastructure projects
- Oversees compliance standards on construction: roadway, bridge, utility, and drainage systems
- Client coordination, ensuring seamless project execution and resolution of technical issues
- Manages Dept schedules, budgets, reporting, and staff performance for cost-effective service delivery

Project Experience

- **METRO BOOST** Initiative, \$35M: CMT & inspection for multimodal upgrades, sidewalks, ADA-accessible stops
- **IAH Fire Station #92** Rehabilitation/Expansion, \$25M: QA & CMT per FAA standards/aviation code compliance
- **City of Pasadena** Paving & Drainage Improvements, \$19M: oversight of Geotech studies to inform design
- **La Porte, TX**-Harris County Flood Dist, \$16M: Geotech/utility engineering & CMT; design & evaluation culverts
- **Cloverleaf neighborhood Houston**-Harris County drainage improvements, \$21.1M: QA/testing/compliance
- **Treaschwig Rd Houston**-Harris County, \$20M: CMT oversight for concrete 4-lane blvd—performance/safety
- **City of Houston, TX & ReBuild Houston**, Magnolia Park, \$17.5M: advanced CMT & Inspection services; soil, asphalt, concrete, structural steel, for compliance
- **Jury Assembly Building**-downtown Houston, \$11.9M: Geotech/CMT, resolved post-Harvey subsurface issues
- **Tomball, Hufsmith Rd** widening & Bridge expansion-Harris Cnty, \$22M: Geotech eval; foundation demands
- **Baytown, Garth Rd** widening, \$8.7M: Geotech efforts: preconstruction phases; utility relocation; upgrades
- **Ella Blvd Access/Sidewalk** Improvement, Harris Cnty, \$7.2M: CMT for corridor upgrades: bus stops & paving
- **Urban neighborhoods Montrose/Plainview**, Houston, Waterline Replaced, \$3.2M: Geotech, trench design

Skillset

- Advanced Geotech site investigation and foundation engineering for civil and public infrastructure
- CMT oversight-concrete/asphalt/soils/structural materials
- Skilled in Owner Verification Testing and Quality Assurance/Control (QA/QC) management
- Expert in managing regulatory compliance, safety protocols, and risk mitigation strategies
- Proficient in stakeholder coordination, documentation control, and multi-project leadership
- Experienced in urban drainage systems, sanitary sewer upgrades, and ADA/public transit improvements

Certifications

ACI Field Testing Technician-Grade I

Texas Department of Transportation (TxDOT):

14.1.1-Soil Exploration

14.2.1-Geotechnical Testing

SB101-Safety/Environmental-Inspection

SB102-Quality Assurance-Construction Inspection

HMA 1A-Hot Mix Asphalt Plant Operations/Inspection

HMA 1B-Hot Mix Asphalt Roadway Placement/Inspection

12.1.1-Asphaltic Concrete Production

12.1.3-Materials Engineering

12.1.4-Asphaltic Concrete Placement

12.1.5-Portland Cement Concrete Placement

12.1.6-Embankment/Subgrade/Backfill/Base Production

12.1.7-Embankment/Subgrade/Backfill/Base Placement

12.2.5-HMA Plant Inspection/Testing

22.1.1-Owner Verify-Testing/Inspect-Project Manager

22.3.1-Owner Verification-Laboratory Manager

22.4.1-Quality Assurance/Controls Process Verify-OVTI

Robert Arizola, P.E., P.M.

Department Manager

Project Experience

2024-Current, HCFCD Cloverleaf Drainage and Detention Pond, Houston, TX: This \$21.1 million improvement project initiative led by CDM Smith in collaboration with the Harris County Flood Control District, enhanced the stormwater management and flood mitigation through the construction of a storm sewer box culvert along Nancy Rose and Hillsboro Street, directing runoff to a new detention basin draining into Carpenters Bayou. It involved installing concrete inlet structures, re-graded ditches, and an upgraded sanitary sewer system to improve long-term drainage, while meeting all specifications and coordinating with all parties to maximize project efficiencies.

Key Activities: He manages all departmental activities for the HCFCD Cloverleaf Drainage and Detention Pond project, overseeing project execution, compliance with engineering standards, and safety protocols. He leads the team in testing and analysis, manages resources, budgets, and timelines, and coordinates with stakeholders to integrate engineering and material testing scopes, ensuring the project meets technical and regulatory requirements.

Challenge and Solution: He faced challenges related to coordinating complex engineering tasks, managing tight project timelines, and ensuring compliance with stringent regulatory standards. To address these, he implemented efficient resource allocation strategies, fostered clear communication among stakeholders, and closely monitored the project's progress. Arizola also worked to resolve technical issues by leveraging his team's expertise in material testing and engineering analysis, ensuring timely and accurate results. His proactive leadership and problem-solving approach helped maintain project momentum and meet all required standards.

Project Experience

2024-Current, Testing and Inspection Services to Ascertain Specification Compliance for Job No. 23/0420 - Treaschwig Road A (Phase 1) - from 1000' West of Aldine Westfield Road to West of Count Precinct 3: Located in Houston, TX, Harris County, the \$20 million project expanded a two-lane asphalt roadway into a four-lane concrete boulevard to enhance traffic flow, safety, and infrastructure resilience. Key features included a raised median, new sidewalks, upgraded traffic signals, a curb, a gutter storm drainage system to improve runoff, and incorporating a large detention basin near Cypress Creek to mitigate flooding risks. Designed for future traffic demands, improved pedestrian access, it significantly enhanced connectivity and safety in the community.

Key Activities: He oversees project coordination, ensuring adherence to specifications and quality standards. His responsibilities encompass conducting inspections, managing testing protocols, and maintaining comprehensive documentation to ensure compliance and facilitate efficient project execution.

Challenge and Solution: led the conversion of a two-lane asphalt roadway into a four-lane concrete boulevard to enhance traffic flow for approximately 18,000 daily vehicles. He addressed challenges such as managing traffic during construction, reinforcing safety protocols, ensuring compliance with Harris County's design standards, and minimizing community disruptions. Through strategic planning and effective communication, Mr. Arizola successfully advanced the project, benefiting both traffic efficiency and community well-being.

MARK KNIGHT, NICET IV

Quality Manager



**B.S. in Civil
Engineering**
University of Texas

Bio

Mr. Knight is a seasoned Quality Manager with over 25 years of experience in geotechnical engineering and construction materials testing for public infrastructure projects across the region. His leadership in Quality Assurance and Control ensures technical excellence, regulatory compliance, and project efficiency. He holds advanced certifications, which directly support his oversight of field-testing operations and specification compliance. His areas of expertise include soil compaction verification, asphalt density testing, concrete durability evaluation, and structural inspection. An expert user of ATSER's project/lab management systems, he leverages real-time data analytics and digital workflows, streamlining reporting, ensuring responsive resolutions.

Certifications

- NICET Concrete IV • NICET Soils IV • NICET Asphalt IV • Texas DOT: ACI Field Technician-Grade I
- Storm Water Pollution Prev Plan • Radiation Safety/Nuclear Gauge Op • OSHA 30-Hr Construction S&H

Construction Materials Testing Project Experience

2023-Current, METRO BOOST Initiative, Houston, TX: ATSER LP provides CMT and inspection services for METRO's \$35M BOOST Initiative in Houston, TX, covering 19 miles of roadway repairs, 11 miles of sidewalk reconstruction, and a 30,000 sq. ft. Maintenance of Way (MOW) facility. Our work ensures compliance with safety and quality standards, supporting METRO's mission to enhance transit accessibility and reliability.

Key Activities: As **Quality Control Manager**, Mark Knight was responsible for overseeing the **quality assurance of construction materials** across various infrastructure projects, ensuring compliance with **AASHTO standards** and project specifications. He **monitored testing procedures** for soils, concrete, and structural materials, verifying the **integrity of materials** and the accuracy of field and lab results. Mark also **coordinated with contractors and stakeholders** to resolve quality issues and ensure corrective actions were implemented promptly.



Challenge and Solution: Mark Knight faced the challenge of ensuring **consistent quality control** across multiple project sites with varying contractors and tight timelines. He addressed this **by implementing a standardized checklist** and conducting regular site

Mark Knight, NICET IV

Quality Control Manager

Project Experience

2024-Current, HCFC **Cloverleaf Drainage and Detention Pond, Houston, TX:** The Cloverleaf Area Drainage Improvements project in Houston, Texas, is a **\$21.1 million initiative** led by CDM Smith to enhance stormwater management and flood mitigation. It includes constructing a storm sewer box culvert along Nancy Rose and Hillsboro Street, which will convey stormwater to a new detention basin draining into Carpenters Bayou. The project also involves installing concrete inlet structures, re-grading drainage ditches, and upgrading the sanitary sewer system.

Key Activities: As the **Quality Control Manager** for the project, **Mark Knight** was responsible for overseeing all aspects of **construction quality assurance**. His duties included coordinating and performing **field inspections**, ensuring that all construction materials and processes met specified standards, and providing real-time feedback to the construction team.



Mark's role also encompassed supervising **soil compaction tests**, **concrete strength assessments**, and **asphalt density tests** to confirm that the project components, including **storm sewer box culverts** and **inlet structures**, met the required **engineering standards** for durability and safety. He maintained thorough **documentation of inspections** and ensured that all findings were communicated to **Harris County Flood Control District (HCFC)** representatives.

Challenge/Solution: One main challenges on the project was **coordinating multiple tests and inspections across different construction phases without causing delays**. To address this, he implemented a **dynamic testing schedule** aligned with construction progress, ensuring faster feedback and minimizing disruptions. Through close coordination with the construction team & HCFC rep's, he streamlined the process, keeping the project on schedule without compromising quality.

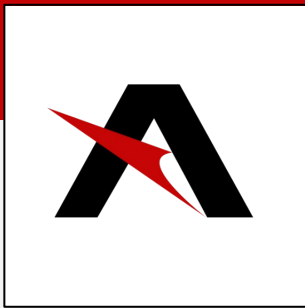
Project Experience

Testing and Inspection Services to Ascertain Spec Compliance, Asphalt Package, Houston, Texas-Harris County-Precinct-3, 2023-Ongoing. Construction Services: CMT, CEI. Mr. Knight served over the CMT/CEI scope for this \$8 million full-depth reconstruction project spanning multiple critical roadway segments. He led a Certified Tech team to conduct in-place density tests for bituminous base layers, & lab evaluations of asphalt core density, max theoretical gravity, & Superpave specimen performance.

He managed QC processes for soil sampling, lime optimization, & stabilized base testing to ensure pavement durability & performance. He coordinated inspection reports & sampling protocols to resolve discrepancies before they impacted operations.

Andrew Martinez

CMT Manager



B.S. in Mechanical Engineering,
Oklahoma State University

Bio

Mr. Martinez is a dynamic Construction Materials Testing (CMT) Manager with five years of hands-on experience rooted in ATSER as a family business, where he began an internship in the CMT laboratory and quickly advanced to manage complex materials testing programs for public infrastructure. His mechanical engineering background and technical mindset give him an edge in applying precise analytical skills to geotechnical evaluations & CMT operations. Instead of traditional approaches, he brings a modern, data-driven engineering perspective that optimizes workflows, digital reporting, and field-to-lab communication. He leads lab technicians/field analysts in delivering timely, specification-compliant results that directly support civil & geotechnical engineering real-time decisions.

Key Responsibilities

- Manage daily operations of CMT programs across municipal/county infrastructure projects
- Direct field & lab testing protocols in alignment with ASTM and TxDOT specifications
- Serve as liaison between field, lab and stakeholders, ensuring timely reporting and issue resolution
- Oversee QA/data submission through technology, Manage-IT/Assure-IT™, for compliance/transparency

Skillset

- Certified in advanced materials testing methods: concrete, asphalt, soil, and embankment systems
- Proficient in managing modern QA/QC tools and software systems for real-time field data entry
- Experienced in interpreting geotechnical data for construction support and foundation design
- Expertise in implementing ACI and TxDOT-compliant test methods to evaluate material performance
- Strong leadership in mentoring junior technicians and coordinating multidisciplinary testing teams
- Focused on modernization and efficiency, streamlining reporting protocols and laboratory operations

Certifications

- ACI Field Testing Technician Grade I
- ACI Field Strengths Technician Grade I
- SB101-Safety/Environmental-Inspection,
- SB102-Quality Assurance-Construction Inspection
- SB103-Project Record Documentation & Control
- HMA 1A-Hot Mix Asphalt Plant Operations/Inspection
- HMA 1B-Hot Mix Asphalt Roadway Placement/Inspection
- 12.1.1-Asphaltic Concrete Production
- 12.1.2-Portland Cement Concrete
- 12.1.4-Asphaltic Concrete Placement
- 12.1.5-Portland Cement Concrete Placement
- 12.1.6-Embankment/Subgrade/Backfill/Base Production
- 12.1.7-Embankment/Subgrade/Backfill/Base Placement
- OSHA-Occupational Safety & Health Admin, 30-Hours

Construction Materials Testing Project Experience

- **Cloverleaf neighborhood Houston**-Harris County drainage improvements, \$21M: QA/testing/compliance
- **METRO BOOST** Initiative, \$35M: CMT & inspection for multimodal upgrades, sidewalks, ADA-accessible stops
- **Waterline Replacement, Asphalt Package** projects, Harris County, \$8M each reconstruction project, performing construction materials testing and construction, evaluations & inspections services
- **Treaschwig Road Houston**-Harris County, \$20M: CMT oversight for concrete 4-lane blvd; performance/safety

Andrew Martinez

CMT Manager

2024-Current, HCFCF Cloverleaf Drainage and Detention Pond, Houston, TX: The **\$21.1 million** Cloverleaf Area Drainage Improvements project, led by CDM Smith, focuses on improving stormwater management and reducing flood risks in northern Cloverleaf. Key upgrades include **constructing a storm sewer box culvert, installing concrete inlet structures, re-grading drainage ditches, upgrading driveway culverts, and enhancing the sanitary sewer system** to bolster the community's drainage infrastructure and resilience.

Key Activities: As the **CMT Manager** for the Cloverleaf Area Drainage Improvements project, Andrew Martinez managed **soil testing, compaction verification, and concrete strength testing** for the storm sewer box culverts and inlet structures. He also oversaw **asphalt testing** and ensured accurate documentation via **Manage-IT™**, coordinating with HCFCF to ensure timely adjustments. A key challenge was managing multiple testing efforts while adhering to tight timelines, which Andrew addressed through efficient coordination and real-time tracking.

Related to Scope of Services: Andrew's oversight of **material testing** aligns with the **Port Authority's focus on quality assurance and structural integrity**. His work ensured the **resilience and compliance** of critical infrastructure components,

supporting the **Port Authority's goals of robust drainage systems**. By utilizing **Manage-IT™** for real-time reporting, Andrew ensured that the project met **flood mitigation standards** and bolstered **infrastructure resilience**, contributing to the Port Authority's mission of **public safety and long-term performance**.



2024-Current, Metro On Call Contract, Houston, TX: The **\$35 million** METRO BOOST initiative improved Harris County transit by upgrading bus stops, shelters, signage, sidewalks, and ramps. ATSER provided CMT and inspections for roadway repairs, sidewalk reconstruction, bridge repairs, and a 30,000-square-foot METRO MOW facility, ensuring material quality and compliance with safety standards.

Key Activities: As **CMT Manager** for the METRO BOOST initiative, Andrew Martinez oversaw **construction materials testing and inspection services** for key projects, including **sidewalks, roadways, bridge repairs**, and the new **MOW facility**. His responsibilities involved ensuring **material quality**, conducting **compliance checks**, and providing **real-time reporting** using **Manage-IT™**. A significant challenge was managing testing across multiple sites with varying requirements. Andrew tackled this by coordinating teams effectively and prioritizing tasks, ensuring each project met METRO's strict quality and safety standards.

Related to Scope of Services: Andrew's work on the METRO BOOST initiative directly supports the **Port Authority's focus on infrastructure resilience, quality assurance, and compliance**. By ensuring the structural integrity of key transit elements like **roadways, bridges, and maintenance facilities**, Andrew helped enhance **public safety and community accessibility**. His ability to manage multiple testing projects efficiently and provide **real-time data** aligns with the **Port Authority's needs for continuous monitoring and compliance with project specifications**, contributing to the successful implementation of **critical infrastructure upgrades**.



H.S. Diploma

Parkview Baptist H.S.

Ms. Rebecca Krenzke brings over 15 years of experience in construction materials testing (CMT), quality assurance and control (QA/QC), and geotechnical laboratory operations. She manages all laboratory functions in accordance with A2LA accreditation requirements and industry standards, including ASTM and AASHTO protocols. Utilizing a Laboratory Information Management System (LIMS), she oversees the tracking and coordination of geotechnical and materials testing services for public infrastructure projects. Her responsibilities include supervising laboratory technicians, coordinating sample and cylinder pickups, managing technician certifications, dispatching field schedules, and logging GPS-based testing locations. She also leads internal audits and ensures ongoing operational readiness under stringent quality management systems. Her leadership plays a critical role in delivering timely, accurate, and standards-compliant test results that directly support geotechnical investigations and materials compliance in the field.

Project Experience

Asphalt Package 2023-2, Job# 23/0293, Harris County Prec-3< Houston, TX | \$ 8 Million | 2023 – Ongoing

As Laboratory Manager for ATSER's role on the Asphalt Package 2023-2 contract, Rebecca Krenzke leads the laboratory operations for asphalt mix verification, core density analysis, and aggregate gradation testing. Her responsibilities include maintaining QA/QC documentation, ensuring test accuracy, and communicating timely results to the field team and county officials.

One key challenge was ensuring consistent quality in asphalt samples sourced from multiple plants. Ms. Krenzke addressed this by coordinating with suppliers on pre-delivery mix reviews and increasing sample frequency during production peaks. Her proactive management helped ensure reliable, specification-compliant materials, contributing to smoother construction phasing and minimized rework.



Education / Certifications

- TxDOT Certifications: 5009, 12051, 3078, 989
- ACI Concrete Field Testing Tech- Gr-I
- U.S. DOT Hazmat program
- WACEL (Soil) Certificate

REBECCA KRENZKE

Laboratory Manager

Project Experience

2024-Current, HCFCD Cloverleaf Drainage and Detention Pond, Houston, TX: This \$21.1 million improvement project initiative led by CDM Smith in collaboration with the Harris County Flood Control District, enhanced the stormwater management and flood mitigation through the construction of a storm sewer box culvert along Nancy Rose and Hillsboro Street, directing runoff to a new detention basin draining into Carpenters Bayou. It involved installing concrete inlet structures, re-graded ditches, and an upgraded sanitary sewer system to improve long-term drainage, while meeting all specifications and coordinating with all parties to maximize project efficiencies.

Ms. Krenzke managed comprehensive lab testing of soils, concrete, & asphalt to support storm sewer box culvert construction, inlet structures, & drainage system enhancements. She ensured rigorous QA protocols for soil compaction, concrete strength, & material durability, facilitating consistent compliance. Her proactive oversight of testing schedules, data validation through Assure-IT ensured quality controls, which directly contributed to resilient drainage systems & infrastructure.

She is responsible for overseeing the scheduling, performance, and review of laboratory tests on asphalt, concrete, soil, and base materials to support field construction and specification compliance. She ensures all testing follows TxDOT and Harris County standards, and that data is accurately logged and reported to project managers in real time. A key challenge was managing increased testing volumes during simultaneous utility and paving operations. To address this, Ms. Krenzke implemented a test tracking matrix and realigned staffing resources to reduce turnaround time and ensure priority testing results were available for critical path decisions.

Project Experience

2024-Current, Testing and Inspection Services to Ascertain Specification Compliance for Job No. 23/0420 - Treaschwig Road A (Phase 1) - from 1000' West of Aldine Westfield Road to West of Count Precinct 3: Located in Houston, TX, Harris County, the \$20 million project expanded a two-lane asphalt roadway into a four-lane concrete boulevard to enhance traffic flow, safety, and infrastructure resilience. Key features included a raised median, new sidewalks, upgraded traffic signals, a curb, a gutter storm drainage system to improve runoff, and incorporating a large detention basin near Cypress Creek to mitigate flooding risks. Designed for future traffic demands, improved pedestrian access, it significantly enhanced connectivity and safety in the community.

Ms. Krenzke directed all laboratory operations supporting construction materials testing to verify compliance with ASTM & project specs. She oversaw testing of soil compaction, asphalt density, & compressive strength of cement-stabilized materials critical for the four-lane concrete boulevard, curbs, gutters, and drainage features. She coordinated certified technicians, managed equipment calibration, & ensured timely delivery of quality data. Her leadership was pivotal for material integrity & supporting objectives to improve traffic flow, safety, and infrastructure.

In support of drainage improvement efforts in the Cloverleaf area, sheoversees ATSER's laboratory testing program as Laboratory Manager, verifying the integrity and compliance of materials used in subgrade stabilization, storm drainage installation, and pavement restoration. Her role involves coordinating directly with field inspectors, reviewing test results for conformance to project specifications, and validating calibration and chain-of-custody protocols. A project challenge involved variable soil conditions that required custom testing regimens and rapid turnaround for geotechnical analysis. Ms. Krenzke resolved this by streamlining test workflows and introducing contingency scheduling to meet accelerated timelines without compromising data integrity.



Ph.D. in Civil Engineering
University of Florida

Dr. Shih brings over 22 years of specialized experience in pavement design, geotechnical investigations, and construction materials testing (CMT) for a wide range of public infrastructure projects. His doctoral research advanced the use of innovative material solutions to improve structural performance and long-term durability. He is highly proficient in physical and empirical laboratory testing, simulative analyses, and quality assurance.

Dr. Shih's technical leadership ensures that pavement designs are supported by accurate subsurface data, performance modeling, and material behavior evaluations tailored to site-specific conditions. He also oversees documentation control and ensures the integrity of testing records throughout the design and construction process. By integrating software-based tools such as ATSER's Manage-IT™ platform, he provides seamless tracking of construction and materials data, ensuring continuity, traceability, and real-time insight into quality and compliance across all project phases.

Project Experience

Project #5: Asphalt Package 2023-2 – Job No. 23/0293, Testing and Inspection Services to Ascertain Specification Compliance, Asphalt Package, Houston, Texas-Harris County-Precinct-3. 2023—Ongoing, Construction Services: CMT, CEI. Dr. Shih led materials testing and construction inspection on a full-depth asphalt reconstruction for this **\$8 million expansion**. His scope included in-place density tests, laboratory Superpave specimen molding, max theoretical gravity, and soil sampling with optimum lime content testing to ensure pavement performance and structural integrity. Inspections and prompt communication with engineers ensured material compliance and smooth project progression.

Dr. Shih plays a pivotal role as Pavement Engineer for ATSER's work on the Asphalt Package 2023-2, where he monitors asphalt pavement design implementation and verifies field conformance to specified compaction, density, and mix design requirements. He evaluates production plant data, reviews core sample results, and resolves pavement defects or inconsistencies as they arise. A specific challenge involved detecting early signs of rutting in trial sections due to temperature variation during placement. He collaborated with the Quality Assurance team to recommend modified compaction protocols and enhanced mix temperature controls, ensuring pavement durability and adherence to Harris County's quality objectives.

Skills

- Pavement Design Engineering
- Geotechnical Investigations
- Construction Materials Testing
- Innovative problem-solving
- Document Control Systems
- AASHTO, Regulatory Compliance
- Training and Mentoring
- Project Management Software
- Document Control Systems
- QA and Technical Oversight
- Software Integration; Data Integrity

CHUANG-TSAIR SHIH, Ph.D.

Pavement Design Engineer

Project Experience

2024-Current, HCFCF Cloverleaf Drainage and Detention Pond, Houston, TX: This \$21.1 million improvement project initiative led by CDM Smith in collaboration with the Harris County Flood Control District, enhanced the stormwater management and flood mitigation through the construction of a storm sewer box culvert along Nancy Rose and Hillsboro Street, directing runoff to a new detention basin draining into Carpenters Bayou. It involved installing concrete inlet structures, re-graded ditches, and an upgraded sanitary sewer system to improve long-term drainage, while meeting all specifications and coordinating with all parties to maximize project efficiencies.

Key Activities: In the Cloverleaf drainage improvement project, Dr. Shih serves as Pavement Engineer overseeing quality assurance for pavement restoration efforts following utility and drainage upgrades. His key activities include evaluating pavement section integrity post-excavation, reviewing laboratory testing results, and confirming compaction and material gradation compliance prior to surface paving.

Challenge/Solution: The challenge of coordinating pavement installation within tight residential zones was met through phased inspection and scheduling recommendations that minimized disruption while ensuring material performance. His expertise contributed to improved subgrade stability and extended pavement lifespan, supporting the long-term functionality of the upgraded stormwater infrastructure.

Project Experience

2024-Current, Testing/Inspection Services to Ascertain Specification Compliance for Job#23/0420 - Treaschwig Road A-Phase 1 from 1000' West of Aldine Westfield Rd to West of Count Prec 3: Houston, TX, Harris County, the \$20 million project expanded a 2-lane asphalt roadway into a 4-lane concrete boulevard to enhance traffic flow, safety, & infrastructure resilience. It included a raised median, new sidewalks, upgraded traffic signals, a curb, a gutter storm drainage system to improve runoff, & incorporating a large detention basin near Cypress Creek to mitigate flooding risks. Designed for future traffic demands & improved pedestrian access.

Key Activities: Dr. Shih reviewed pavement design parameters & verifying compliance of subgrade, base, & asphalt layers with project spec. He provides technical oversight of test results to assess layer thickness, compaction, & material suitability under traffic load projections.

Challenge/Solution: To ensure performance consistency across varying soil conditions. He recommended design adjustments to base layer thicknesses, reinforcing Geotech parameters based on real-time test data, optimizing pavement performance & service life while maintaining compliance with Harris County standards.



MARIO BARBOSA, NICET III

Geotechnical Engineer



M.S. in Civil Engineering,
Lamar University

Bio

Mr. Barbosa has over 11 years of specialized experience in geotechnical engineering and construction materials testing (CMT). He had a geotechnical focus during his civil engineering studies, specifically useful for when he has led critical subsurface investigations, foundation evaluations, and construction testing programs for infrastructure projects. His broad technical skillset is reinforced by industry-recognized certifications, directly contributing to when has performed geotechnical and CMT services for numerous public and private clients.

Mr. Barbosa's experience in managing complex field programs, adapting to evolving design requirements, and ensuring data accuracy makes him a key asset on multidisciplinary teams, particularly for high-visibility projects. He leads geotechnical/CMT services in support of schematic design, development, bidding, construction, and post-completion phases. He directs field investigations, coordinates testing personnel, ensure timely reporting, and review lab data to provide dependable insights for site preparation and structural system integrity.

Certifications

- NICET III-Concrete, Soils, Asphalt
- ACI Field Grade I
- TxDOT: SB103, HMA 1A
- 12.1.1-Asphaltic Concrete Production
- 12.1.5-Portland Cement Concrete Placement
- 12.1.6-Embankment/Subgrade/Backfill/Base Production
- 12.1.7- Embankment/Subgrade/Backfill/Base Placement
- Extensive continued education: Geotech engineering & quality mgt



Project Experience

2023-Current, METRO BOOST Initiative – Terminal B Transformation (TBT) Program at IAH, as well as various On-Call/As-Needed Projects ATSER LP provides CMT and inspection services for METRO's \$35M BOOST Initiative in Houston, TX, covering 19 miles of roadway repairs, 11 miles of sidewalk reconstruction, and a 30,000 sq. ft. Maintenance of Way facility. Our work ensures compliance with safety and quality standards, supporting METRO's mission to enhance transit accessibility and reliability.

Key Activities: As Geotechnical Engineer for the METRO BOOST Initiative under the Terminal B Transformation (TBT) Program, Mr. Barbosa was responsible for interpreting subsurface data and ensuring proper foundation support for upgrades across various transit corridors. He provided geotechnical recommendations based on soil behavior analysis and oversaw implementation of those recommendations in the field.

Challenge/Solution: A key challenge was ensuring soil stability across multiple active transit locations with varying geologic conditions. Mr. Barbosa collaborated closely with CMT personnel and inspectors to adjust excavation depths and backfill methods in real-time, ensuring safety, reducing delays, and maintaining compliance with METRO and City of Houston design standards.

MARIO BARBOSA, NICET III

Geotechnical Engineer

Project Experience

Waterline Replacement-City of Houston Public Works
Neartown Montrose/Plainview Subdivisions-Houston, TX | 2021

Key Activities: Mr. Barbosa served as Geotechnical Engineer for this **\$3.2 million** waterline replacement, overseeing 62 borings to assess subsurface conditions & groundwater levels. He supervised lab testing aligned with ASTM standards to determine physical/engineering properties of native soils. He developed utility installation recommendations for trenchless, auger tunneling, and open-cut methods, & provided pavement assessments for asphalt & concrete. His data-driven recommendations minimized construction risk and supported efficient installation in high-density residential areas. He conducted site-specific subsurface investigations & developed foundation recommendations for trenching & utility placement. He evaluated soil load-bearing capacity & provided guidance on dewatering & trench safety in densely populated communities.

Challenge/Solution: Mitigating settlement risks in areas with aging infrastructure and shallow utility conflicts. Barbosa's recommendations, including controlled backfill procedures and construction sequencing, contributed to reduced service disruption, enhanced construction safety, and successful delivery of critical water infrastructure improvements.



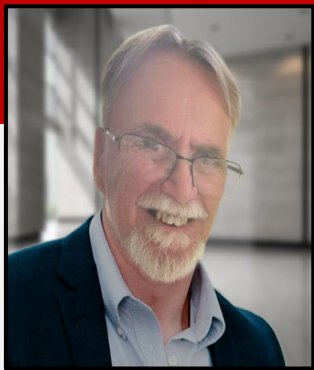
Project Experience

Treaschwig Road A-Phase1-Job#23/0420. Harris County-Pre3, Houston, TX | 2024-Ongoing.

The \$20 million Treaschwig Road Improvement Project in Houston (Harris County Precinct 3) aims to widen Treaschwig Road from two to four lanes, enhancing traffic flow and safety from west of Aldine-Westfield Road to Cypress Creek. The project includes a sidewalk, raised median, traffic signal, and storm sewer drainage with a large detention basin to manage runoff. Our construction material testing scope ensures quality and compliance through testing.

Key Activities: Mr. Barbosa provided geotechnical oversight to support pavement design and construction in an area prone to variable soil conditions and poor drainage. His responsibilities included soil sampling, classification, and bearing capacity analysis to ensure proper subgrade stabilization and base preparation.

Challenge/Solution: A recurring challenge involved sections of soft, moisture-sensitive clays that compromised initial compaction efforts. Barbosa addressed the issue by recommending lime treatment and geogrid reinforcement, which improved subgrade strength and long-term pavement performance. His solutions ensured that Harris County's quality and safety objectives were consistently met.



RICHARD REED, NICET II

Senior Technician



High School Diploma
La Porte High School

Mr. Reed has 30+ years of experience in geotechnical and construction materials testing (CMT), with a strong focus on quality assurance and regulatory compliance for municipal, transit, and infrastructure projects across the region and state. He has extensive field and lab expertise in testing soils, asphalt, and concrete to ensure materials meet performance standards. He specializes in subgrade evaluations, mix design verification, and real-time inspection during placement operations.

Known for his methodical approach, he supervises testing for drilled shaft slurry, monitors concrete & sheet pile installations, and ensures all procedures conform to local, state, & federal specifications. He mentors junior technicians, reinforcing rigorous testing/reporting standards. His field leadership and hands-on knowledge are instrumental in upholding quality & durability for various types of local municipal infrastructure improvements.

Project Experience

2023-Current, METRO BOOST Initiative, Houston, TX: ATSER LP provides CMT and inspection services for METRO's \$35 Million BOOST Initiative covering 19 miles of roadway repairs, 11 miles of sidewalk reconstruction, and a 30,000-sqft Maintenance of Way facility. Our work ensures compliance with safety & quality standards, supporting the mission to enhance transit accessibility & reliability.

Key Activities: As Senior Field Tech for the METRO BOOST Initiative, Mr. Reed was responsible for overseeing **soil sampling and drilling operations**, ensuring compliance with **AASHTO standards** for geotechnical testing. He conducted **field inspections, documented material conditions**, and coordinated with engineering teams to ensure the proper handling of construction materials, such as soil and concrete. Richard's hands-on experience aligns with city needs need for **on-site material testing** and **geotechnical services** during project construction phases. He provided senior-level testing services across several program components, including 82 Westheimer/54 Scott St. His work included field testing for concrete sidewalks, ADA ramps, nuclear density testing for base/subgrade, & material inspections for emergency bridge repairs.

Challenge/Solution: Mr. Reed faced the challenge of managing **accurate soil sampling** under tight timelines. He **optimized drilling schedules** and added **field support**, ensuring **efficient sample handling** and timely delivery to the lab. This approach minimized delays and ensured **high-quality results**, meeting Pearland's need for **accurate and timely material testing services**. His oversight ensured construction materials met stringent transit and municipal standards. His attention to compaction and placement methods contributed to long-term service life and reliability of METRO's expanded transit network.



Education / Certifications

- NICET Concrete II
- NICET Soil II
- NICET Asphalt II
- 12.1.6 - Embankment/Subgrade/Backfill/Base Production
- 12.1.7 - Embankment/Subgrade/Backfill/Base
- OSHA 10-Hours Construction, Health & Safety

RICHARD REED, NICET II

Senior Technician

Project Experience

2024-Current, HCFCD Cloverleaf Drainage and Detention Pond, Houston, TX: The Cloverleaf Area Drainage Improvements project in Houston, Texas, is a **\$21.1 million** initiative led by CDM Smith to enhance stormwater management and flood mitigation. It includes constructing a storm sewer box culvert along Nancy Rose and Hillsboro Street, which will convey stormwater to a new detention basin draining into Carpenters Bayou. The project also involves installing concrete inlet structures, re-grading drainage ditches, and upgrading the sanitary sewer system.

Key Activities: As Senior Field Tech on the Cloverleaf project, Mr. Reed ensured the structural integrity of key infrastructure, including **storm sewer box culverts** & **concrete inlet structures**. He led **soil sampling & drilling investigations** along Nancy Rose St/Hillsboro St to assess **subsurface conditions**, guiding appropriate **compaction techniques** & ensuring **soil stability** for culvert installation. He collaborated with the engineering team to ensure efficient **drilling operations** met strict **QC standards**, contributing to the successful **stormwater management system** development.

Challenge: Mr. Reed **faced unpredictable soil conditions** during the Cloverleaf Drainage Improvements project, which impacted the drilling process for the storm sewer box culverts and drainage ditches.

Solution: To address this, he **conducted additional site assessments and adjusted drilling methods** to accommodate the varying soil profiles. By **collaborating with the geotechnical team**, Richard ensured the drilling process overcame these challenges, keeping the project on track and ensuring stable and resilient stormwater infrastructure for the Cloverleaf community.



Matt Kanzler

Senior Technician



High School Diploma,
Charlotte Catholic High
School

Bio

Mr. Kanzler has 10+ years of hands-on experience in construction materials testing and geotechnical field services. He has served as lead field tech for a wide array of public infrastructure projects, providing critical quality assurance testing, field inspection services, and spec compliance verification for concrete/soil/asphalt materials. His expertise includes density testing, concrete compressive strength evaluations, asphalt compaction analysis & cement-stabilized subgrade assessments. He is well-versed in ASTM/TxDOT standards and collaborates closely with engineers, contractors, & QA/QC teams to ensure the integrity of foundations, pavements, and underground utilities. He has supported infrastructure rehabilitation projects for wastewater systems, where his technical precision & coordination improved system capacity, compliance, and longevity. He brings a field problem-solving acumen and a rigorous commitment to construction quality, safety, and performance.

Certifications

- NICET Asphalt II
- NICET Concrete II
- OSHA 10
- NICET Soil Level II

Project Experience

2023-Current, METRO BOOST Initiative, Houston, TX: ATSER LP provides CMT and inspection services for METRO's \$35M BOOST Initiative in Houston, TX, covering 19 miles of roadway repairs, 11 miles of sidewalk reconstruction, and a 30,000 sq. ft. Maintenance of Way (MOW) facility. Our work ensures compliance with safety and quality standards, supporting METRO's mission to enhance transit accessibility and reliability.

Key Activities: As a Lead Inspector for the METRO BOOST Initiative, Matt Kanzler performed **on-site material testing and inspections for concrete, soils, asphalt, and structural components**, ensuring compliance with **AASHTO-accredited standards**. He coordinated with contractors to verify **proper material placement and compaction**, documented test results, and provided **real-time quality control feedback**, aligning with the city's need for **accurate field testing and inspection services**.

Challenge: Mr. Kanzler encountered **inconsistent soil compaction** in areas with **high moisture levels**, which risked project delays.

Solution: To address this, he conducted **additional moisture-density testing**, collaborated with contractors to adjust **compaction techniques**, and ensured compliance with **project specifications**, maintaining the integrity of the construction process while meeting the city's need for **precise field verification**.



Project Experience

2024-Current, Cloverleaf Drainage and Detention Pond, Harris County Flood Control District, Houston, TX

The Cloverleaf Area Drainage Improvements project in Houston, Texas, is a \$21.1 million initiative led by CDM Smith to enhance stormwater management and flood mitigation. It includes constructing a storm sewer box culvert along Nancy Rose and Hillsboro Street, which will convey stormwater to a new detention basin draining into Carpenters Bayou. The project also involves installing concrete inlet structures, re-grading drainage ditches, and upgrading the sanitary sewer system.

Key Activities: Mr. Kanzler conducted key field tests to ensure the stability of construction materials. He focused on **soil compaction verification** for subgrade and drainage ditches, ensuring proper stormwater management and structural stability. He performed **asphalt density tests** to confirm durability and long-term performance. His inspections and testing provided the QA necessary to ensure the **storm sewer box culverts** and **concrete inlet structures** would function as intended, supporting the project's goals of **reducing flooding risks** and improving stormwater drainage for the Cloverleaf community.

He performed field testing to verify subgrade stability, concrete strength for both precast and cast-in-place components, and asphalt compaction and density compliance. His hands-on involvement and timely documentation helped maintain project quality and ensured all materials adhered to required standards. His coordination with inspectors and project staff supported smooth execution, contributing to a flood mitigation system built for long-term performance and reliability.



Mr. Kranzler performed field testing to verify subgrade stability, concrete strength for both precast and cast-in-place components, and asphalt compaction and density compliance. Matthew's hands-on involvement and timely documentation helped maintain project quality and ensured all materials adhered to required standards. His coordination with inspectors and project staff supported smooth execution, contributing to a flood mitigation system built for long-term performance and reliability.

Challenge and Solution: Matt faced a challenge with **soil compaction** in sections of the drainage ditches, where **varying moisture levels threatened subgrade stability**. To address this, he **implemented a rigorous testing regimen**, conducting multiple tests at different depths and moisture levels. By collaborating with the construction team to adjust compaction equipment and moisture control, Matt ensured the subgrade and drainage ditch compaction **met quality standards**, contributing to the **stability of the drainage infrastructure**.

EMMANUEL MENDIOLA, NICET II

Senior Technician



B.S. in Structural Analysis in Analysis & Design,
University of Houston

Mr. Mendiola brings 8+ years of experience delivering expert construction materials testing (CMT) and inspection services for major infrastructure projects throughout the Gulf Coast region. His technical expertise includes soil compaction verification, concrete strength testing, asphalt batch and field analysis, in-place density testing, and inspections of reinforced steel and post-tension systems. He has consistently demonstrated a strong commitment to quality assurance and regulatory compliance, ensuring that construction activities and materials meet ASTM standards, TxDOT specifications, and client expectations. He plays a vital role in supporting the structural integrity of public infrastructure through accurate field testing and real-time quality control. His proficiency in documentation, QA/QC enforcement, and problem-solving, such as managing variable soil moisture conditions or addressing calibration discrepancies.

Project Experience

Waterline Replacement–City of Houston Public Works, Neartown–Montrose/Plainview Subdivisions, Houston, TX, 2021-2022. Mr. Mendiola supported field Ops on this \$3.2 million replacement of approx. 37,640-linear-ft of aging waterlines with new 6-/8-inch service lines. ATSER conducted 62 soil borings to evaluate subsurface conditions, measure groundwater levels, and collect representative soil samples for lab testing. Tests included soil classification, moisture-density relationships, & bearing capacity evaluations. He contributed to ATSER's trenchless design recommendations & pavement structure design. His assessments were instrumental in identifying constructability issues early, reducing change orders.

Testing & Inspection Services to Ascertain Spec Compliance, Asphalt Package, Houston, Texas-Harris County-Precinct-3, 2023-ongoing, Construction Services: CMT, CEI. Mr. Mendiola performs daily in-place density testing of asphalt layers, collects asphalt cores for bulk specific gravity tests, and verifies maximum theoretical gravity for Superpave mixes on this ongoing \$8 million full-depth roadway reconstruction effort across multiple roads. He supports soil/base testing, including cement-stabilized sand & lime-treated subgrades. He works closely with batch plant personnel & inspectors to document compliance & flag inconsistencies. His reporting directly supports QA, ensuring pavement longevity & safety, ensuring material spec compliance through rigorous testing for this effort.

METRO #7023000201MN CMTI-As Needed-Houston, Texas 2024-Ongoing. METRO's 82 Westheimer Corridor BOOST Initiative focuses on enhancing a crucial 19-mile transit route from downtown Houston to West Oaks Mall, one of Texas's busiest bus lines. Supported by \$5 million in federal funding, the project aims to improve accessibility, safety, and rider experience. Key upgrades include new, improved sidewalks, accessibility features, bus shelters with lighting, real-time arrival displays, & traffic signal improvements. One challenge was coordinating testing schedules across a highly active & congested corridor while minimizing disruptions. He addressed this by working closely with field supervisors, adjusting testing timelines in real time, & maintaining clear documentation for all QA/QC activities.

Education / Certifications

- NICET Concrete II
- NICET Soil II
- NICET Asphalt II
- ACI Field Grade I
- OSHA 10-Hour Construction Safety and Health

EMMANUEL MENDIOLA, NICET II

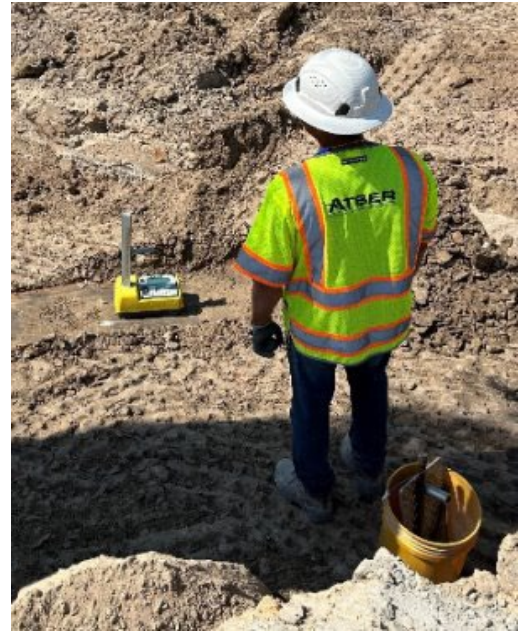
Project Experience

2024-Current, HCFCDD Cloverleaf Drainage & Detention Pond, Houston, TX: The project is a **\$21.1 million** initiative led by **CDM Smith** to enhance stormwater management and flood mitigation. It includes constructing a storm sewer box culvert along **Nancy Rose** and **Hillsboro Street**, which will convey stormwater to a new detention basin draining into **Carpenters Bayou**.

The project also involves installing concrete inlet structures, re-grading drainage ditches, and upgrading the sanitary sewer system. ATSER provides **construction material testing (CMT)**, ensuring the integrity of key components like soil compaction, concrete strength, and asphalt stability, playing a critical role in the project's success and resilience against flooding.

Key Activities: As a Field Technician, Emmanuel Mendiola conducted **soil compaction tests** to ensure stability of subgrade and drainage ditches. He also assisted with **asphalt density testing** for roadway stability and worked with the team to **monitor concrete curing** for key structures like storm sewer box culverts. His efforts directly supports **Pearland's need for an enhanced drainage system**, for overall **flood mitigation and effective stormwater management**. He performed daily field inspections, concrete testing, in-place density verification, & batch plant monitoring to ensure consistency & compliance across drainage installations, maintaining spec alignment goals.

Challenge/Solution: He **faced high moisture content in the soil during testing**, leading to inconsistent compaction results. He quickly **coordinated with the team** to adjust moisture levels, allowing the soil to dry before



Treaschwig Road-A-Improvement Project in Houston (Harris County, Prec 3), 2024-Ongoing. This \$20 million improvement project aims to widen Treaschwig Rd from 2- to 4-lanes, enhancing traffic flow and safety from west of Aldine-Westfield Rd to Cypress Creek. The project includes a sidewalk, raised median, traffic signal, & storm sewer drainage with a large detention basin to manage runoff. Our CMT scope ensures quality, compliance and testing.

Key activities: Mr. Mendiola applied his expertise in soil, concrete, and asphalt testing to support the full roadway reconstruction, which included performing in-place nuclear density testing (ASTM D6938) on subgrade soils and asphalt pavement, and compressive strength testing (ASTM D1633) on cement-stabilized materials used in curbs, gutters, and medians. Emmanuel also conducted field inspections and coordinated with the materials engineering team to ensure compliance with County specifications.

Challenge/Solution: Managing variable soil conditions & ensuring consistent compaction across different construction zones. He addressed these by adjusting testing frequencies based on field observations, maintaining calibrated equipment, & providing real-time feedback to the contractor. His structural analysis background ensured accurate reporting & timely identification of non-conformances, directly contributing to the project's QA & long-term infrastructure resilience.

Emmanuel Alvizo

Laboratory Technician



**B.S. in Mechatronics
Engineering & Mathematics,**
University of Incarnate Word

Bio

Mr. Alvizo is a highly capable Technician with 8+ years of experience in public infrastructure, construction materials testing (CMT), and construction, engineering, and inspections. He brings a strong interdisciplinary foundation to his work in geotechnical and CMT, while supporting lab operations and specializes in standards for asphalt, concrete, aggregates, and soils. He implements quality assurance/control (QA/QC) protocols, managing testing schedules, coordinating field activities, and documenting results. He uses project management information system tools to support real-time, timely decisions. His expertise extends to managing roadway and rehabilitation. He conducts submittal reviews & enforces contractor compliance with municipal and TxDOT specifications, assisting engineers in resolving discrepancies.

Certifications

- ACI Field Testing Technician Grade 1
- ACI Aggregate, ACI Base
- OSHA 30-Hours Construction Safety/Health
- Texas Department of Transportation (TxDOT) SB101, SB102, SB103, HMA 1A, HMA 1B
- 12.1.1-Asphaltic Concrete Production
- 12.1.4-Asphaltic Concrete Placement
- 12.1.5-Portland Cement Concrete Placement
- 12.1.6-Embankment/Subgrade/Backfill/Base Production
- 12.1.7- Embankment/Subgrade/Backfill/Base Placement

Project Experience

METRO BOOST Initiative – On-Call Contract, Houston, TX | Budget: \$35 Million | 2023 – Ongoing. ATSER, LP provides CMT and inspection services for this Initiative, covering 19 miles of roadway repairs, 11 miles of sidewalk reconstruction, and a 30,000 sq. ft. Maintenance of Way (MOW) facility. Our work ensures compliance with safety and quality standards, supporting METRO's mission to enhance transit accessibility and reliability.

Key Activities: Mr. Alvizo conducted a range of construction materials tests including concrete strength, aggregate gradation, and hot mix asphalt sampling. Working closely with field inspectors and engineers, he ensured real-time reporting and validation of materials used along high-volume public transit corridors. The dynamic nature of the on-call schedule required flexibility and precision, especially as he supported multiple project locations while maintaining strict adherence to METRO and ASTM testing protocols.

Challenges/Solutions: One challenge was the congested corridor with limited windows for sampling and testing due to traffic control and lane closure restrictions. He coordinated closely with field inspectors/construction leads to pre-schedule sampling & expedited lab testing, ensuring that test results were delivered within tight operational windows. Another challenge was variability in subgrade & asphalt mix performance across different zones created inconsistencies in compaction and placement quality. He enhanced coordination with materials engineers & proactively adjusted lab testing methods (e.g., modified proctor tests, asphalt content analysis) to identify root causes, recommend mix design corrections, & validate corrective actions.



Emmanuel Alvizo

Laboratory Technician

Project Experience

Treaschwig Road Segment-A, Phase-1, Job-23/0420 Harris County-Prec3, Houston, TX | 2024–Ongoing This improvement aims to widen Treaschwig from 2- to 4-lanes, enhancing traffic flow/safety from west of Aldine-Westfield Road to Cypress Creek. The project includes a sidewalk, raised median, traffic signal, and storm sewer drainage with a large detention basin to manage runoff. CMT scope ensures QA/QC, compliance, and testing.

Key Activities: Mr. Alvizo provided lab support for testing involving subgrade, base, & paving materials. His role included sample intake, logging, & analysis under TxDOT specs for asphaltic and cementitious materials. As part of the Geotech/materials engineering team, he contributed to real-time QC, enabling timely issue resolution on a roadway serving residential/commercial zones. His consistency & tech acumen ensured the reliability of CMT data critical to progress tracking & contractor coordination.

Challenges/Solutions: The phased utility relocation & road widening, which introduced variable soil conditions & compaction inconsistencies in different segments of the corridor. He worked closely with Geotech personnel to recalibrate proctor testing and compaction targets by zone, allowing field crews to apply site-specific adjustments that improved subgrade performance.

The coordination between multi-crews (earthwork, paving, drainage) created overlapping testing demands during peak windows. He implemented a batching/tracking system for sample intake, prioritizing time-sensitive materials (hot-mix asphalt/concrete) for real-time analysis/reporting. High groundwater in low-lying areas affected moisture content/stability during soil testing. He conducted moisture-density tests, collaborating with engineers if lime or cement-treated subgrade was needed, improving pavement support.



Project Experience

Cloverleaf Area Drainage Improvements, Cloverleaf Neighborhood, Houston, TX| \$21.1 Million |2024–Ongoing This improvement project led by the Harris County Flood Control District & CDM Smith to enhance stormwater management & flood mitigation. It includes constructing a storm sewer box culvert along Nancy Rose/Hillsboro, which will convey stormwater to a new detention basin draining into Carpenters Bayou. Involves installing concrete inlet structures, re-grading drainage ditches, & upgrading the sanitary sewer system.

Key Activities: On this major drainage improvement effort, Mr. Alvizo supported ATSER's QA program through rigorous lab testing of embankment materials, concrete, and asphalt used in stormwater and road improvements. His work helped verify compliance with TxDOT 12.1 series specifications, providing test results that informed field adjustments and material acceptance decisions. His attention to sampling procedures and lab reporting helped mitigate delays caused by weather and site access limitations in this flood-prone area.

Challenges/Solutions: He addressed soft soils/fluctuating water tables that led to inconsistent compaction and delays in backfill drying. He responded by performing moisture-density tests & recommending lime treatment in unstable zones to ensure performance. Limited space within residential rights-of-way posed hurdles for sample collection, which he mitigated by streamlining intake workflows & prioritizing high-traffic zones. Storms disrupted material conditions & test schedules, he collaborated to resume safe Ops as weather permitted.

Jose Barcenas

Laboratory Technician



Drafting & Design Technology
ITT Tech Institute

Diploma
Conroe High School

Bio

Mr. Barcenas brings over 4 years of expertise in the construction industry, including 4 years specializing in construction materials testing (CMT) & laboratory analysis. He brings a methodical and results-driven approach to testing soils, concrete, asphalt, and aggregates for public infrastructure projects. His work ensures strict adherence to quality standards, with particular strengths in optimizing concrete mixes for storm drainage infrastructure and roadway rehabilitation in geotechnically sensitive areas. His technical accuracy and field coordination skills directly support resilient, safe, and compliant infrastructure delivery, aligning with city project priorities in roadway, utility, and flood-prone environments.

Certifications

- ACI Field Testing Technician Grade 1
- ACI Aggregate, ACI Base
- ACI Adhesive Anchor Inspection
- Texas Department of Transportation (TxDOT) SB101, SB102, SB103, HMA 1A, HMA 1B
- 12.1.4-Asphaltic Concrete Placement
- 12.1.5-Portland Cement Concrete Placement
- 12.1.6-Embankment/Subgrade/Backfill/Base Production
- 12.1.7- Embankment/Subgrade/Backfill/Base Placement
- OSHA 10-Hours Construction Safety/Health

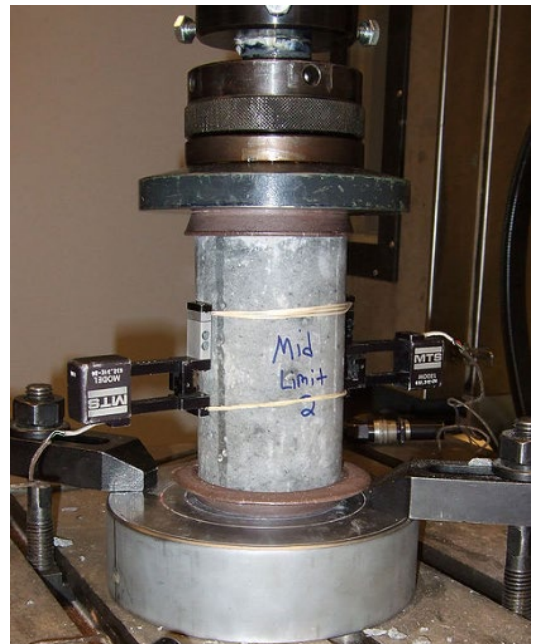
Project Experience

2023-Ongoing, Testing & Inspection Services to Ascertain Spec Compliance, Job-23/0293-Asphalt Package 2023-2 for Harris County-Prec3, Houston, TX, \$8M: For this ongoing asphalt pavement improvement initiative, Mr. Barcenas is responsible for comprehensive laboratory testing of base materials, hot-mix asphalt, and concrete structures. His key activities include conducting density and compaction testing, asphalt binder content verification, and gradation analysis to ensure materials meet TxDOT and project specifications.

Key Activities: For this ongoing asphalt pavement improvement initiative, he was responsible for comprehensive lab testing of base materials, hot-mix asphalt, and concrete structures. He conducts density & compaction testing, asphalt binder content verification, and gradation analysis.

Challenges/Solutions: A major challenge involved variable subgrade conditions across job segments, affecting compaction consistency and asphalt performance.

He addressed this by performing additional field moisture-density correlations and working closely with field crews to adjust placement techniques based on real-time lab feedback. His proactive communication with inspectors and timely reporting helped reduce rework and keep the construction schedule on track, ensuring long-term pavement durability in high-use public corridors.



Jose Barcenas

Laboratory Technician

Project Experience

2023-Ongoing, METRO BOOST Initiative, Houston, TX | \$35 Million: ATSER provides CMT & inspection services for this Initiative, covering 19-mi of roadway repairs, 11-mi of sidewalk reconstruction, & a 30,000-sqft M.O.W. facility. Our work complied with safety & quality standards, supporting METRO's accessibility & reliability mission.

Key Activities: Mr. Barcenas conducted **material testing on concrete, soils, asphalt, & aggregates** to ensure compliance with **AASHTO-accredited standards**. He performed **compressive strength testing, gradation analysis, proctor tests, & asphalt content verification**, providing accurate data to support field Ops. His role was critical in maintaining **quality assurance for construction materials**, aligning with needs for **reliable lab testing services**. He ensured quality and efficiency utilizing ATSER's **lab information management system, Assure-IT™**.

Challenges/Solutions: Mr. Barcenas, as Lab Tech, faced **discrepancies in concrete strength results**, which could have led to **structural integrity concerns**.

Resolved by **retesting samples, cross-checking batch records**, and **identifying inconsistent mix proportions**.

He worked with engineers to adjust the mix design, ensuring **compliance with specifications, preventing costly delays**, and demonstrating the importance of **precise lab analysis**.



Project Experience

2024-Ongoing, Cloverleaf Drainage & Detention Pond, Houston, TX, \$21.1M: This Improvement project was led by the Harris County Flood Control District and CDM Smith to enhance stormwater management & flood mitigation. It includes constructing a storm sewer box culvert along Nancy Rose St/Hillsboro St, which will convey stormwater to a new detention basin draining into Carpenters Bayou. It involves installing concrete inlet structures, re-grading drainage ditches, and upgrading the sanitary sewer system.

Key Activities: Mr. Barcenas played a vital role in ensuring the **quality and durability** of materials used in the new **storm sewer infrastructure**. He conducted **concrete strength tests** on **cast-in-place and precast structures**, such as storm sewer culverts and inlet structures. He performed **soil compaction and stability tests** to verify material properties essential for the **drainage system's integrity**. His **diligent testing** ensured all materials met required standards, supporting the project's need for **strong, reliable drainage infrastructure**.

Challenges/Solutions: Mr. Barcenas tackled **variability in concrete mix designs** for precast storm sewer components, which initially led to **inconsistent strength results** and durability concerns. He collaborated with engineers and suppliers to **refine mix ratios**, conducting additional **compressive strength tests** and improving **curing methods**. His **proactive adjustments** ensured the **culverts and inlet structures met project specifications**, securing long-term stormwater drainage performance.



ROGER PABEN

Coring Trailer Operator

North Harris
County
College

Bio

Mr. Paben is a seasoned Coring Trailer Operator with 7 years of experience in construction materials testing, geotechnical field services, and subsurface investigations. His expertise is grounded in managing drilling & coring activities for soil classification and structural evaluations across a wide range of municipal, county, and transit-related projects. He leads field Ops for geotechnical exploration, ensuring accurate data recovery, compliance with project specifications, and safety adherence under challenging site conditions. With a strong command of federal, TxDOT, & municipal testing protocols, he delivers QC data that informs foundational engineering decisions & supports reliable infrastructure design and construction for flood mitigation, roadway improvements, and transit upgrades.

Certifications

- ACI Field Testing Technician Grade-I
- ACI Field Strengths-1
- ACI Adhesive Anchor Inspection
- ACI Epoxy
- TxDOT SB101,102,103
- HMA 1B, HMA 1A
- 12.1.1-Asphaltic Concrete Production
- 12.1.4-Asphaltic Concrete Placement
- 12.1.5-Portland Cement Concrete Placement
- 12.1.6-Embankment/Subgrade/Backfill/Base Production
- 12.1.7-Embankment/Subgrade/Backfill/Base Placement
- OSHA 10-hour Construction Safety & Health

Project Experience

2024-Current, HCFCD Cloverleaf Drainage and Detention Pond, Houston, TX: The project is a \$21.1 million initiative led by CDM Smith to enhance stormwater management and flood mitigation. It includes constructing a storm sewer box culvert along Nancy Rose St and Hillsboro St, which will convey stormwater to a new detention basin draining into Carpenters Bayou. The project also involves installing concrete inlet structures, re-grading drainage ditches, and upgrading the sanitary sewer system. ATSER provides CMT, like soil compaction, concrete strength, and asphalt stability, playing a critical role in the project's success and resilience against flooding.

Key Activities: Mr. Paben conducted subsurface borings & sampling in flood-prone zones with unstable soil profiles. His duties included coring for Geotech investigations, performing in-situ density tests, & executing QA verifications for embankment and backfill Ops. He conducted testing of cast-in-place concrete elements used in culverts/drainage structures, ensuring conformance with specs.

Challenges/Solutions: One challenge was working during post-rain conditions in waterlogged/highly compressible soils, which required adjusted drilling schedules & special casing techniques to ensure sample integrity. He coordinated with engineers to implement safe, phased boring Ops & produced accurate field logs that guided slope stability & pond embankment design, supporting area flood resiliency.



Roger Paben

Coring Trailer Operator

Project Experience

2024-Current, Metro On Call Contract, Houston, TX: The \$35 million METRO BOOST initiative improves Harris County public transit with upgraded bus stops, solar-powered shelters, digital signage, and enhanced sidewalks and ramps. ATSER provided CMT and inspections for roadway repairs, sidewalk reconstruction, bridge repairs, and a 30,000-square-foot METRO MOW facility, ensuring material quality and compliance with safety standards.

Key Activities: Mr. Paben provided critical coring services to support sidewalk reconstruction, bus stop enhancements, and subgrade verification along major high-traffic corridors, including the Westheimer route. Key responsibilities included conducting pavement cores to assess asphalt thickness and base condition, classifying soils for ADA-compliant ramp designs, and supporting signal foundation drilling inspections.

Related to Scope of Services: One ongoing challenge was executing testing in dense urban settings without disrupting public transit operations. He worked during low-traffic hours and implemented strict safety perimeter protocols while completing rapid-turnaround sampling and field logging. His coordination with field inspectors & construction crews enabled responsive decision-making on structural retrofits & pavement rehabilitation strategies.



Project Experience

Asphalt Package 2023-2, Job-23/0293 | Harris County Precinct 3 | \$8 Million | 2023 – Ongoing

As part of Harris County Precinct 3's Asphalt Package 2023-2 program, Mr. Paben served as the lead coring technician responsible for verifying pavement thickness and material compliance across multiple roadway rehabilitation sites.

Key Activities: His key activities included extracting asphalt and base cores for laboratory analysis, conducting field density and compaction testing, and documenting as-built pavement profiles for quality assurance review.

Challenges/Solutions: A primary challenge involved coordinating coring operations within active traffic corridors and residential neighborhoods, where space constraints and safety concerns required precision scheduling and tight operational control. Mr. Paben implemented nighttime and off-peak testing protocols, coordinated traffic control with field inspectors, and ensured minimal disruption to public access. Additionally, his rapid reporting and integration with ATSER's lab teams facilitated quick turnaround on mix design evaluations and compaction verification, directly supporting project milestones and regulatory compliance for Harris County's resurfacing and roadway upgrade efforts.

A. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME: Luis Gonzalez	13. ROLE IN THIS CONTRACT: Concrete Technician	14. YEARS EXPERINCE: a. TOTAL 5 years b. WITH ATSER: 4 years
-----------------------------------	--	--

15. FIRM NAME AND LOCATION (City and State): ATSER LP, Houston, TX



Mr. Gonzalez has 5 years of experience in supporting the field and lab testing operations during asphalt pavement upgrades, performing core sampling and in-place density testing. He ensured that field compaction met TxDOT specifications and supported concrete testing during ADA ramp and curb installations. He also documented field conditions and coordinated with site inspectors to schedule time-sensitive testing to minimize construction delays.



16. EDUCATION High School Diploma, Ponchatoula High School	17. CURRENT PROFESSIONAL REGISTRATION n/a
---	---

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)
TxDOT, SB101, 102, 103, HMA 1B; ACI Field Grade Testing Technician Grade 1.

19. RELEVANT PROJECTS

a. (1) Asphalt Package 2023-2 – Job No. 23/0293 (Houston, TX)	(2) 2023-Current PROFESSIONAL SERVICES Concrete Testing
(3) BRIEF DESCRIPTION AND SPECIFIC ROLE Mr. Gonzalez supported the field and lab testing operations during asphalt pavement upgrades, performing core sampling and in-place density testing. He ensured that field compaction met TxDOT specifications and supported concrete testing during ADA ramp and curb installations. He also documented field conditions and coordinated with site inspectors to schedule time-sensitive testing to minimize construction delays.	
b. (1) Treaschwig Road Segment A Phase 1 (Houston, TX)	(2) 2024-Current PROFESSIONAL SERVICES Concrete Testing
(3) BRIEF DESCRIPTION AND SPECIFIC ROLE The \$20 million Treaschwig Road A Improvement Project in Houston (Harris County Precinct 3) aims to widen Treaschwig Road from two to four lanes, enhancing traffic flow and safety from west of Aldine-Westfield Road to Cypress Creek. The project includes a sidewalk, raised median, traffic signal, and storm sewer drainage with a large detention basin to manage runoff. Our construction material testing scope ensures quality and compliance through tests for soil density, asphalt pavement density, and compressive strength, supporting safer, more resilient infrastructure for the community.	
c. (1) Cloverleaf Area Drainage Improvement Project (Houston, TX)	(2) 2024-Current PROFESSIONAL SERVICES Concrete Testing

(3) **BRIEF DESCRIPTION AND SPECIFIC ROLE** In this \$21.1 Million project in a drainage-heavy, flood-prone residential zone, Mr. Gonzalez performed concrete field testing for storm sewer structures and reinforced inlets. He helped mitigate environmental factors, such as high groundwater and elevated ambient temperatures, by performing rapid on-site testing to verify compliance before form removal and backfilling. His responsiveness helped maintain schedule continuity during frequent weather interruptions.

A. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME: Christopher Brown	13. ROLE IN THIS CONTRACT: Concrete Technician	14. YEARS EXPERINCE: a. TOTAL 4 years b. WITH ATSER: 4 years
---------------------------------------	--	--

15. FIRM NAME AND LOCATION (City and State): ATSER LP, Houston, TX



Mr. Brown is a a certified Concrete Technician with four years of experience in construction materials testing. Specializing in concrete testing, batch plant inspections, and asphalt evaluations, he has worked extensively on municipal and infrastructure projects to ensure material quality and compliance. will conduct concrete field tests, including slump, air content, temperature, and compressive strength assessments, ensuring materials meet project and regulatory standards. He will oversee batch plant inspections, verifying mix designs and material consistency. He will perform asphalt testing, including density & compaction checks, ensuring compliance with TxDOT & the city's infrastructure requirements. Mr. Brown's broad skill set and hands-on approach make him an ideal technician due to being reliable, precise, with strong mechanical insight.



16. EDUCATION Blinn College	17. CURRENT PROFESSIONAL REGISTRATION n/a
---------------------------------------	---

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) TxDOT SB101, TxDOT SB102, HMA 1A, HMA 1B, and ACI Field Grade I

19. RELEVANT PROJECTS

a. (1) Cloverleaf Area Drainage Improvements (Houston, TX)	(2) 2023-Current PROFESSIONAL SERVICES Concrete Testing
(3) BRIEF DESCRIPTION AND SPECIFIC ROLE Mr. Brown conducted daily concrete field testing & sampling activities for this \$21.1 Million major drainage infrastructure components, including culverts, manholes, & curb inlets. He performed slump tests, air content analysis, & temperature monitoring to validate mix compliance. Faced with fluctuating weather and soil conditions in flood-prone zones, he demonstrated adaptability by coordinating with field inspectors and adjusting testing procedures to maintain accuracy and timeliness during rain-impacted pours.	
b. (1) Treaschwig Road A (Houston, Texas)	(2) 2024-Current PROFESSIONAL SERVICES Concrete Testing
(3) BRIEF DESCRIPTION AND SPECIFIC ROLE The \$20 million Treaschwig Road A Improvement Project in Houston (Harris County Precinct 3) aims to widen Treaschwig Road from two to four lanes, enhancing traffic flow and safety from west of Aldine-Westfield Road to Cypress Creek. Started in June 2024 and ongoing, the project includes a sidewalk, raised median, traffic signal, and storm sewer drainage with a large detention basin to manage runoff. Our construction material testing scope ensures quality and compliance through tests for soil density, asphalt pavement density, and compressive strength, supporting safer, more resilient infrastructure for the community. Christopher Brown served as a technician.	
c. (1) METRO BOOST Initiative-Terminal B Transformation On Call Contract (Houston TX)	(2) 2023-Current PROFESSIONAL SERVICES Concrete Testing
(3) BRIEF DESCRIPTION AND SPECIFIC ROLE In support of METRO's \$35 Million 82-Westheimer Corridor BOOST upgrades, Mr. Brown provided field concrete testing services for new bus stop platforms, ADA improvements, and sidewalk reconstruction. He ensured compliance with ACI & project specifications through routine testing and timely reporting. His previous experience in mechanical repair & trenching was particularly valuable in coordinating with crews on-site to maintain safe work zones and assist with technical troubleshooting during critical nighttime placements.	



James Bishop

Concrete Technician

Bio

Mr. Bishop is an experienced Concrete Technician with proven expertise in construction materials testing for concrete and asphalt across public infrastructure projects in Texas. He ensures that all field and lab tests meet stringent quality control requirements. He performs slump tests, air content analysis, temperature readings, compaction testing, and density measurements to verify compliance with TxDOT, municipal, and project-specific standards. He has been instrumental in maintaining construction quality on roads, drainage systems, and flood mitigation infrastructure by conducting batch plant inspections, verifying mix designs, and documenting testing results for compliance. His consistent attention to detail, commitment to safety, and collaborative approach with contractors and engineers contribute directly to the structural integrity and longevity of each project.

Certifications

- ACI Field Grade I
- TX DOT HMA 1A, HMA 1B
- TX DOT SB101, SB102
- OSHA 10-Hour Construction Safety/Health

Project Experience

Over the year, he has supported multiple high-impact public infrastructure projects across Harris County:

Cloverleaf Area Drainage Improvements Project in Houston, TX (\$21.1 Million | 2024 – Ongoing)

Mr. Bishop conducted on-site concrete sampling and compaction testing to support the installation of stormwater infrastructure in flood-prone neighborhoods. He adjusted testing protocols to account for variable soil moisture levels and worked closely with field crews to ensure safe and consistent field operations.

Treaschwig Road A Improvement Project – Phase 1 (Job No. 23/0420 | \$20 Million | 2024 – Ongoing)

Mr. Bishop conducted asphalt density testing and batch plant inspections to verify paving quality for new roadway alignments and drainage systems from 1000’ west of Aldine Westfield Road to just west of County Precinct 3 facilities. He coordinated with project inspectors and contractors to adjust for weather-induced material variations and provided timely results to support decision-making and quality assurance.

Asphalt Package 2023-2 (Job No. 23/0293, Harris County, Precinct-3 | \$8 Million | 2023 – Ongoing)

Mr. Bishop supported paving operations across multiple locations. His responsibilities included verifying asphalt compaction, conducting mix design checks, and maintaining a streamlined reporting process for compliance documentation. Across all projects, his technical accuracy and proactive communication contributed to smooth field operations and adherence to all applicable specifications.

A. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME: Kristopher Montoya	13. ROLE IN THIS CONTRACT: Concrete Technician	14. YEARS OF EXPERIENCE: a. TOTAL 1 year b. WITH ATSER: 1 year
--	--	--

15. FIRM NAME AND LOCATION (City and State): ATSER LP, Houston, TX



Mr. Montoya is an experienced Concrete Technician specializing in construction materials testing (CMT) for infrastructure and roadway projects throughout Texas. He demonstrates his proficiency in concrete and asphalt field evaluations. He performs critical field and laboratory testing to ensure material compliance with TxDOT, Harris County, and City of Conroe standards. His core responsibilities include conducting slump tests, air content analysis, unit weight testing, compressive strength testing, and asphalt density verification, as well as overseeing batch plant inspections and ensuring accurate curing practices. Mr. Montoya is known for his precision, responsiveness, and ability to adapt testing procedures to changing site conditions—key qualities that support project safety, compliance, and long-term infrastructure performance.



16. EDUCATION Associate of Arts, Lone Star College	17. CURRENT PROFESSIONAL REGISTRATION n/a
--	---

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) TxDOT SB101, SB102, HMA 1A, HMA 1B, ACI Field Grade I. 12.1.5-Portland Cement Concrete Placement 12.1.6-Embankment/Subgrade/Backfill/Base Production. 12.1.7-Embankmnt/Subgrade/Backfill/Base Placement
--

19. RELEVANT PROJECTS

a. (1) Asphalt Package 2023-2 – Job No. 23/0293 (Houston, TX)	(2) 2023-Current PROFESSIONAL SERVICES Concrete Testing
(3) BRIEF DESCRIPTION AND SPECIFIC ROLE For this \$8 Million resurfacing and pavement improvement contract, Mr. Montoya conducted in-place concrete and asphalt field testing across multiple sites. He performed slump, temperature, and air content testing for new curbs and ADA ramps, monitored asphalt density using nuclear gauges, and supported mix verification efforts at production plants. When inconsistencies in compaction readings occurred due to moisture content fluctuations, he worked closely with the project team to reschedule core sampling and ensure representative test results, contributing to timely pavement acceptance and contractor compliance.	
b. (1) Treaschwig Road A (Houston, Texas)	(2) 2024-Current PROFESSIONAL SERVICES Concrete Testing
(3) BRIEF DESCRIPTION AND SPECIFIC ROLE The \$20 million Treaschwig Road A Improvement Project in Houston (Harris County Precinct 3) aims to widen Treaschwig Road from two to four lanes, enhancing traffic flow and safety from west of Aldine-Westfield Road to Cypress Creek. Started in June 2024 and ongoing, the project includes a sidewalk, raised median, traffic signal, and storm sewer drainage with a large detention basin to manage runoff. Our construction material testing scope ensures quality and compliance through tests for soil density, asphalt pavement density, and compressive strength, supporting safer, more resilient infrastructure for the community. Kristopher Montoya served as a technician.	
c. (1) Cloverleaf Area Drainage Improvements (Houston, TX)	(2) 2024-Current PROFESSIONAL SERVICES Concrete Testing
(3) BRIEF DESCRIPTION AND SPECIFIC ROLE Mr. Montoya performed field/lab testing on concrete structures & trench backfill materials during the installation of underground storm sewer infrastructure. His tasks included slump testing, temperature control, air content analysis, and verification of curing practices for catch basins, headwalls, and manhole collars. He conducted batch plant inspections to verify material conformity before placement. A challenge involved maintaining strength development timelines during wet-weather delays. He adjusted testing windows; coordinated closely with crews to ensure strength verification schedule.	



B.A. in History
Houston

Mr. Mathews is an experienced Concrete Technician with over 35 years of experience in construction management and construction materials testing for public infrastructure agencies, including Harris County, the Houston Airport System, and the City of Houston. He specializes in concrete, asphalt, and soil testing, ensuring material quality and regulatory compliance through field and lab procedures, including slump testing, air content, compressive strength evaluations, asphalt density testing, and compaction verification. He oversees batch plant operations, validates mix designs, and performs aggregate gradation analysis, supporting long-term pavement & foundation performance. He dispatches coordination, and oversees QA/QC, including split & proficiency testing & compliance tracking for complex infrastructure and drainage improvement projects. His broad expertise & hands-on approach make him a vital asset in supporting municipal & geotechnically sensitive projects, including those focused on stormwater infrastructure, upgrades, & public works compliance. His work ensures high-quality material performance & adherence to TxDOT/municipal standards throughout the project lifecycle.

Certifications

- NICET Concrete III
- NICET Soils III
- NICET Asphalt II
- ACI Field Grade I
- TxDOT SB101, SB102, HMA 1A, HMA 1B
- 12.1.6 Embankment/Subgrade/Backfill/Base Production
- 12.1.7 Embankment/Subgrade/Backfill/Base Placement
- OSHA 10-Hour Construction Safety/Health

Project Experience

Asphalt Package 2023-2 – Job No. 23/0293, Houston, TX | \$8 Million | 2023 – Ongoing. ATSER, LP provides CMT and inspection services for this Initiative, covering 19 miles of roadway repairs, 11 miles of sidewalk reconstruction, and a 30,000 sq. ft. Maintenance of Way (MOW) facility. Our work ensures compliance with safety and quality standards, supporting METRO's mission to enhance transit accessibility and reliability.

Key Activities: For this multi-location asphalt resurfacing package, Mr. Matthews managed asphalt plant verification, field density testing, and core sampling. He resolved inconsistencies in compaction results by leading proficiency testing and cross-validating nuclear gauge readings. His close collaboration with paving crews and contractor QC teams ensured proper placement and curing conditions, supporting long-term pavement performance and contract compliance under accelerated field conditions.



Project Experience

Treaschwig Road Segment-A, Phase-1, Job-23/0420 Harris County-Prec3, Houston, TX | 2024–Ongoing This improvement aims to widen Treaschwig from 2- to 4-lanes, enhancing traffic flow/safety from west of Aldine-Westfield Road to Cypress Creek. The project includes a sidewalk, raised median, traffic signal, and storm sewer drainage with a large detention basin to manage runoff. CMT scope ensures QA/QC, compliance, and testing.

Key Activities: Mr. Matthews oversaw materials testing and technician coordination for this phased roadway and storm sewer reconstruction effort. He conducted critical evaluations of asphalt density, subgrade compaction, and concrete strength, while managing batch plant inspections and compliance tracking. Facing challenges from variable subgrade moisture and material delivery delays, he implemented adaptive testing schedules and verified mix design modifications in the field—maintaining progress and specification adherence across the corridor.



Challenges/Solutions: The phased utility relocation & road widening, which introduced variable soil conditions & compaction inconsistencies in different segments of the corridor. He worked closely with Geotech personnel to recalibrate proctor testing and compaction targets by zone, allowing field crews to apply site-specific adjustments that improved subgrade performance.

The coordination between multi-crews (earthwork, paving, drainage) created overlapping testing demands during peak windows. He implemented a batching/tracking system for sample intake, prioritizing time-sensitive materials (hot-mix asphalt/concrete) for real-time analysis/reporting. High groundwater in low-lying areas affected moisture content/stability during soil testing. He conducted moisture-density tests, collaborating with engineers if lime or cement-treated subgrade was needed, improving pavement support.

Project Experience

Cloverleaf Area Drainage Improvements, Cloverleaf Neighborhood, Houston, TX| \$21.1 Million |2024–Ongoing This improvement project led by the Harris County Flood Control District & CDM Smith to enhance stormwater management & flood mitigation. It includes constructing a storm sewer box culvert along Nancy Rose/Hillsboro, which will convey stormwater to a new detention basin draining into Carpenters Bayou. Involves installing concrete inlet structures, re-grading drainage ditches, & upgrading the sanitary sewer system.

Key Activities: In this flood-prone residential neighborhood project, Mr. Matthews conducted field and lab testing for trench backfill, lime-treated subgrade, storm sewer bedding, and concrete structures. His responsibilities included validating moisture-density relationships and overseeing QA/QC documentation during drainage installation. Responding to saturated soil conditions and limited right-of-way access, he adapted testing logistics to prioritize safety and minimize service disruptions, while ensuring materials met structural and hydraulic design criteria.

Challenges/Solutions: He addressed soft soils/fluctuating water tables that led to inconsistent compaction and delays in backfill drying. He responded by performing moisture-density tests & recommending lime treatment in unstable zones to ensure performance. Limited space within residential rights-of-way posed hurdles for sample collection, which he mitigated by streamlining intake workflows & prioritizing high-traffic zones. Storms disrupted material conditions & test schedules, he collaborated to resume safe Ops as weather permitted.

CERTIFICATE OF INSURANCE



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
8/26/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Brady, Chapman, Holland & Associates 10055 West Gulf Bank Houston TX 77040		CONTACT NAME: PHONE (A/C No, Ext): 713-688-1500 FAX (A/C No): 713-688-7967 E-MAIL: ecerts@bch-insurance.com ADDRESS:															
INSURED Atser L.P. 1150 Richcrest Drive Houston TX 77060		INSURER(S) AFFORDING COVERAGE <table border="1"> <tr> <th>INSURER</th> <th>NAIC #</th> </tr> <tr> <td>INSURER A: Admiral Insurance Company</td> <td>24856</td> </tr> <tr> <td>INSURER B: Continental Insurance Company</td> <td>35289</td> </tr> <tr> <td>INSURER C: National Fire Ins. Co. of Hartford</td> <td>20478</td> </tr> <tr> <td>INSURER D: Continental Casualty Co. (CNA)</td> <td>20443</td> </tr> <tr> <td>INSURER E:</td> <td></td> </tr> <tr> <td>INSURER F:</td> <td></td> </tr> </table>		INSURER	NAIC #	INSURER A: Admiral Insurance Company	24856	INSURER B: Continental Insurance Company	35289	INSURER C: National Fire Ins. Co. of Hartford	20478	INSURER D: Continental Casualty Co. (CNA)	20443	INSURER E:		INSURER F:	
INSURER	NAIC #																
INSURER A: Admiral Insurance Company	24856																
INSURER B: Continental Insurance Company	35289																
INSURER C: National Fire Ins. Co. of Hartford	20478																
INSURER D: Continental Casualty Co. (CNA)	20443																
INSURER E:																	
INSURER F:																	

COVERAGES

CERTIFICATE NUMBER: 1005369762

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADOL SUBR INSD WVO	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
D	☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☒ PRO-JECT ☐ LOC OTHER:		7034284064	8/6/2024	8/6/2025	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMPIOP AGG \$ 2,000,000 \$
C	☒ AUTOMOBILE LIABILITY ☒ ANY AUTO ☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY		7034284081	8/6/2024	8/6/2025	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
B	☒ UMBRELLA LIAB ☒ OCCUR ☐ EXCESS LIAB ☐ CLAIMS-MADE ☐ DED ☒ RETENTION \$ 10,000		7034284078	8/6/2024	8/6/2025	EACH OCCURRENCE \$ 10,000,000 AGGREGATE \$ 10,000,000 \$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N ☐ N/A	WC734284050	8/6/2024	8/6/2025	☒ PER STATUTE ☐ OTHER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
A	Professional Liability		EO00003260209	8/6/2024	8/6/2025	Each Claim 2,000,000 Aggregate 2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

The policy includes Blanket additional insured on the general liability per form CNA74858 0115 and CNA75079 1016 automobile per form CA2048 1013, with a waiver of subrogation on the general liability per form CNA74858 0115, automobile per form CA0443 1120 and workers compensation per form WC420304B when required by written contract. This insurance is primary and non-contributory as respects general liability per form CNA74858 0115 and Auto as per form CNA71527 1012. The policy includes a Blanket 30 day Notice of Cancellation on the automobile per form CNA68021 0213 and workers compensation per form WC420304B 0614 as required by written contract.

CERTIFICATE HOLDER

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.	AUTHORIZED REPRESENTATIVE

© 1988-2015 ACORD CORPORATION. All rights reserved.

ACORD 25 (2016/03)

The ACORD name and logo are registered marks of ACORD

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

FORM CIQ

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of vendor who has a business relationship with local governmental entity.

ATSER, LP

2 ☐ Check this box if you are filing an update to a previously filed questionnaire. (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 Name of local government officer about whom the information is being disclosed.

N/A

Name of Officer

4 Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes

☒ No

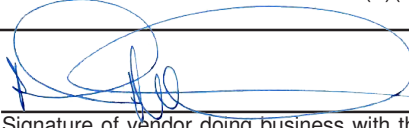
B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes

☒ No

5 Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7 
Signature of vendor doing business with the governmental entity

06/17/2025

Date

SYSTEM AWARD MANAGEMENT SAM

ATSER is registered in the System for Award Management (SAM) and is not debarred or suspended from participating in federal or federally assisted projects. Our active status in SAM confirms our eligibility to perform work on government-funded contracts and demonstrates our compliance with federal procurement standards.

ATSER LP ● Active Registration			View	Update	More
Unique Entity ID: UF79EY8LWCD1	Doing Business As: (blank)	Expiration Date Dec 11, 2025			
CAGE/NCAGE: 1UPS3	Physical Address: 1150 RICHCREST DR HOUSTON, TX 77060-6209 USA	Purpose of Registration: All Awards			

What our clients say about us....

"I have had the pleasure of working with ATSER on several large parking and traffic circulation development programs for the University of Houston campus. All of the projects were professionally executed, delivered on schedule and within budgeted amounts."

*Caren A. Burns, AIA, Director Facility Planning and Construction
University of Houston System*



"ATSER's staff was instrumental in the successful development of the system. The staff was very responsive...I have no reservation in recommending them."

*Mr. Gary Oradat, PE, Former Deputy Director
Houston Department of Public Works and Engineering*



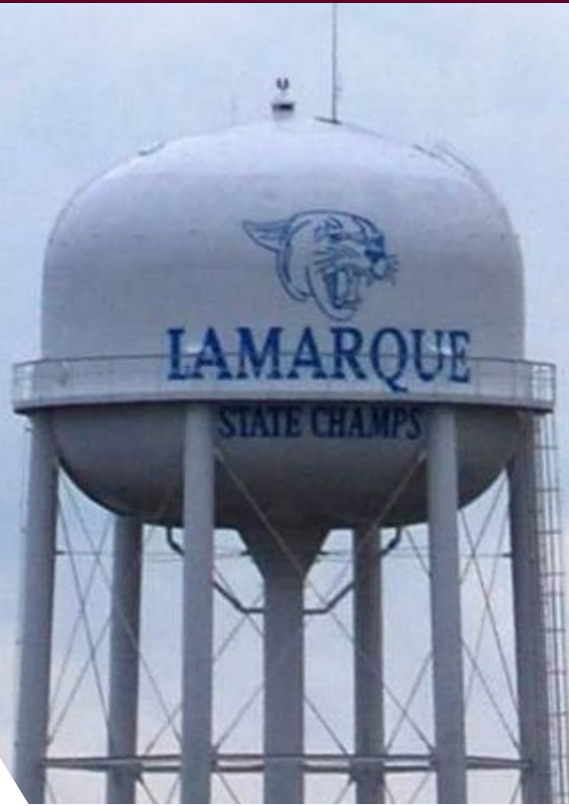
"ATSER, as Owner's Representative for the Astrodome Complex Expansion project, has provided HCSCC with excellent and timely support and has established a good working relationship with all parties involved. ATSER has performed high quality work to date on the Astrodome Complex Expansion project."

*J. Shea Guinn, Former Executive Director
Harris County Sports and Convention Corporation*

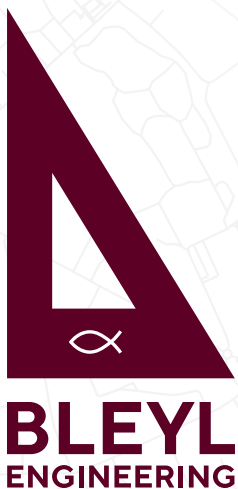


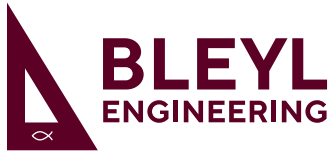
STATEMENT OF QUALIFICATIONS

City of La Marque Engineering/Architecture/Surveying Services



PRESENTED TO:
City of La Marque, TX
July 7, 2025





(936) 441-7833
bleylengineering.com
Bleyl Engineering
100 Nugent Street
Conroe, TX 77301

City of La Marque City Clerk
1111 Bayou Rd.
La Marque, TX 77568

July 7, 2025

RE to: Request for Engineering/Architecture/Surveying Services

Dear Evaluation Committee,

We appreciate this opportunity to present our Statement of Qualifications to the City of LaMarque for your consideration. Bleyl Engineering has extensive experience with various municipal engineering projects for clients in southeast Texas. Our engineers are ready to assist you in determining the most sensible, technically sound recommendations for your projects and development in the greater LaMarque area.

To provide exceptional engineering and customer service to The City of LaMarque, we have assembled a team with the necessary technical and managerial skills and experience in:

Engineering Services

- Utility Design
- Civil Design
- Public Works Design
- Traffic/Transportation Engineering

Bleyl Engineering is a licensed firm in the state of Texas (F-678), in good standing with the State Board of Engineers, with a team of professional engineers, certified floodplain managers, and consultants who are licensed in Texas. Our core values, "Quality - Integrity - Service," guide all we do and drive us to provide high-quality, cost-effective engineering solutions. This Consultant team includes three consultants that are certified as HUB, DBE, MBE, WBE, and/or SBE.

We look forward to serving as a member of your team and assisting you in fulfilling your goals. Please contact me via email at twalker@bleylengineering.com, or by phone at (936) 441-7833, with any questions regarding this project or other needs for The City of LaMarque.

Sincerely,

Travis T. K. Walker, PE
Department Manager - Public Works

John D. Bleyl, PE
President and CEO

**The Bleyl
Advantage**

- Extensive municipal engineering experience in southeast Texas
- Excellent customer service
- Responsive and available
- Extensive grant-funding knowledge and experience
- High-quality, cost-effective engineering solutions
- Diverse team of consultants to provide full municipal menu



Contents

Letter of Interest.....	2
Organization.....	4
What We Do.....	5
Our People.....	6
Capacity to Perform.....	7
Projects.....	12
Resumes.....	20
Sub-Consultants.....	33
Appendix.....	35



Organization

Corporate Profile

OUR COMPANY

Bleyl Engineering was founded in 1997 in Conroe, TX, by CEO John D. Bleyl, PE, with two employees and a heart to serve his community. Today, with our corporate headquarters in Conroe and offices in Austin, Bryan, and Houston, we are partners with numerous municipalities and private developers. After 28 years, our focus remains on serving Texas communities with honest, reliable, and cost-effective engineering and related services.

OUR VISION

Our vision is to be a foundation for the advancement of stronger, safer communities across Texas. We will accomplish this as we serve each client with integrity while engineering sensible, high-quality, and economical solutions. We intentionally keep our overhead low, strive to minimize your project cost, and carefully select our employees based on competence, professionalism, and character. As a result, our firm is comprised of experienced staff members who bring an assortment of diverse ideas and complementary strengths to the planning table.

We assign to each project a dedicated team that is responsible for every phase and detail and will support you from preliminary design throughout construction. This team also has an in-house network of additional engineers and skilled professionals available for support. Bleyl's strategic operational structure is designed to foster thought-sharing and innovation among all team members and consistently produce quality service for each client.



OUR WORK

Bleyl Engineering has completed thousands of civil engineering projects for urban and rural municipalities, utility districts, and private land developers across Texas. We have served as City Engineer for multiple cities; District Engineer for various MUDs, SUDs, and UD; and Consulting Engineer to numerous cities, counties, governmental entities, HOAs, and POAs. Our land and site work includes prominent restaurants, medical centers, religious facilities, banks, and master-planned communities.

OUR PEOPLE

Bleyl is led by a team of experienced professional engineers who:

- Know your local area;
- Share our vision for a personalized, high-quality experience; and
- Inspire our project teams to find innovative, cost-saving, and reliable solutions.

Our staff of 109, including 31 professional engineers, is unified under our core values of quality, integrity, and service. Support for the project will be provided primarily out of our Corporate office in Conroe.



What We Do

PUBLIC WORKS

- Water Supply, Production, Plants, Towers, Transmission, Distribution, System Evaluations, & Modeling
- Wastewater Collection, Trunk Lines, Lift Stations, Treatment Plants, Reuse, Permitting, Industrial Pretreatment, System Evaluations, & Modeling
- Drainage Infrastructure
- Roadway Design
- Stormwater Collection
- Plan/Review
- Capital Improvements Plans
- Impact Fee Studies
- Parks
- Downtown/Sidewalk Improvements

LAND & SITE DEVELOPMENT

- Master-planned Communities
- Multi-family Commercial
- Office
- Medical
- Institutional
- Retail
- Boat, RV, & Self Storage
- RV Resorts
- Site Evaluations

HYDROLOGY & HYDRAULICS

- Hydraulic No Impact Studies
- Roadway Crossings: Culverts & Bridges
- Storm Water Systems
- Channels & Ditches
- River Analysis
- Master Drainage Plans
- Detention Ponds
- Floodplain Development
- FEMA Studies (CLOMR/LOMR)

TRANSPORTATION

- Traffic Studies
- Roadway Design
- Intersection Improvements
- Traffic Signal Design
- Traffic Control Plans
- TxDOT Coordination
- Pavement Markings & Signage
- Traffic Impact Analysis (TIA)
- Traffic Signal Warrants

CONSTRUCTION SERVICES

- Construction Management
- Construction Review
- Cost Options & Bidding Assistance
- Contract Documents & Administration
- Onsite Representation
- Field Testing Coordination
- Field Progress Documentation
- Quantity Verification & Estimation of Payments
- Record Drawings & Certifications
- NACE Coating Inspections

AERIAL IMAGERY

- Marketing and Promotional Materials
- Construction Progress Imagery
- Orthomosaics and Photogrammetry
- Before/After
- Video and Still Photos
- Photo and Video Editing

GEOGRAPHIC INFORMATION SYSTEMS (G.I.S.)

- Utility and Infrastructure Mapping
- Data & Attribute Collection
- Database Design and Management
- Aerial Photography Overlay
- Land Development Feasibility Assessment
- Spatial Analysis
- Surface Modeling and Terrain Analysis
- File Conversion
- Georeferencing and Transformation-Data Source Integration

Our People



John D. Bleyl, PE
President & CEO
35+ Years Experience



Derek Wind, PE, CFM
Chief Operating Officer
20+ Years Experience



Hector Forestier
Public Relations
35+ Years Experience



Steve Duncan, PE
Senior Director
25+ Years Experience



Mike Kelly, PE
Director of Engineering
20+ Years Experience



Steffanie DeLoss, PE, CFM
Department Manager - Land and Site Development
20+ Years Experience



Travis T. K. Walker, PE
Department Manager - Public Works
10+ Years Experience



David Besly, PE
Department Manager - Transportation
30+ Years Experience



Pat Riley, CPM
Department Manager - Construction Services
25+ Years Experience



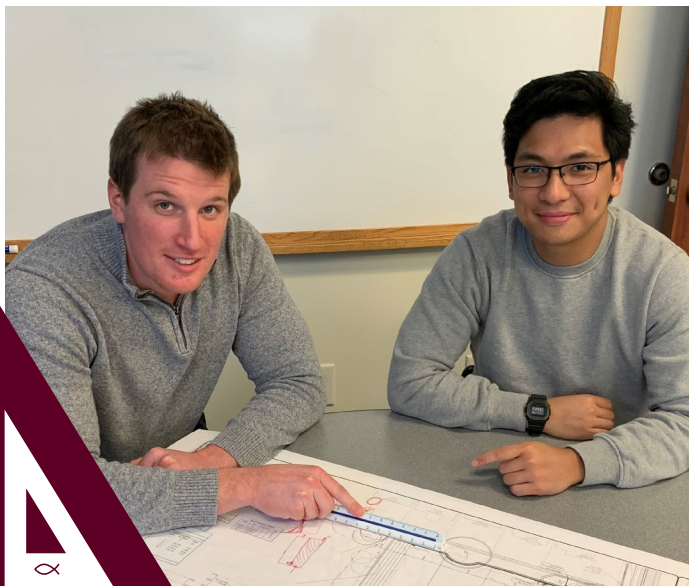
Adam Vento, PE CPM
Department Manager - Hydrology & Hydraulics
5+ Years Experience



Mark W. Adam, PE, RPLS
Houston Regional Manager - Hydrology & Hydraulics
40+ Years Experience



Tim Wolff, PE, CFM
Bryan Regional Manager
20+ Years Experience



ADVANTAGES

- Vast Experience in Public Work and Private Development
- Strong Client Relationships and Professionalism
- Practical, High-Quality Solutions
- Responsiveness
- Support from Project Initiation Through Completion
- Construction Management and Constructability Review
- Aerial Imagery/Comprehensive Project Updates
- Record of Success in Improving Texas Communities

Capacity to Perform



Team Capability

Bleyl's engineering team possesses a strong background in project execution for Cities, Counties, and Utility Districts. Our leadership and project engineers have extensive civil engineering experience including water, wastewater, infrastructure improvements, public facilities, roadway & traffic engineering, drainage, and construction management. We look forward to providing design and construction support for important future improvements for the City.

The Bleyl Team will coordinate with City staff, operators, subconsultants, internal staff, and utility companies. Bleyl will ensure backup representatives remain available to accommodate project requirements for client meetings. Bleyl purposefully cross-trains each engineer on roadway, storm drainage, water distribution, wastewater collection, water supply, and water/wastewater plant design. This diversified approach provides each project with an abundance of resources to accommodate schedule changes or team member unavailability.

Project deliverables, schedules, budgets, and any project issues are discussed at monthly, internal staff meetings. Bleyl understands the need of economical, quality products. We routinely manage multiple projects simultaneously and delegate workloads to handle work efficiently.

For each project, a second engineer will assist the Project Manager. This approach allows for faster response times and provides an Assistant Project Manager when the Project Manager is unavailable. Bleyl's approach to project management has led to numerous successful projects for multiple cities and districts across southeast Texas.

Bleyl also has a trusted network of subconsultants in other disciplines available to provide comprehensive services to cover the City's project requirements as needed.

Capacity and Response Capability

TEAM CAPABILITY

We are well-versed in managing multiple projects simultaneously and delegating workloads to handle work efficiently. Project deliverables, schedules, budgets, and any project issues are discussed at weekly internal staff meetings where adjustments can be made quickly. The Bleyl team selected has worked together previously on multiple successful projects.

ABILITY TO DELIVER ON SCHEDULE

The selected team brings over 40 years of combined history of successful projects that meet their respective schedules. Bleyl has analyzed their current workloads, specifically to the proposed team, and the team has the availability to provide quick service and response to the City of LaMarque for a variety of projects to within the City.

CONTINGENCY PLAN

Bleyl purposefully cross-trains each engineer on roadways, traffic, pedestrian facilities, drainage, utilities, and more. This diversified approach provides each project with an abundance of resources to accommodate schedule changes or team member unavailability. Should the loss of a team member occur, an alternate team member can immediately fill the responsibilities per the following chart:

Function	Team Member	Replacement
Project Manager	Travis Walker, PE	Koy Sanson, PE
QA/QC	Mike Kelly, PE	Jonny Green, PE
Public Engagement	Travis Walker, PE	Koy Sanson, PE
Survey (Sub)	Chris Rhodes, RPLS (Civil-Surv)	Clemente Turrubiarres, PE, RPLS (Fulcrum)
Geotechnical (Sub)	David Eastwood (GET)	James Namekar (GET)
Subsurface Utility Exploration (Sub)	Caitlin Brown, PE (Rios)	Sam Lewis (Rios)

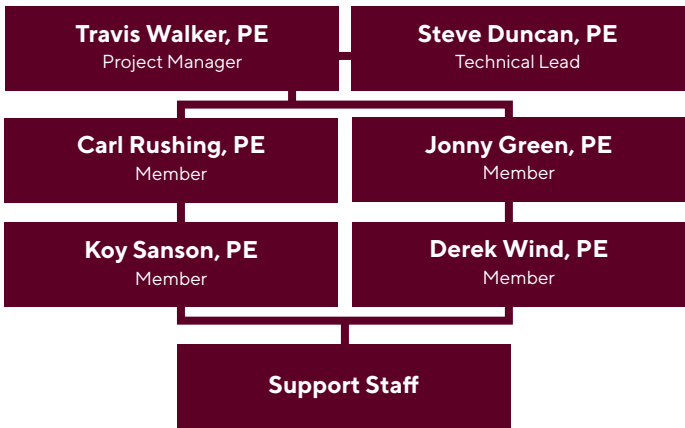
Bleyl Engineering has other professionals within the Conroe office that are able to assist or fill roles for the project if necessary. We also maintains a vast list of other consultants to replace, fill in, or revise as needed for our various projects.

Project Team Experience and Availability

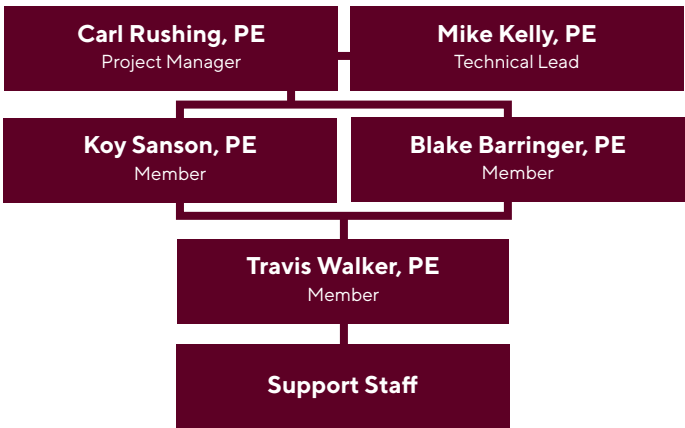
Our Water Well Team is lead by Mr. Walker. Travis serves as City Engineer to Panorama Village, an assistant engineer to Cleveland and Shenandoah, and a consulting engineer for Magnolia and Fulshear, as well as multiple MUDs. He has a broad range of new well and well rehabilitation experience with wells as deep as 2,500 feet and producing up to 2,200 GPM. Mr. Walker emphasizes the importance of an appropriately sized gravel pack and associated well development as two critical aspects to a highly efficient, long-life water well. He is supported by a cast of engineers with experience in wells and water treatment facilities.

Our Utility Line Team is lead by Mr. Rushing. He serves as a leading design engineer at Bleyl with an emphasis for Municipal projects. He has successfully designed tens of thousands of feet of utility lines, from new installations to replacements. Designs have included standard open cut, trenchless, and several projects with the application of horizontal directional drilling of a fused PVC or HDPE pipe. He is supported by a team of engineers with linear utility design experience.

Water Well Team

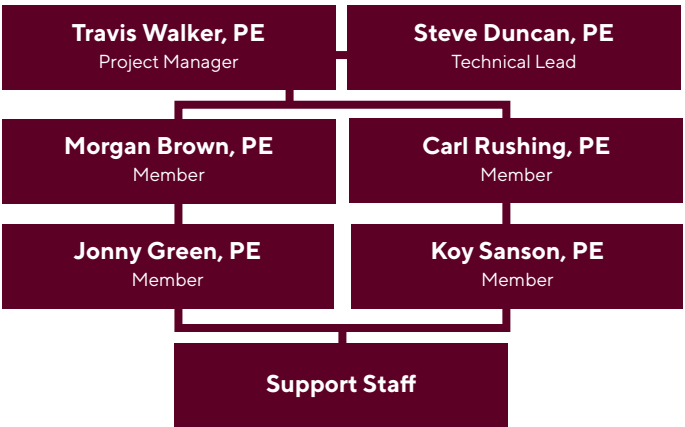


Utility Line Team

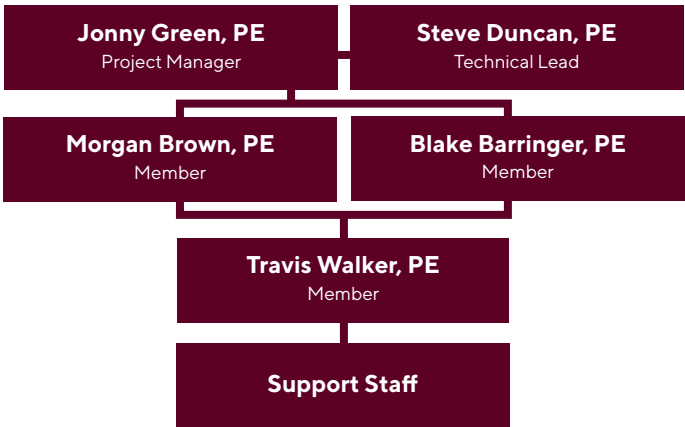


Our Wastewater Treatment and Lift Station teams are headed up by Mr. Walker and Mr. Green. Jonny serves as assistant engineer to the City of Willis and also serves as a technical expert for municipal facilities. He is an analytically oriented manager, which is critical with the intricacies of a wastewater treatment facility. Steve Duncan will serve as the technical lead and in a QA/QC role for design. Mr. Duncan also wrote the Lift Station Design Manual for the City of College Station. They are both supported by a staff of engineers with treatment facility and municipal experience.

Lift Stations Team



Wastewater Treatment Team



Project Team Experience and Availability

Bleyl Engineering has been responsible for the design and construction management of hundreds of roadway paving and drainage projects. Many of the projects involved the widening and/or conversion of an existing asphalt roadway to concrete curb and gutter paving with storm sewer improvements and utility adjustments. In addition, we provide comprehensive drainage engineering services. Our experience includes drainage evaluations, studies, master drainage plans, FEMA floodplain studies, modeling, channels, detention facilities, storm sewer systems, and flood control structures.

STORM SEWER, WATER, & DETENTION POND DESIGN

Bleyl analyzes and designs site-specific storm sewer and detention ponds per the City/County standards. Bleyl uses value engineering by choosing the appropriate storm water conveyance mechanism that meets the capacity requirements within the client's budget. We are skilled in complex hydrologic and hydraulic design and analysis. We routinely use our expertise to implement stormwater management designs which reduce the risk of flooding and increase resiliency.

FEASIBILITY STUDIES

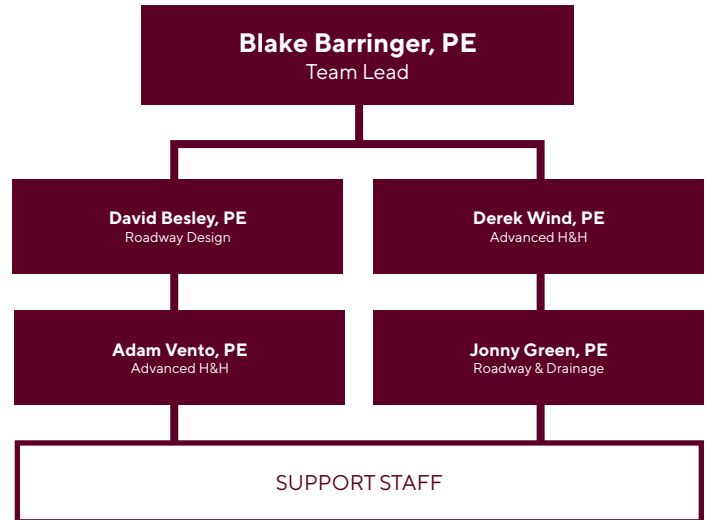
We routinely perform Preliminary Engineering Reports for proposed streets and drainage facilities.

STORM WATER SERVICES

Bleyl Engineering is skilled in complex hydrologic and hydraulic design and analysis. We routinely use our expertise to implement stormwater management designs which reduce the risk of flooding and increase resiliency.



Transportation Team



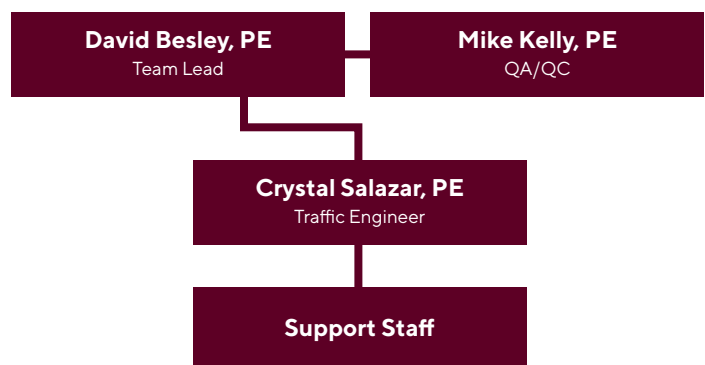
SPECIALIZED ROADWAY DESIGNS

Our roadway design team works closely with our traffic team throughout projects as signals, traffic studies, round-a-bouts, or other traffic specialized components of the project may require their expertise.

TRAFFIC STUDIES

Bleyl performs 5-6 Traffic Impact Analysis (TIA) studies per year for various development clients. These TIA studies include operational analysis, traffic signal warrant studies, and intersection sight distance analysis. Additionally, we have performed independent operations and warrant studies for intersections in public works street projects as well as speed studies and compliance studies for evaluation of enforcement strategies. We work with several subconsultants to provide traffic data collection.

Traffic Team



Project Team Experience and Availability

DRAINAGE STUDIES

Our Hydrology & Hydraulics Department is experienced in advanced hydrologic and hydraulic modeling programs and methodologies. Our comprehensive approach to H&H studies provides us with the opportunity to reduce flood risk using resilient solutions and modeling approaches, including both 1D and 2D analyses.

JURISDICTIONAL EXPERIENCE

Our team is well-versed in current FEMA regulations and proficient in the FEMA map revisions/changes (LOMC) process. We work with all departments, agencies, and parties involved on projects spanning the public and private sectors to foster a comprehensive understanding of flood risk, and to effectively integrate practical, sustainable, and achievable mitigation strategies into our designs for enduring project success.

ORDINANCE/MANUAL PREPARATION

Our personnel are dedicated to serving the public and our local communities by developing effective regulatory frameworks that not only meet industry standards but also equip local officials with the support needed to guide future growth. We work with local stakeholders and community officials to ensure that the standards and ordinances are thorough and community centric.

SITE DEVELOPMENT

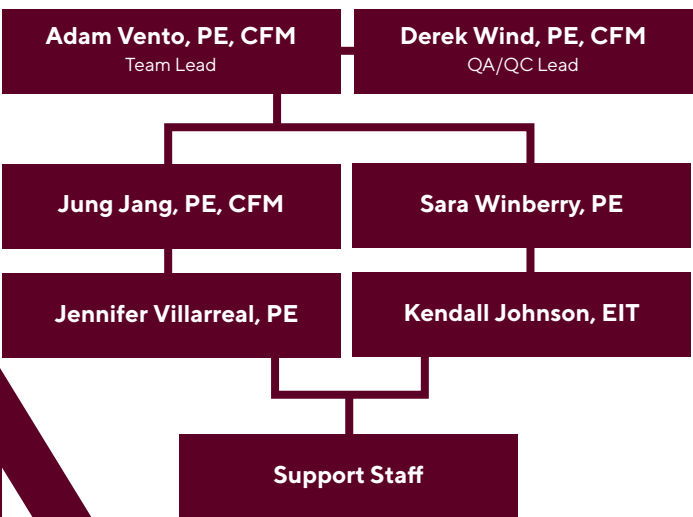
Our Site Development Team is lead by Mr. Michael Fauchaux. He leads Bleyl's team of site development engineers in a variety of designs. His experience includes drainage improvements, detention design, utility extensions, and traffic control management incorporating successful management of subconsultants, multi-discipline teams, sitework grading, wet utility design, and stormwater quality management.

Our Site development team works together for an efficient design to meet the client's needs for the particular use of the tract. He is supported by a team of engineers with experience in site development.

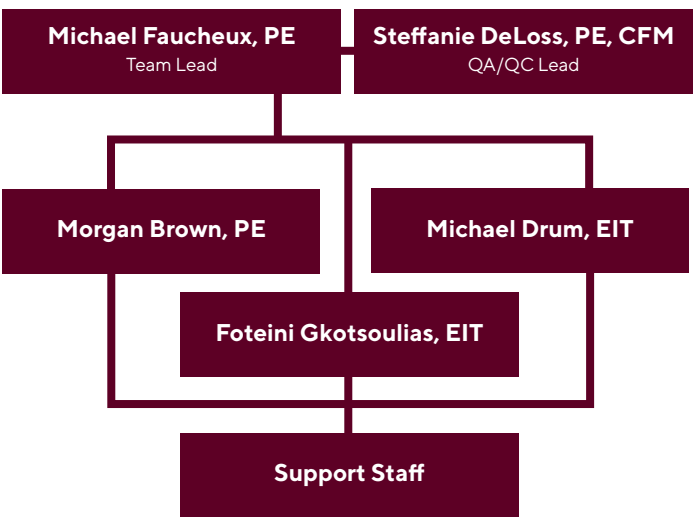
OTHER

In addition to the standard services discussed on prior pages, Bleyl offers Construction Management and Administration services that include field project representation. Our public works team has successfully designed and managed many sidewalk, trail, and park projects. We also perform CAD drafting and GIS mapping. Bleyl maintains an extensive list of consultants to aid our clients with additional aspects of municipal work that are outside of our expertise, such as environmental assessments, geotechnical studies, electrical and structural engineering, easement acquisition, surveying, and other disciplines. Some of our frequently contracted consultants are referenced in the attached resume pages; however, this is far from an exhaustive list.

Stormwater Team



Site Team



Municipal Construction Projects

HISTORIC TAMINA WATER AND SANITARY SEWER

City of Shenandoah

Bleyl Engineering designed and is currently managing \$20+ M of water and sanitary sewer construction to bring a fire-flow-capable water system and a new sanitary sewer collection system to Historic Tamina. The project includes 4 sanitary sewer lift stations, a new ground water well, water plant, and multi-leg elevated storage tank, and 30,000+ feet of water and sanitary sewer line. The project design began in 2022. Construction started in 2024 and is ongoing with completion expected by October, 2026. American Rescue Plan Act (ARPA) Grant funding is supporting these improvements with a collaborative effort between Montgomery County and the City of Shenandoah through an interlocal agreement.

Bleyl has performed extensive coordination with Entergy, Union Pacific Railroad, Montgomery County, existing utility owners, and multiple consultants for environmental compliance, historical preservation, geotechnical considerations, and utility and Right of Way research. Bleyl used GIS mapping and water and sewer system modeling to incorporate nearly 200 new connections into the Shenandoah water and sewer system. To date, Bleyl has successfully managed 11 separate water and sewer design projects on a tight budget and with contract timelines related to ARPA Grant funding compliance. Currently these projects are being managed by Bleyl through onsite representation and contract administration.

The character and history of Tamina has presented a unique challenge to implementing critical improvements within the community. Limited information and challenging circumstances require creative problem solving and close interaction with interested parties. Trusted relationships between Bleyl Engineering, Tamina, Shenandoah, and Montgomery County have been instrumental in keeping everyone informed and protecting the needs of residents and owners. This has been achieved through regular interactions with leadership groups and organized public meetings at critical points throughout the project.

Firm Role: Prime

Key Personnel: Travis Walker, PE, Carl Rushing, PE, Morgan Brown, PE, John Bleyl, PE, Derek Wind PE, Hector Forestier, Danielle Mueller.

Construction Date: 2022 to present

Client Reference: City of Shenandoah,
Joseph Peart: (281) 773-8193,
jpeart@shenandoahtx.us



RESEARCH FOREST LIFT STATION REHABILITATION

City of Shenandoah

Bleyl Engineering designed and coordinated for extensive bypass pumping due to hospitals and other medical facilities being served by this station. The upgrades included blasting and recoating all aboveground ductile iron piping, replacing the lift station submersible pumps replacing the riser piping, lift station chains and guide rails, the old pump hoist, adding hatch safety nets, and performing electrical upgrades.

Key Personnel: Jonny Green, PE

Date/Cost: 2023 / \$356K

Client Reference: Joseph Peart: (281)298-5522,
jpeart@shenandoahtx.us

WWTP EXPANSION

City of Willis

Bleyl Engineering provided design and construction services to build a new 0.99 MGD activated sludge WWTP to replace the existing 0.80 MGD WWTP. The project included construction of new screening headworks, aeration basins, clarifiers, MCC building, chemical feed and storage building, lift station improvements, and conversion of an existing circular clarifier into a chlorine contact basin. The expansion and rehabilitation were completed without interrupting service at the WWTP and without utilizing costly temporary treatment basins.

Key Personnel: Jonny Green, PE

Date / Cost: 2020 / \$6.50 M

Client Reference: Sheyi Ipaye: (936) 856-4611,
sipaye@ci.willis.tx.us



Municipal Construction Projects

DAVID MEMORIAL DRIVE EXTENSION, DRAINAGE ANALYSIS AND EAST REGIONAL POND STUDY

City of Shenandoah

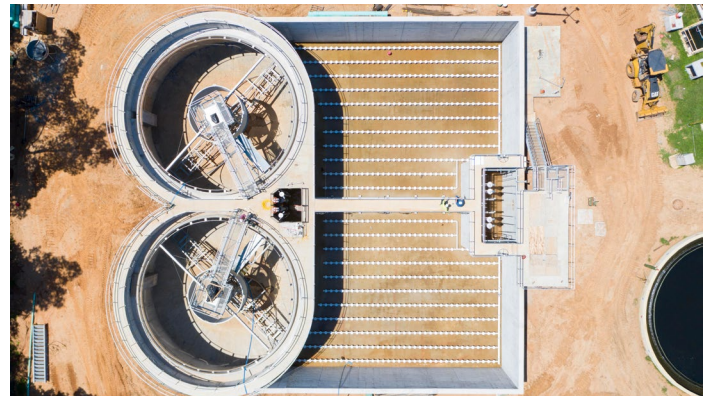
Bleyl Engineering prepared the drainage study and construction drawings on behalf of the City of Shenandoah for roadway improvements required for extending David Memorial Drive. This road construction project will connect the David Memorial dead-end to SH 242 with approximately one mile of a four-lane concrete road with a curb and gutter. The roadway will cross several public jurisdictions. This required coordination and planning with the City of Shenandoah, Montgomery County, the City of Conroe, TxDOT, and a 60-acre master-planned medical facility. The roadway will have storm sewers, a 110-foot bridge spanning Carter Slough, and a sidewalk for pedestrian traffic in the portion adjacent to the medical facility. The challenges of this project included design considerations to limit the impact on the floodplain and wetlands that the roadway will cross. This involved coordination with several different agencies, including Army Corp of Engineers, FEMA, and the Floodplain Administrators of the respective public agencies. Coordination for permitting with TxDOT, Union Pacific Rail Road, and other agencies were critical to the success of the project. The project also impacted the preparation of a comprehensive Preliminary Engineering Report summarizing the results of a watershed-wide study on the east side of the City of Shenandoah. The study required advanced H&H modeling and detailed coordination with multiple utilities, agencies, property owners, and sub-consultants to determine the feasibility of a regional drainage solution to alleviate widespread flooding and facilitate future development within the city limits. The project required a hydrologic analysis of several watersheds totaling 1,500 acres, including several regional detention ponds, some of which were interconnected. The study also included an unsteady-state hydraulic analysis using HEC-RAS that included lateral weir structures, convergence junctions, divergence junctions, and a bridge crossing. The project deliverables detailed multiple options for improving an existing pond as well as phasing options for the selected option of a \$22 million pumped pond project to be constructed pending funding availability. The project has informed multiple subsequent studies of the watershed and will potentially move forward into a final design/study pending future funding availability. The roadway and drainage began construction late this year, as the regional detention analysis continues.

Team: Derek Wind – Project Manager, Adam Vento – H&H and floodplain studies, Mike Kelly – QA/QC, Blake Barringer – Road Design

Date / Cost:

Study: 2017-2020/ Pending Funding
Roadway: 2023/\$7.0M

Client Reference: Joseph Peart: (281) 773-8193, jpeart@shenandoahtx.us



WWTP EXPANSION

City of Shenandoah

Bleyl Engineering performed design and reevaluation of the plant's existing facilities due to increased BOD loading as a result of low flow fixtures. New facilities provided capacity of 1.3MGD with increased influent strength, including a new aerobic digester basin conversion of existing digester basins to aeration, new blowers, piping, diffusers, new dewatering press, modifications to the existing clarifier feed channels, Clarifier RAS transfer line, chlorine contact basin piping, blower and chemical building, drainage improvements, and associated electrical improvements.

Key Personnel: Jonny Green, PE and Morgan Brown, PE

Date/Cost: Construction / \$7.87 M

Client Reference: Joseph Peart, (281) 298-5522, jpeart@shenandoahtx.us

Federally Funded Projects

2025 City of Anderson – TDA CDBG	2021 City of Bryan – ARPA Wastewater Line and Lift Station
2025 City of Navasota – GLO MIT-MOD – Water & Sewer	2021 City of Calvert – CDBG Water Plant Improvements
2025 City of Plantersville – TDA CDBG – Streets	2021 City of Centerville – CDBG Water Plant Improvements
2025 City of Snook – GLO MIT-MOD	2021 City of Franklin – ARPA Water Plant Booster Pump Replacement
2025 Grimes County – GLO MIT-MOD – Streets & Drainage	2021 City of Panorama Village – ARPA Utility Improvements
2025 Leon County – GLO MIT-MOD – Streets	2021 City of Plantersville – CDBG Drainage Improvements
2024 Burleson County – MIT-MOD GLO Drainage Improvements	2021 City of Shenandoah – ARPA Utility Improvements
2024 City of Anderson – GLO MIT-MOD – Streets	2021 City of Sour Lake – ARPA Generator Replacement
2024 City of Calvert – GLO – MIT-MOD – Water	2021 City of Willis – ARPA Utility Improvements
2024 City of Franklin – GLO MIT-MOD – Streets	2021 City of Woodbranch Village – CDBG Utility Improvements
2024 City of Jewett – GLO MIT-MOD – Sewer and Streets	2021 Montgomery County – ARPA Drainage – Lake Conroe Hills
2024 City of Kurten – GLO MIT-MOD – Broadband	2021 Montgomery County – Shenandoah – Tamina Water and Sewer Improvements
2024 City of Plantersville – GLO MIT-MOD – Streets	2021 San Jacinto County – CDBG Utility Improvements
2024 City of Somerville – MIT-MOD GLO Lift Station Improvements	2021 San Jacinto County – Hurricane Harvey Disaster Recovery Drainage Improvements
2024 City of Todd Mission – GLO MIT-MOD	2020 City of Calvert – Downtown Revitalization
2024 Leon County – MIT-MOD GLO Street Improvements	2020 City of Iola – TWDB SRF Wastewater System
2024 Milam County – GLO MIT-MOD – Streets	2020 City of Navasota – Downtown Revitalization
2024 Robertson County – GLO MIT-MOD – Streets	2020 City of Trinity – Downtown Revitalization
2024 San Jacinto County CDBG GLO – Streets	2019 Burleson County/Cook Point WSC – Water Well Addition
2023 City of Anderson – TDA CDBG	2019 City of Cleveland – Downtown Revitalization
2023 City of Bedias – 23-24 TDA Lift Station Improvements	2019 City of Franklin – Wastewater Plant Improvements
2023 City of Brookshire – CDBG MIT-MOD	2019 City of Willis – Water Plant No. 3 Improvements
2023 City of Point Blank – CDBG – Streets	2019 Walker County – Hurricane Harvey Disaster Recovery Roadway Rehab
2023 San Jacinto County CDBG GLO – Streets	2018 Panorama Village – Disaster Recovery
2023 Walker County CDBG MIT-MOD	2017 City of Willis – Water Plant No. 1 GST
2022 City of Humble – GLO CDBG-DR Channel Rehabilitation G 103-44-00	2016 City of Huntsville – 11th Street Water Line Improvements
2022 City of Sour Lake – ARPA Generators	2016 City of Willis – Disaster Recovery
2022 Dobbin-Plantersville WSC – USDA Water System Upgrade	2015 Carlsbad FSW – Water Plant Improvements
2021 Burleson County – TIF Roadway Improvements	2012 City of Cleveland – Water Line Improvements
2021 City of Anderson – Hurricane Harvey Disaster Recovery Drainage Improvements	2015 Tom Green County – Water Plant Improvements

Federally Funded Projects

2019 CDBG HARVEY ROADS REHABILITATION

Huntsville Harvey GLO DR Flood & Drainage

The project, currently in design, involves the reconstruction of approximately 9 miles of roads throughout the County. The road rehabilitation is intended to repair damage due to Hurricane Harvey, as well as improve mobility and the ability of the roads to withstand damage during future flooding events. The roads to be rehabilitated include Oak Trail Road, Raintree Street, Roark Road, Whippoorwill Street, M. Williams Road, Wire Road Loop, Williams Road, Koonce Road, Plantation Road, Harding Street, Mike Slott Road, Phelps Creek Drive, Phelps Slab Road, and Southwood Drive. Additionally, the project includes the construction of a flood gauge on the CR 247 Bédias Creek bridge crossing. The grant was approved and is being administered by the Texas General Land Office.

Firm Role: Prime

Team Leader: Jonny Green, PE

Completion Date: 2021 (Estimated)

Construction Cost: \$3.6M (Estimated)

Client Reference: Walker County Emergency Management, Butch Davis: (936) 435-8739, bdavis@co.walker.tx.us

WORSHAM STREET STORM SEWER - CDBG WILLIS, TEXAS

Dayton Downtown Revitalization CDBG

Funded by a CDBG grant, the scope of work involved repairing a channel that was damaged during Hurricane Harvey. The project also included the replacement of a failing culvert while maintaining the same amount of flow through the culvert. An 8-foot diameter steel tank car culvert was removed and replaced by a 6'x5' concrete box culvert covering nearly the same cross-sectional area. Headwalls were added to each side of the road, and adjacent ditches were regraded or lined with concrete to improve the flow and protect the ditches. The existing channel had eroded areas on the embankment filled with select fill and hydromulched to provide quick vegetative cover for natural erosion protection. Guard rails were added to this area at this culvert to provide an additional level of protection for vehicles traveling over the culvert. Additional riprap was added at the outfall of the culvert, and concrete slope paving was

added at a couple of locations with a slope that exceeded 3:1 to prevent erosion and protect the guard railing.

Firm Role: Prime

Team Leader: Jonny Green, PE

Completion Date: 2020

Construction Cost: \$0.1M

Client Reference: Sheyi, Ipaye 936-856-4611, sipaye@ci.willis.tx.us

GRAPE CREEK PWS WATER SYSTEM IMP - CDBG TOM GREEN COUNTY, TEXAS

Franklin CDBG Engineering Services

Phase I of this TxCDBG project included a well yard with four wells piped to a new water plant. Plant site consisted of a 100,000-gallon ground storage tank, 5,000-gallon hydropneumatic tank, SCADA, and pump/chemical building. We were also asked to provide Phase II design, which consisted of an additional water well on-site at the plant and another 100,000-gallon ground storage tank. Bleyl provided onsite inspections and construction management services for both phases. The design of approximately 3,200 LF of 6" water piping was required to transfer water from the well yard to the water plant site. Once treated, the design called for water to then be transferred via 1,000 LF of 8" water line, including having to bore under US HWY 87.

Firm Role: Prime

Team Leader: Tim Wolff, PE

Completion Date: 2016/2017

Construction Cost: \$0.44M

Client Reference: Concho Rural Water Corp, Ben Wiese: (325) 658-2961, bwiese4@aol.com

Federally Funded Projects

CARLSBAD FWSD WATER SYSTEM IMP. - CDBG CARLSBAD, TEXAS

Franklin CDBG Engineering Services

This project included a new well in the existing well yard and a new 5,000-gallon hydropneumatic tank on the water plant site. We rehabilitated both 50,000-gallon storage tanks and the hydropneumatic tank by sandblasting them and applying a fresh coat of paint. A couple of areas needed replacement before painting. We added just over 8,300 LF of 8" distribution lines for fire protection. The town did not have a single fire hydrant before our design. Bleyl provided onsite inspections and construction management services. This project was designed and constructed under the TxCDBG program for Tom Green County.

Firm Role: Prime

Team Leader: Tim Wolff, PE

Completion Date: 2016

Construction Cost: \$0.36M

Client Reference: Tom Green County Fresh Water Supply, Ben Wiese: (325) 658-2961, bfwiese4@aol.com

DOVE CREEK MUD WATER SYSTEM IMP - CDBG TOM GREEN COUNTY, TEXAS

Franklin CDBG Engineering Services

This water well and GST project was designed to increase water supply and storage to the District. The final design consisted of a new 100pgm water well and 100,000gal GST, 215 feet of 6" waterline, and land acquisition. Once the land was acquired, the well was drilled, and the pumped raw water was connected to an existing water plant supply line. There were modifications at the water plant to accommodate the new GST, such as extending the 6' fencing, install new piping and valves. The design of this project included TCEQ, TDA, and City coordination. This project was designed and constructed under the TxCDBG program for Tom Green County.

Firm Role: Prime

Team Leader: Tim Wolff, PE

Completion Date: 2016

Construction Cost: \$0.36M

Client Reference: Dove Creek MUD, Ben Wiese: (325) 658-2961, bfwiese4@aol.com

WILLIS DRAINAGE STORM LINING - CDBG WILLIS, TEXAS

Huntsville Harvey GLO DR Flood & Drainage

The project scope involved replacement of an existing culvert and lining approximately 1,350 LF of aging storm pipe. Existing infrastructure was showing signs of deterioration and needed rehabilitation. A geopolymer mortar was selected as the material to be used to rehabilitate the storm lines. The process forms a pipe within the existing pipe. The geopolymer mortar has been designed to be a fully structural component that can support the weight of the roadway above the storm line if the existing pipe becomes completely deteriorated. The junction boxes and inlets along the storm piping were also lined with a structural thickness of geopolymer mortar on the interior walls to prolong the life of the old brick and concrete structures. The result is a rehabilitated storm system that was accomplished without digging up old storm pipe. The process allows the repair work to be completed without a major disruption of traffic. The Worsham Street culvert was also replaced with a reinforced concrete box as part of this project.

Firm Role: Prime

Team Leader: Derek Wind, PE, Carl Rushing, PE

Completion Date: 2020

Construction Cost: \$0.55M

Client Reference: Sheyi, Ipaye 936-856-4611, sipaye@ci.willis.tx.us



Federally Funded Projects

HOUSING FIRST OAK SPRINGS

Austin, Texas

The Housing First Oak Springs project was the first of its kind in Austin. The project provides 52 apartment units, a clinic and a retail component to assist the chronically homeless and veteran community and assists them in living with dignity while requiring payment to become a resident. The project contains concrete paving and sidewalks, an onsite water quality and stormwater detention facility constructed with reinforced concrete walls, and a parking structure to support the 4-story complex. The project met the strict requirements of the City of Austin for all development codes and guidelines, while also maintaining significant oak trees approximately 40 inches in diameter on a limited site of approximately one acre. Pedestrian and ADA accessibility is achieved throughout the site while also meeting the requirements of the Austin Fire Department. Funding sources included private contributions, the City of Austin and numerous foundations. The project received widespread local and governmental support.

Firm Role: Prime

Team Leader: Kenny Watkins, PE Completion Date: 2019

Construction Cost: \$13.5M

Client Reference: Integral Care, David Weden:
(512) 440-4001, david.weden@integralcare.org

GUY HERMAN CENTER EMERGENCY OBSERVATION UNIT

Austin, Texas

The Herman Center is an emergency mental health crisis center that consists of approximately 20 bedroom units to provide mental health crisis care to high-risk individuals. The facility is fully staffed with medical personnel qualified to treat those in need on a 24/7 operation. Site improvements included reinforced concrete and asphalt pavement with concrete curb and gutter, concrete sidewalks, utility connection to existing City of Austin facilities, a pumped wastewater force main, and a vegetative filter strip system for water quality treatment. Due to grade changes between adjacent roadway sidewalks and the improved site, a system of ADA compliant ramps and retaining walls were incorporated into the site. The site is located on a freeway within the city and takes access to the frontage road, requiring approval of TxDOT. The site plan was reviewed and approved by the City of Austin.

Firm Role: Prime

Team Leader: Kenny Watkins, PE Completion Date: 2018

Construction Cost: \$4M

Client Reference: Integral Care, David Weden:
(512) 440-4001, david.weden@integralcare.org

GUN RANGE & WEST SUMMERLIN

Conroe, Texas

Bleyl designed the removal of existing lift station pumps and force main piping to convert a wet well into a manhole in 2 locations. At West Summerlin in the neighborhood of Southwind Ridge, the installation of approximately 1,800 LF of gravity sanitary sewer will connect the newly converted manhole to an existing lift station further downstream. At the Conroe law enforcement Gun Range, the installation of approximately 850 LF of gravity sanitary sewer will connect the manhole to serve the City Gun Range buildings. These conversions will save the City time and money by eliminating the need to monitor and maintain the abandoned lift stations.

Firm Role: ?

Team Leader: Travis Walker, PE

Completion Date: 2020

Client Reference: Norman Mcguire, 936-522-3100,
nmcguire@cityofconroe.org



Federally Funded Projects

2023 TDA CDBG SEWER IMPROVEMENTS

Bedias, Texas

Bleyl designed the rehabilitation of 2 system lift station and the treatment plant lift station. The project included replacement of pumps, floats, transducers; wet well and piping coatings, and WWTP screen.

Firm Role: Prime

Team Leader: Steve Duncan, PE

Completion Date: Construction Phase

Client Reference: City of Bedias, Mayor Gwen Boullion: (979) 575-0267, gwenboullion.cityofbedias@windstream.net



2023 TDA CDBG SEWER IMPROVEMENTS

Anderson, Texas

Bleyl designed the rehabilitation of one system lift station and replacement of gravity sewer lines that had settled and caused flow to back up. The lift station included replacement of pumps, valves, floats, and the control panel. The sewer line replacement included a TxDOT road bore and 800 feet of 6" and 8" gravity sewer line replacement.

Firm Role: Prime

Team Leader: Steve Duncan, PE

Completion Date: Construction Phase

Client Reference: City of Anderson, Mayor Marc Benton: (571) 205-4804, mbenton@andersontx.gov



2025 TDA CDBG STREET IMPROVEMENTS

Anderson, Texas

Bleyl is designed a street and drainage project that includes 2,800 linear feet of street pavement section replacement, as well as drainage ditch and driveway culvert replacement.

Firm Role: Prime

Team Leader: Steve Duncan, PE

Completion Date: Design Phase

Client Reference: City of Anderson, Mayor Marc Benton: (571) 205-4804, mbenton@andersontx.gov

2025 TDA CDBG STREET IMPROVEMENTS

City of Plantersville

Bleyl is designed a street and drainage project that includes 1600 linear feet of street pavement section replacement as well as major creek culvert crossing drainage and ditch and driveway culvert replacement.

Firm Role: Prime

Team Leader: Steve Duncan, PE

Completion Date: Design Phase

Client Reference: City of Plantersville, Mayor Kim Allphin: (936) 446-0012, kallphin@cityofplantersville.net

Past Local Government Clients

EXPERIENCE & WORK PERFORMANCE

Bleyl partners with cities, counties, utility districts, and other governmental entities as part of our vision to continue improving Texas communities. With thousands of public projects under our belt, we have an in-depth insight into the needs, goals, and challenges facing municipalities today. Our team of engineers consistently provides high-quality, sensible, and cost-effective solutions to each client's specific project requirements.



Our Public Clients

City Engineer
City of Calvert
City of Centerville
City of Cleveland
City of Franklin
City of Iowa
City of Panorama Village
City of Plantersville
City of Shenandoah
City of Willis
Town of Anderson
City of Caldwell
City of Navasota

District Engineer

G&W WSC
Prestonwood Forest UD
Montgomery County UD 4 (April Sound)
Porter SUD
Charterwood MUD
East Montgomery County MUD 4
East Plantation UD
Lake Conroe Hills MUD
Montgomery County MUD 9 (Walden)
Montgomery County MUD 16
Montgomery County MUD 18 (Bentwater)
Northwest Harris County MUD 28
Northwest Harris County MUD 30
North Zulch MUD
Stanley Lake MUD
Texas National MUD
Cooks Point WSC
Dobbin-Plantersville WSC
Grantwoods WSC
Beach City WCID
Harris County WCID 2
Anderson Water Company

Consulting Engineer-City

City of Brenham
City of Bryan
City of Cedar Park
City of College Station
City of Conroe
City of Fulshear
City of Hempstead
City of Magnolia
City of Trinity
City of Waller
City of Somerville

Consulting Engineer-County

Brazos County
Burleson County
Grimes County
Montgomery County
Robertson County
San Jacinto County
Walker County
Washington County
Harris County Engineering Department
Harris County Flood Control District

At the heart of all of our engineering service is our commitment to improving Texas communities and serving others through civil engineering. We look forward to serving your community as a member of your consulting team.

Resumes

Travis T. K. Walker, PE



Public Works - Department Manager

EXPERTISE

- City Engineering
- Water Supply, Treatment, Plants, and Distribution
- Wastewater Collection, Lift Stations, and Treatment

EDUCATION

B.S., Civil Engineering 2013 – Texas A&M University

LICENSE STATUS

Licensed Professional Engineer – Texas No. 129751

AFFILIATIONS

Rotary Club – Member – 2016 – present
President Nominee – 2020-2021
Fundraising Chair – 2020-2021
President Elect – 2019-2020
Board Member – 2017-2023

COMMUNITY SERVICE

Faith Bible Church – Member

SUMMARY

Travis serves as Engineer for several Cities and Districts in Montgomery County where he assists with plan reviews, facility inventories, capacity analysis, and planning for facility expansions. He has considerable design experience covering a wide variety of projects including the design of water plants, water distribution systems, wastewater lift stations and plants, and wastewater collection lines.

PROJECT EXPERIENCE

City/District Engineer in Montgomery County

- Montgomery County UD No. 4, Deputy 5 years
- East Montgomery County MUD No. 4, 8 years
- Lake Conroe Hills MUD, 5 years
- East Plantation Utility District, 6 years
- City of Panorama Village, 9 years

Water

- Water Plant No. 25, City of Conroe
- Robinwood and Little Egypt Water Plants Expansion, City of Conroe
- Water Well Road Water Plant Expansion, Porter SUD
- Cooling Tower Replacement, Montgomery County MUD 18
- Pine Lake Cove Water Plant, Montgomery County MUD 138
- Copeland Lane Water Plant Expansion, Porter Special Utility District
- 1.0 MGal EST, City of Fulshear
- Water Line Extension to Pinewood, East Montgomery County MUD No. 4
- Stanley Lake MUD Water Line Interconnect, Pine Lake Cove
- PFJ Water Line Interconnect, East Montgomery County MUD No. 4
- EMUD 4 Remote Water Well
- EPUD Water Well 2 Rehabilitation
- Porter SUD 1.0 MGal EST

Wastewater

- WWTP and Lift Station Rehabilitation, City of Panorama Village
- Speed Street Sanitary Sewer Extension, East Montgomery County MUD No. 4
- Utilities and Sanitary Lift Stations, East Montgomery County MUD No. 4
- Sanitary Lift Station No. 3 and Force Main, East Montgomery County MUD No. 4
- Sanitary Lift Station, Azalea District
- Paradise Cove WWTP Expansion, U.S. Land Co.
- Dewaines Forcemain Relocation, Stoecker Corporation
- Broadway Lift Station, Shenandoah
- Sweet Rest Lift Station, Shenandoah

Roadway & Drainage

- Big Rivers Road, East Montgomery County MUD No. 4
- WWTP and Lift Station Rehabilitation, City of Panorama Village
- South Pine Lake Road Widening, Montgomery County MUD 138
- Sorrento Bay Section II Drainage Analysis & Paving Design, US Land Co.
- Veteran's Memorial Park Drive, City of Conroe

Resumes

Derek Wind, PE, CFM



Chief Operating Officer

EXPERTISE

- Roadway & Drainage QA/QC
- Stormwater Management
- Drainage Mitigation and Master Planning
- Floodplain Analysis and FEMA Regulation
- Water and Wastewater Facilities
- Municipal Services and Management
- Land Development Regulation
- Contract Administration

QUALIFICATIONS

M.E., Civil Engineering 2006 - Water Resources
Texas A&M University

B.S., Civil Engineering 2001 - Texas A&M University
Licensed Professional Engineer - Texas No. 98212

AFFILIATIONS

Texas Floodplain Managers Association Outreach
Committee - 2009 - Present

American Society of Civil Engineers - 2009 - Present

City of Conroe Advisory Committee on
Development - 2017 - Present

SUMMARY

With over 20 years of experience, Derek has extensive insight in project design and construction management for private and municipal projects with an emphasis on hydrology and hydraulics including stormwater conveyance design; rainfall runoff and flood plain mitigation; detention pond and dam analysis; and FEMA FIRM mapping and revisions. He has also designed and managed multiple projects for potable water

plants, water distribution systems, wastewater treatment plants, wastewater collection systems, lift stations, roadways, and residential and commercial development plans. He serves as City Engineer for the City of Willis and Assistant City Engineer for the City of Shenandoah, providing comprehensive design, program management, and construction phase services.

PROJECT EXPERIENCE

Bleyl Engineering

Chief Operating Officer

- Mr. Wind has served as Chief Operating Officer for the firm since 2016, overseeing operations for all sites. He frequently provides quality assurance and H & H Advisory for Bleyl projects managed by other senior staff.

City of Willis

City Engineer

- Bleyl Engineering has served the City of Willis since 2006 as the primary consultant for the City's roadway and utilities maintenance and operation as well as capital projects and community development. Derek has served as the City's main engineer since 2017, serving the City Staff and Council with general consultation and senior management of multiple design and construction projects. Derek has also provided drainage expertise and designed projects within the City since 2006.
- CDBG Drainage Storm Lining
- CDBG 2016 Drainage Projects
- Willis West Side Loop
- Longstreet TxDOT Drainage improvements

City of Shenandoah

Assistant City Engineer to John Bleyl

- Bleyl Engineering has served the City of Shenandoah since 2003 as the primary consultant for the City's roadway and utilities maintenance and operation as well as capital projects and community development. Mr. Wind has served as assistant engineer to John Bleyl since 2012 and has engineered multiple roadway, utility, and drainage projects within the City since 2003.
- Water Plant No. 4
- David Memorial Drive Extension
- East Side Regional Pond Master Drainage Study
- David Memorial Lift Station

Resumes

Mike Kelly, PE



Director of Engineering

EXPERTISE

- QA/QC manager
- Roadways & paving
- Grading & drainage
- Water production and distribution
- Contract Administration

QUALIFICATIONS

Civil Engineering, B.S. C.E., 1999
Clemson University

Licensed Professional Engineer -
Texas No. 94562

SUMMARY

With over 20 years of experience in civil engineering, Mike has worked extensively with Counties, utility districts, and private developers. His design experience includes roadways, drainage, water plants, water wells, and water distribution. Mr. Kelly also has extensive experience in single family residential, commercial development, sewer collection and rehabilitation.

With Bleyl since 2006, Mr. Kelly manages numerous clients and various types of projects including serving as District Engineer to Porter SUD since 2006. Mr. Kelly provides routine quality control oversight for various Public Works projects for other project managers at Bleyl Engineering.

PROJECT EXPERIENCE

Roadway & Drainage QA/QC

- North South Road Extension, City of Shenandoah
- Longmire Road Widening, City of Conroe
- Azalea Boulevard Widening, Sig-Valley Ranch LTD
- Freedom Boulevard Improvements, City of Conroe
- Brass Nail & Grace Crossing Improvements, City of Conroe
- Bentwater Access Road, Bentwater POA
- Tamina West Bound Turn Lane, City of Shenandoah
- Grand Harbor Roadway Rehab, Grand Harbor POA
- Robinson Road Construction Admin., City of Oak Ridge North
- Pine Lake Road South Widening, Clay Road 628 Development, LP
- Tamina West and Research East Turn Lanes, City of Shenandoah
- Calvary Road Improvements, Montgomery County Pct. 1
- Lake Conroe Hills FM 1097 Crossing, Lake Conroe Hills MUD
- LaSalle Section 1 Drainage, TriPointe Homes of Texas
- Calvary Road Culvert Crossings, Montgomery County Precinct 1
- Jubal Early Drainage, River Plantation MUD
- Valley Ranch TxDOT Detention, The Signorelli Company
- Azalea Detention Pond - Tract 5, Valley Ranch MUD #1
- CDBG 2016 Drainage Projects, City of Willis
- Grand Pond and Grand Pine Drainage, Grand Harbor/Harbor Side POA

Porter SUD

- District Engineer
- 2006-Present
- Sorters Road Water Line Relocation
- Ford Road Water Line Upsizing
- Emergency Well No. 9 Replacement
- Copeland Lane Water Plant Expansion
- Water Well Road Water Plant Expansion
- Water Line Improvements
- Impact Fee Study Update
- GST and Booster Pump Addition

City of Montgomery

- City Engineer 2007-2012

Grand Harbor POA

- East Cool Breeze Drainage Improvements
- Paving Rehabilitation
- Pond 14 Spillway
- Serene L Final Drainage

City of Willis

- 2015-2016 Roadway Rehabilitation

City of Conroe

- Robinwood and Little Egypt Water Plant Expansion
- Longmire Road Widening Stoecker Corporation
- 52-Acre Development Preliminary Engineering and TxDOT Permit
- Crockett Trace Sections 7-10
- Lakes of Crockett Trace

City of Shenandoah

- Pine Forest Drive Paving Improvements

Resumes

Jonny Green, PE



Project Engineer

EXPERTISE

- Wastewater Collection & Lift Stations
- Wastewater Treatment
- Water Production & Dist
- Roadways
- Drainage
- Detention
- Flood Studies
- Dams
- Bond and Grant Applications
- Water Production and Distribution
- Wastewater Collection
- Site Development
- Lift Stations

QUALIFICATIONS

B.S., Civil Engineering 2010 - Texas A&M University
Licensed Professional Engineer - Texas No. 120300
Certified sUAS Pilot

COMMUNITY SERVICE

Conroe Noon Lions Club, Member and Christmas Baskets Committee (2021 - present)
Christ Community Church, Magnolia (2011 - present)
Missions Team
Worship Ministry
Children's Ministry
Prayer Ministry

SUMMARY

With over 13 years of experience, Jonny has worked extensively with municipalities on a wide variety of projects. His design experience includes water production and distribution, wastewater collection and treatment, site development, roadways, dams, drainage, detention, flood studies, lift stations, and bond and grant applications.

Jonny is a certified Small Unmanned Aircraft System Pilot and manages our Aerial Imagery services. He has also served as Interim Director of Public Works for the City of Willis.

PROJECT EXPERIENCE

City of Shenandoah

- Wastewater Treatment Plant 1.3 MGD Interim Phase Improvements
- Research Forest Lift Station Improvements
- Plan Review Lead

City of Conroe

- Forest Creek Lift Station and Force Main
- Water Plant No. 25, Conroe, TX
- Pollok IMG Concrete Ground Storage Tank, Conroe, TX

City of Willis

- Assistant to City Engineer, Plan Review Lead
- 2023 Wastewater Treatment Plant Permit Renewal
- ARPA Lift Stations Improvements
- Little County Line Lift Station Improvements
- East Stewart Creek Force Main Upsize
- Water Plants No. 1 & 3 Improvements
- Water Wells No. 6 & 7 Upsizing
- 0.99 MGD Wastewater Treatment Plant Expansion
- Sanitary Sewer and Water Models
- 2019-2020 TxCDBG Water Plant No. 3 Improvements
- Water Plant No. 1 Ground Storage Tank Addition
- FM 1097 East Lift Station Replacement
- Lift Station SCADA

Stanley Lake MUD

- Water Plant No. 4, Montgomery, TX
- KOA Lift Station, Montgomery, TX
- South 105 Water & Force Main Extensions
- Water Plant No. 3, Montgomery, TX

Entergy

- Lewis Creek Plant 4" Water Service Line, Willis, TX

Lake Conroe Holdings, LLC

- The Reserve on Lake Conroe Lift Station Improvements, Willis, TX
- Conroe MUD No. 1
- Mackenzie Creek Lift Station, Conroe, TX

Montgomery County MUD No. 142

- Woods of Conroe Lift Station, Conroe, TX

Walker County

- 2023 CDBG MIT-MOD
- 2019 - 2020 TxCDBG Hurricane Harvey Disaster Relief Roads Rehabilitation

Porter SUD

- Copeland Ground Storage Tank, Porter, TX
- Water Plants Recoatings, Porter, TX

Lake Bonanza Water Supply Corporation

- Hydropneumatic Tank Addition, Montgomery, TX



Resumes

Blake Barringer, PE



Project Engineer

EXPERTISE

- Streets
- Drainage
- County Engineering
- Water Systems
- Wastewater Systems
- Hydrology & Hydraulics

EDUCATION

B.S., Civil Engineering 2016 - LeTourneau University

LICENSE STATUS

Licensed Professional Engineer - Texas No. 138957

COMMUNITY SERVICE

Conroe Noon Lions Club
Member - 2018 to present

SUMMARY

Blake is experienced in a wide variety of County projects including roadways, storm drainage, storm water detention, sanitary sewer, water distribution systems, and construction inspection. He serves as the Assistant District Engineer for Lake Conroe Hills MUD, where he assists in plan reviews, facility inventories, capacity analysis, and planning for facility expansions. Blake has assisted in residential and commercial developments in Montgomery County. His experience includes working with ArcGIS and AutoCAD Civil 3D for plan design; and Bentley PondPack and HEC-RAS for drainage modeling.

PROJECT EXPERIENCE

City/District Engineer

- Lake Conroe Hills MUD, 3+ years
- City of Cleveland Engineer, 3 years
- Montgomery Co. MUD 9 Deputy - 3 years

Roadway & Drainage

- CDBG DR Hurricane Harvey Road Rehabilitation, Walker County
- Walden Road Widening, Montgomery County Pct. 1
- Brass Nail and Grace Crossing Extension, City of Conroe
- Walker County TXCDBG Roads Rehab, Walker County
- David Memorial Drive Roadway Extension, City of Shenandoah
- Lift Station Driveway, Montgomery County MUD 18 (Bentwater)
- Calvary Road Culvert Crossings, Montgomery County Precinct 1
- Walden Gulf States Utility Drainage Improvements, MUD 9 (Walden)
- Sorento Bay Drainage, L.P. Carlson Sr.
- Cumberland Crossing Regional Detention, Mark Martin
- Excell Regional Detention, Brad Chappan
- Conroe WWTP Berm, City of Conroe
- Calvary Road Culvert Crossings, Montgomery County
- 2016 Drainage Improvements, UD 4 (April Sound)
- 2017 Drainage Hotspots, UD 4 (April Sound)
- 2016 Drainage Improvements, Montgomery County MUD 18 (Bentwater)
- 2018 Drainage Improvements, Montgomery County MUD 18 (Bentwater)

Water & Wastewater

- Wastewater Treatment Plant Berm, City of Conroe
- West Summerlin and Gun Range Wastewater Design, City of Conroe
- Paradise Cove Wastewater Treatment Plant Expansion, L.P. Carlson, Sr.
- ACP Water Line Replacements, Shenandoah
- ACP Water Line Replacements, Porter SUD
- Pinecroft Lift Station and Force Main Improvements, Shenandoah
- City of Sour Lake ARPA Generators
- Water Well Road Water Plant Generator

Resumes

Carl Rushing, PE



Water/Wastewater Design

EXPERTISE

- Construction management
- Project management
- Construction
- Water resources
- Contract management
- Project estimation

EDUCATION

B.S. Industrial Technology, 1991
Sam Houston State University

M.A. Industrial Technology, 1993
Sam Houston State University

LICENSE STATUS

Licensed Professional Engineer - Texas No. 121777

SUMMARY

Mr. Rushing has extensive experience in project design and construction management for private and municipal engineering work; this includes designs for commercial, residential, and industrial developments; detention ponds, drainage analysis, sanitary sewer lift station sizing and design, water plant design, water and waste water demand and capacity analysis, earthwork calculations, and civil plan and plat reviews for city clients.

PROJECT EXPERIENCE

Water/Wastewater Line

- 12" Water Line, Replacement line from Robinson Road to Paula Lane, Stanley Lake MUD
- Wastewater Lining, Cleaning and Replacement with Pipe Bursting and CIPP, Stanley Lake MUD
- Lakeview Village Sanitary Sewer Improvements, Pipe Bursting and CIPP of Sewer Lines, Montgomery County UD 4
- Manhole Rehabilitation with CIPM, Montgomery County UD 4

Lift Stations

- Danville Lift Station Replacement, 330 GPM replacement station plus 2000 linear feet of 6-inch force main, City of Willis
- US 75 New Lift Station, 1200 GPM triplex, City of Willis
- FM 1488 Lift Station and Force Main, Stoecker Corporation

WWTP

- 0.99 MGD WWTP Expansion & Rehabilitation, Replacement plant while keeping the current facility in service, City of Willis

Water Plant

- Buckingham Water Plant, Catahoula Well, cooling towers and other plant improvements, Montgomery County MUD 9
- Elevated Tank Rehabilitation and Electrical Improvements, City of Willis
- Jasper Well, Remote well and site improvements, Lake Bonanza WSC
- Jasper Well, Replacement well, MCC, water treatment, site improvements, Montgomery County UD 4

Resumes

Morgan Brown, PE



Lift Stations and Wastewater

EXPERTISE

- Municipal Engineering
- Wastewater Collection, Lift Stations, and Treatment
- Site Development Engineering

EDUCATION

B.S., Civil Engineering 2019 - Texas A&M University

LICENSE STATUS

Licensed Professional Engineer - Texas No. 147737

COMMUNITY SERVICE

Church Project - Member

SUMMARY

In March of 2023, Morgan became a licensed Professional Engineer in the State of Texas. He is currently a Project Engineer in the Conroe office where he has assisted and designed a wide variety of projects related to public works, including sanitary sewers, wastewater treatment plants, water plants, water distribution systems, storm drainage, storm water detention, and site plans. Mr. Brown also serves as the Assistant District Engineer for East Montgomery County MUD No. 4. He is proficient in the use of AutoCAD Civil3D, ArcGIS, PondPack and XP-SWMM. Mr. Brown also serves on Bleyl's Site Development team. This diverse experience aids in his layout of WWTPs, grading, paving, and pedestrian access of facilities.

PROJECT EXPERIENCE

City/District Engineer in Montgomery County

- East Montgomery County MUD No. 4, Deputy 3 years
- Montgomery County MUD 142, Deputy 2 years

Wastewater

- Shenandoah WWTP Expansion to 1.3MGD
- Willis ARPA Lift Station Improvements
- East Stewart Creek FM Upsizing, Willis
- Research Froest Lift Station Rehab, Shenandoah
- Conroe Lift Station Consolidations, area 1 & 3
- Johnson Road Regional Lift Station, Shenandoah
- Sewer System Models
 - Willis
 - Shenandoah
 - Stanley Lake MUD
- Impact Fee Reports
 - Conroe
 - Shenandoah
 - Porter
 - New Waverly Chandler St Sewer Reroute
 - SH 105 FM Extension - Conroe

Site Projects

- Taco Bell Grand Central Park, Conroe
- Rod Industrial Park, Conroe
- Best Box Self Storage, Porter
- Texas Christmas Village, Huntsville
- West Tabernacle Church, Conroe
- Bryant Mini Mall Storage, Conroe

Resumes

Koy Sanson, PE



Sidewalks, Waterwells, and Water Lines

EXPERTISE

- Public Utilities
- Water Plants
- Water Resources
- ArcMap GIS
- WaterCAD
- Project estimation
- Project management

EDUCATION

B.S., Civil Engineering, 2019 – Texas A&M University

LICENSE STATUS

Licensed Professional Engineer – Texas No. 152036

SUMMARY

Koy Sanson joined Bleyl Engineering in January 2020 as an Engineer in Training and became a licensed Professional Engineer in the State of Texas in March 2024. He currently serves as a Project Engineer in the Conroe office where he continues to assist and design a wide variety of projects. Mr. Sanson also serves as the Assistant District Engineer for East Plantation Utility District and Porter Special Utility District.

PROJECT EXPERIENCE

Water Line

- New Caney ISD Water Line Extension, 1,400-linear feet of 12-inch water line along Texas Loop 494
- FM 1488 Gravity Sanitary Sewer and Forcemain Extension, 400-linear feet of 8-inch gravity sanitary sewer including manholes and 200-linear feet of 2-inch forcemain crossing FM 1488
- Water Line and Sanitary Sewer Extension to Serve 15-acre Tract, 2,500-linear feet of 8-inch water line, 300-linear feet of 4-inch water line, and 200-linear feet of 8-inch gravity sanitary sewer
- Acton Academy Sanitary Sewer Extension, 300-linear feet of 8" gravity sanitary sewer including manholes.
- Magnolia Circle Utility Extension, 400-linear feet of 8-inch water line and 400-linear feet of 4-inch force main to serve the CE Barker Tract on Magnolia Circle

Water Modeling

- Porter SUD Water Model, existing water distribution system for the Porter Special Utility District, which is served by six (6) water plants
- City of Navasota Water Model, existing water distribution system for the City, which is served by one (1) water plant consisting of two (2) Ground Storage Tanks and three (3) Booster Pumps, as well as six (6) water wells and two (2) Elevated Storage Tanks

Water Plant

- Porter SUD 1.0 MG Elevated Storage Tank, water plant expansion for the Copeland Lane Water Plant in Porter, Texas, which included an elevated storage tank, yard piping, and additional site improvements
- City of Fulshear 1.0 MG Elevated Storage Tank, design of a 1 MG Elevated Storage Tank for the City of Fulshear's Proposed Pecan Ridge Water Plant in Fulshear, Texas
- EMUD No. 4 Remote Water Well, design of a remote water well to aid in serving recently annexed property into the East Montgomery County Municipal Utility District No. 4 Service Area
- Panorama Village Well 3 Emergency Generator, design for an emergency generator for water well no. 3 in the City of Panorama Village.
- Panorama WWTP Lift Station, design of the rehabilitation of the existing City of Panorama Village WWTP Lift Station, including removal and replacement of existing lift station piping, recoating of existing lift station and upstream manhole, and the replacement of lift station pumps

Resumes

Ryan Robinson, PE



Project Engineer

EXPERTISE

- Public Utilities
- Project Estimation
- Plan Production
- Project Management
- Stormwater Management
- Feasibility Studies

QUALIFICATIONS

B.S., Environmental Engineering, 2019 - Louisiana State University

Licensed Professional Engineer - Texas No. 152243

SUMMARY

Mr. Robinson graduated from Louisiana State University in May 2019 and joined Bleyl Engineering in February 2024 as a Graduate Engineer. In April 2024, Mr. Robinson became a Professional Engineer in the State of Texas. He is currently a Project Engineer in the Conroe office where he has assisted and designed a wide variety of projects related to public works, including sanitary sewers, wastewater treatment plants, water treatment plants, water distribution systems, storm drainage, and roadway improvements.

PROJECT EXPERIENCE

Impact Fee Study, City of Cleveland

- Assisting in the development of an Impact Fee Study for the City. The study will determine the proper impact fees for water and sanitary sewer due to new development. Analysis included reviewing all existing water and sanitary sewer data from the City, generating land use assumptions maps, and the creation of capital improvements plans for water and sanitary sewer with 10-year projections. (Anticipated completion: July 2025)

Tamina Lift Stations, City of Shenandoah

- Assisted in the design and plan production of two wastewater lift stations for the City to provide sanitary sewer service to the Tamina community. Scope included design, agency coordination, sub-consultant coordination and management, bidding support, and construction administration services. Design included calculations for wet well sizing, force main sizing, and pump selections, lift station site layout, coordination with electrical utility provider & structural subconsultant, and grading and drainage. The proposed lift stations were sized for 158 GPM and 33 GPM. (Under construction 2025) (Current Construction Contract: \$1.4M)

Feasibility Studies, Montgomery County Utility District 4

- Design Engineer for two studies, one to determine the feasibility of UD 4 providing water and sanitary sewer facilities to a proposed development, and one to determine the feasibility of UD 4 providing water capacity to the City of Conroe through an interconnect. Both feasibility studies were presented to UD 4 at their board meeting. (Completed: December 2024)

Lake Conroe Hills Stormwater Repairs, Precinct 1 Montgomery County

- Assisted in the design and plan production of improvements to existing stormwater structures on Lake Conroe. Scope included design and agency coordination. Design included the removal and replacement of an existing headwall and wingwalls to retain existing natural ground and the installation of new E Inlets and storm drainage piping. (Under construction 2025) (Current Construction Contract: \$305k)

North Tamina/CISD Regional Drainage Preliminary Engineering Report, City of Shenandoah

- Assisted in the development of a Preliminary Engineering Report for the City. Design included analysis of regional drainage improvements, land reclamation, and traffic improvement recommendations. The report was presented to the City for comment and adoption. (Completed: October 2024)

Resumes

Adam G. Vento, PE, CFM



Hydrology & Hydraulics Department Manager

EXPERTISE

- Hydrologic and Hydraulic Analyses
- Probable Maximum Flood (PMF) Studies
- Breach Analyses and Inundation Mapping
- Master Drainage Design
- Hydraulic Structure Analysis and Design
- Detention Analysis and Design
- Stormwater Management
- Floodplain Management
- Drainage Evaluations

QUALIFICATIONS

B.S., Civil Engineering 2018 - Texas A&M University
Licensed Professional Engineer - Texas No. 146007
Certified Floodplain Manager - TFMA No. 4117-21N

AFFILIATIONS

Texas Floodplain Management Association
Public Outreach Committee Member since 2022

SUMMARY

Adam currently serves as Department Manager of Hydrology & Hydraulics. He is experienced as a Project Manager on a wide variety of products including master drainage plans, drainage infrastructure design, FEMA CLOMR/LOMRs, and hydrologic and hydraulic analyses. He is well-versed in hydrologic modeling, steady-state and unsteady-state hydraulic modeling, and 2D hydraulic modeling. He is proficient in the use of AutoCAD Civil 3D, ArcGIS, Bentley OpenFlows, FHWA Hydraulic Toolbox (HY-8), XPSWMM, HEC-HMS, and HEC-RAS.

PROJECT EXPERIENCE

Public Projects

Montgomery County Precinct 4

- Big Buck Dam TCEQ Spillway Improvements, - Hydrologic probable maximum flood (PMF) analysis, design of spillway per TCEQ regulations and erosion remediation.

City of Conroe

- Alligator Creek Channel Improvements, Conroe, TX
- Unsteady hydraulic analysis to support proposed channel improvements and pedestrian bridge.

City of Shenandoah

- David Memorial Extension Drainage Study, - Hydraulic analysis and design of a 110-ft vehicular bridge that spans Carter Slough. The bridge design was modeled using both 2D unsteady-state and 1D steady-state HEC-RAS models. A scour analysis was performed to evaluate the erosion potential of the structure.

Private Projects

- High Meadow Development Co.
- High Meadow Estates Sections 9, 10, and 11, Montgomery, TX
- Drainage, detention design, hydraulic floodplain analysis for multiple tributary streams and culvert crossings for a 445-acre residential development.
- The Cedars, Grimes County, TX - Master drainage and detention design for a 1280-acres residential development in Grimes County. Unsteady HEC-RAS modeling was utilized to evaluate both in-line and offline detention options.

Signorelli Company

- Azalea Master Drainage Study, for a mixed-use development in Montgomery County/City of Houston ETJ. Interconnected detention ponds were designed to mitigate runoff.
- Valley Ranch Master Drainage Study Updates to the master detention plan to support future development with an expanded pond design.
- Valley Ranch Town Center Bridge, New Caney, TX - Hydraulic floodplain analysis, scour analysis, and design of a 600-ft. vehicular bridge that spans White Oak Creek using 1D steady-state HEC-RAS models.

Lake Windcrest Property Owner's Association

- TCEQ Dam Capacity Improvements, Magnolia, TX - Hydrologic analysis of probable maximum flood (PMF) scenarios for 4 existing dam structures. Designed emergency spillway structures for each dam to be in compliance with TCEQ regulations.

Resumes

David Besly, PE



Transportation - Department Manager

EXPERTISE

- Roadways
- Traffic Operations Studies & Design

EDUCATION

- B.S., Civil Engineering 1991 – Texas A&M University

LICENSE STATUS

Licensed Professional Engineer – Texas No. 81873

TECHNICAL

TECHNICAL PUBLICATIONS

- Signal Timing Impacts on Air Quality, ITE

POLICY EFFORTS

- B/CS United Standards

TxDOT

- TxDOT Highway Short Course 2015 – 2021
- TxDOT Local Government Project Procedures – 2017, 2020
- Precertifications
 - 4.1.1 Minor Roadway Design
 - 4.2.1 Major Roadway Design
 - 7.1.1 Traffic Engineering Studies
 - 7.3.1 Traffic Signal Timing
 - 8.1.1 Signing, Pavement Marking and Channelization
 - 8.3.1 Signalization
 - 10.1.1 Hydrologic Studies
 - 10.2.1 Basic Hydraulic Design
 - 10.3.1 Complex Hydraulic Design

AFFILIATIONS

Institute of Transportation Engineers
– Member Since 1987

SUMMARY

David has extensive design experience with over 25 years of planning, design, modeling, and management of a variety of transportation projects. His expertise includes schematic design, roadway design, traffic operations studies and design, and the development of plans for Cities, Counties, and TxDOT.

PROJECT EXPERIENCE

Traffic Studies

- Tamina Corridor Study, City of Shenandoah: Collected Traffic Data and provided analysis of the Research Forest/Tamina corridor in Shenandoah Texas. Prepared and analyzed the impacts of 11 conceptual projects for intersection improvements, alternate routes, and signal modifications to improve traffic flow in and through the City of Shenandoah.
- Walden Plaza TIA, CHC Investments: A Traffic Impact Analysis study was performed for a proposed 3.2 acre commercial development at Walden Road north of SH 105. Project included traffic data collection for four intersections as well as trip generation, trip distribution, analysis of both the no-build conditions and build conditions.
- Bentwater Community Speed Study, Bentwater POA: Traffic Study to collect speed data for four locations of concern in Bentwater Community. The community is gated, and 7-day volume and speed counts were collected at each location. The data was analyzed, and recommendations were made for one location where the 85% speed of 31.9 MPH exceeded the posted speed limit of 25 MPH.

Traffic Signals

- Barton Woods at LP 336, Academy Development: Under the direction of the Design Engineer, developed PS&E for a City traffic signal installation to TxDOT standards at the intersection of Barton Woods at Loop 336 as required by the TIA. The design included the traffic signal, modifications to signs and markings, and sidewalk construction for pedestrian access.
- S. Pine Lake at SH 105, Clay Road 628 Development : Under the direction of the Design Engineer, developed PS&E for a City traffic signal

Resumes

Steffanie DeLoss, PE, CFM



Residential Design

EXPERTISE

- Single-Family Residential
- Commercial Sitework
- Multi-Family
- RV Parks
- Grading & Drainage
- Roadways & Sidewalks
- Water & Wastewater

QUALIFICATIONS

B.S., Civil Engineering 2003 - Texas Tech University
Licensed Professional Engineer - Texas No. 100201
Certified Floodplain Manager - Texas No. 1546-09N

AFFILIATIONS

Texas Floodplain Management Association - 2009 to Present
Association of Water Board Directors - 2016 to Present
Greater Houston Builders Association - 2017 to Present

COMMUNITY SERVICE

City of Conroe Planning Commission - 2023 to Present
Stewart's Forest HOA - 2020 to Present
Sacred Heart Catholic Church - 2013 to Present

SUMMARY

With over 20 years of experience, Steffanie possesses invaluable insight into the planning, design, construction oversight, and management of a variety of projects for developers and public entities. Since joining Bleyl in 2013, she has focused on understanding local regulations and quality control to help Bleyl better serve both public and private clients. As Land and Site Development Department Manager, Steffanie has managed and engineered the development of plans and specifications for projects involving roadways, drainage, sanitary lift stations, sanitary sewage, force mains, and waterlines.

PROJECT EXPERIENCE

Walker County

- Consulting Engineer
- Plan Reviewer
- Subdivision Regulations

City of Conroe

Windsor Lakes Lift Station & Force Main
FM 1488 Lift Station & Force Main
Oscar Johnson Jr. Community Center

Montgomery Co. MUD No. 147

- Engineer for the District

Montgomery Co. MUD No. 213

- Engineer for the District

Single-Family Residential Development

- Pine Lake Cove, Conroe, TX
- Mackenzie Creek, Conroe, TX
- Westridge Cove, Conroe, TX
- Clopton Farms, Conroe, TX
- Caney Creek Place, Conroe, TX
- The Woods of Conroe, Conroe, TX
- Crockett Reserve, Montgomery County, TX
- Lake Shore Cove, Conroe, TX
- Hidden Lake Estates, Montgomery County, TX
- Deer Trail POA Ditch Rehab, Montgomery County, TX
- Deer Trails II Master Drainage, Montgomery County, TX
- Crockett Trace Estates, Montgomery County, TX
- La Vie Villas, Montgomery County, TX
- Reserve at East Forest, Conroe, TX
- The Reserve on Lake Conroe, Montgomery County, TX

Commercial Development

- Texas Children's Hospital, The Woodlands, TX
- IKP Family Medicine, Montgomery County, TX
- Riverwood Medical Office, Conroe, TX
- Lone Star Family Health Center, Grangerland, TX
- Woodhaven Cottages, Conroe, TX
- Lovett Conroe Business Park, Conroe, TX
- Deison Tech/Montgomery Co. Fairgrounds Detention, Conroe, TX
- Ameritex Pipe & Products, Conroe, TX
- Grand Pines Wedding Venue, Conroe, TX
- Calfee Wedding Venue, Conroe, TX
- FedEx Freight Service Center, Conroe, TX
- Colt Concrete Batch Plant, Montgomery County, TX
- Ball Corporation Expansions, Conroe, TX
- Robinson 383 Industrial, Oak Ridge North, TX
- Cumberland Retail, Porter, TX
- CW Rod, Conroe, TX
- Grand Central Storage, Conroe, TX
- KM Aldine Westfield Storage, Spring, TX
- Hillside Storage Facility, Huntsville, TX
- Storz A Lot, Montgomery County, TX
- Homestead Plaza, Conroe, TX
- Xscape Movie Theater, Montgomery County, TX
- Rudy's Bar-BQ, Conroe, TX
- Pappas, Multiple TX Locations
- Sonic, Multiple TX Locations
- Wings N' More, Conroe, TX
- Chicken Express, Conroe, TX
- Taco Bell, Conroe, TX
- Thousand Trails, Conroe, TX
- The Vineyard Church, Pearland, TX
- Annunciation Greek Orthodox Cathedral, Houston, TX
- Holy Comforter Episcopal Church Worship Building, Harris County, TX
- Mackenzie Creek Rec Center, Conroe, TX
- Westridge Cove Rec Center, Conroe, TX
- Clopton Farms Rec Center, Conroe, TX
- Grand Ridge Office Condos, Katy, TX

City of Oak Ridge North (Previous Employment)

1. Consulting Engineer
 2. Plan Reviewer
 3. Ordinance Modifications
 4. Rate Studies
 5. Construction Oversight
- Maplewood Drive Asphalt Overlay
 - Maplewood at Ridgewood Intersection
 - Woodson Road & Blueberry Hill Improvements
 - East Oak Hill Relief Storm Sewer
 - Waterline I-45, Robinson to Paula
 - East Oak Hill Relief Storm Sewer
 - 36 Storm Sewer Extension
 - Hanna Road Waterline Extension
 - Maplewood Storm Sewer Extension
 - Jimmy Lane Storm Sewer Extension
 - Oak Ridge North Commerce Park Onsite & Offsite Utilities
 - Inflow and Infiltration Study
 - Sanitary Sewer Rehabilitation
 - Water Plant Improvements
 - Hanna Road Utility Extension
 - Robinson Rd. Waterline Improvements

Resumes

Steve Duncan, PE, LEED AP



Senior Director

EDUCATION

B.S., Civil Engineering 1993 -
Texas A&M University - magna cum laude

LICENSE STATUS

Licensed Professional Engineer
Texas No. 83252 - Oklahoma No. 23360
LEED AP

TECHNICAL

POLICY EFFORTS

- B/CS United Standards
- College Station Lift Station Design Guidelines
- College Station Fiber Optic Standards
- TCEQ Water Quality Advisory Group (WQAG)

AFFILIATIONS

TSPE Brazos Chapter - 2013 Engineer of the Year
2000 Past President

Project Management Institute - 2010 to Present

WEAT - 2003 to Present

Chi Epsilon - Civil Engineering Honor Society

Tau Beta Pi - Engineering Honor Society

COMMUNITY SERVICE

Family Promise Brazos Valley - Board Member

Lions Club of Bryan - Past President

KOR Educational School - Past President

Parkway Baptist Church - Past Deacon
Chairman

SUMMARY

With over 25 years of experience, Steve has garnered invaluable insight into the field of civil engineering with a focused emphasis on municipal water/wastewater projects. His expertise includes client management, project management, project design and construction management for all types of Water and Wastewater projects.

PROJECT EXPERIENCE

Grant-funded Projects

- Town of Anderson
- 2000 First Time Wastewater System
- 2019 GLO Hurricane Harvey Disaster
- City of Bédias
- 2000 First Time Wastewater System
- 2008 Sanitary Sewer Collection and Treatment
- City of Calvert
- 2002 Wastewater Line Replacement
- 2005 Wastewater Lift Station Replacement
- 2011 Ground Storage Tank Replacement
- 2015 WWTP Improvements
- City of Centerville
- 2000 Wastewater Line Replacement
- 2002 Ground Storage Tank Addition
- 2003 Waterline Replacement
- 2005 Wastewater Line Replacement
- 2015 Wastewater Plant Rehabilitation
- City of Franklin
- 2005 Highway 79 Lift Station
- 2007 WWTP and Lift Station Replacement
- 2011 Elevated Tower Addition
- 2011 Water Well and Water Plant 2
- 2019 Wastewater Disinfection Addition
- City of Navasota
- 2008 Wastewater Lines
- 2018 Wastewater Lines Street & Drainage
- City of Bryan
- 2019 Coulter Drive
- 2020 Old Hearne Road, Phase 1
- City of College Station
- 2018 Royder Road Widening
- 2019 General Parkway Extension

Drainage Studies

- City of Somerville
- City of Calvert
- City of Centerville
- City of Franklin

Sub-Consultants

SURVEYING - Chris Rhodes, RPLS, Vice President - Civil-Surv Land Surveying, LLC



EXPERTISE

- Coordinating all facets of land surveys between clients, field crews, engineers and other project managers

QUALIFICATIONS

B.S., Criminal Justice - University of Houston-Downtown, 2013
Texas Registered Professional Land Surveyor No. 6532
Texas Board of Professional Land Surveying Firm No. 10143800

SERVICES

- Land Title and Standard Boundary Surveys
- Topographic Surveying

- Deed Research
- Easement Document Preparation
- ALTA/NSPS Land Title Surveys
- City and County Platting Services
- Construction Layout / Staking
- Completion / As-Built Surveys
- Parcel Acquisitions
- Datum Control Preparation and Adjustment
- Elevation Certificates
- Form and Slab Surveys

GEOTECHNICAL - David A. Eastwood, PE, D.GE, DFE, BC.GE, C.A.P.M., F.PIT, F.FPA, F.ASCE, President – Geotech Engineering and Testing (HUB, DBE, MBE, SBE)



EXPERTISE

- Geotechnical Engineering
- Environmental Engineering
- Materials Engineering
- Geoforensic Engineering

QUALIFICATIONS

Bachelor of Science in Civil Engineering, - University of Houston, 1977
Master of Science in Civil Engineering - University of Houston, 1978
Post Graduate Studies - Princeton, Rice University, and University of Houston, 1978 to Present
Licensed Professional Engineer - Texas No. 51419; Licensed Professional Engineer - Louisiana No. 25966; Licensed Professional Engineer - New Mexico No. 12576; Licensed Professional Engineer - Oklahoma No. 17513; Corrective Action Project Manager - Texas C.A.P.M. No. 01181

PROJECTS

- Design and construction of public infrastructure for 48 years, including roads, bridges, tunnels, bulkheads, embankments, retaining walls, pavements, rail, water and wastewater facilities
- Houston Ship Channel Toll Bridge - Harris County, TX
- Harris County Toll Road - Harris County, TX
- Training in geotechnical, environmental, materials, and geoforensic engineering for the City of Houston (COH), Harris County Engineering Department (HCEC), City of Sugar Land, American Institute of Architects (AIA), Associated Builders and Contractors (ABC), American Public Works Association (APWA) and Greater Houston Builders Association (GHBA)

ELECTRICAL ENGINEERING - Gregory S. Baird, P.E., Principal - Baird Gilroy & Dixon, LLC.



EXPERTISE

- Electrical Design
- Power Distribution
- Automatic control
- Lighting design

QUALIFICATIONS

B.S., Electrical Engineering - Texas A&M University, 2002
Licensed Professional Engineer - Texas No. 100260
TxDOT Employee Sequence No. - 17547
Pre-certified Categories: 8.2.1 Illumination - 10.4.2 Pump Stations - Electrical

PROJECTS

- Surface Water Treatment Plant High Service Pump Station - City of Richmond - Richmond, TX
- Elevated Storage Tank No. 4 - City of Richmond - Richmond, TX
- Williams Way Blvd & Hwy 59 Lift Station - City of Richmond - Fort Bend County, TX
- City Hall Generator Addition - City of Richmond - Richmond, TX

STRUCTURAL ENGINEERING - Drew Dudley - Dudley Engineering (WBE)



EXPERTISE

- Structural Design
- Structural Assessments
- Construction Science
- Project Management

QUALIFICATIONS

M.E., Structural Engineering 2012 - Texas A&M University
B.S., Civil Engineering 2011 - Kansas University
Licensed Professional Engineer - Texas No. 123798

AWARDS

NSPE-TX Young Engineer of the Year
Civil + Structural Engineer Magazine Rising Star - 2018
Aggie 12 Under 12 Alumni Spotlight 2021

PROJECTS

Lake Conroe Forest Water Plant, Conroe, TX
Harris County MUD 148 Lift Station, Houston, TX
Meandering Bend Bridge, Spring, TX
FM 1488 Lift Station, Conroe, TX
Oscar Johnson Community Center, Conroe, TX

Sub-Consultants

ENVIRONMENTAL - David Klebieko, PG, Division Manager - Raba Kistner



EXPERTISE

- 30 Years of Experience
- Environmental Consulting and Compliance
- Hazardous Materials Assessments
- Environmental Site Assessments (Phase I, II, III)
- SWPP/SPCC Plans
- Natural Resources

QUALIFICATIONS

B.S., Environmental Science - Stephen F. Austin University, 1989
Professional Geoscientist - Texas No. 10213

TCEQ Corrective Action Project Manager, 1999 - No. 1407
40-Hour OSHA HAZWOPER Training, 1991
OSHA Outreach Training - General Industry, 2016
Certified Wetlands Delineator, 1999 - Texas No. 10213

TXDOT PRECERTIFICATIONS

- 2.3.1 Wetland Delineation
- 2.4.1 Nationwide Permit
- 2.13.1 Hazardous Materials Initial Site Assessment

CIVIL ENGINEERING PARTNER - Imelda Diaz, P.E., Principal - Diaz Engineering, LLC

Diaz Engineering, LLC, is a certified Minority Business Enterprise (MBE) / Women Business Enterprise (WBE)



EXPERTISE

- Civil Engineering Design
- Construction Management & Inspection
- Structural/Bridge Design
- Planning/Feasibility Studies
- Project & Program Management
- Hydrology & Hydraulics (H&H) Modeling
- Drainage & Flood Control
- Utility Coordination
- Public Engagement

QUALIFICATIONS

B.S. Civil Engineering - University of Houston
Licensed Professional Engineer - Texas No. 122101

PROJECTS

- Harris County Flood Control District - \$480 million Brays Bayou Federal Flood Damage Reduction Project - Houston, TX
- Harris County Flood Control District - \$124 million White Oak Bayou Watershed - Houston, TX
- Harris County Flood Control District - \$87 million Willow Waterhole Detention Basin - Houston, TX



Appendix

- Conflict of Interest Questionnaire
- SAMs
- Current Certificate of Insurance



N/A

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

FORM CIQ

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of vendor who has a business relationship with local governmental entity.

2 ☐ Check this box if you are filing an update to a previously filed questionnaire. (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 Name of local government officer about whom the information is being disclosed.

Name of Officer

4 Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

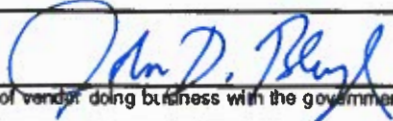
☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

5 Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7 
Signature of vendor doing business with the governmental entity

6/17/25
Date

Entity Workspace Results 1 Total Results

BLEYL INTERESTS, INC.

Unique Entity ID: NNGWM1PKEDB6

CAGE/NCAGE: 6ZCC6

Entity Status: Active Registration

Doing Business As: BLEYL INTERESTS
INC

Physical Address:
100 NUGENT ST
CONROE , TX
77301-2572 USA

Expiration Date:

Jan 02, 2026

Purpose of Registration:

All Awards



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

06/17/2025

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Reaves Insurance 1110 North Loop 336 West; Ste. 520 Conroe TX 77301	CONTACT NAME:		
	PHONE (A/C, No, Ext): (936) 539-1045	FAX (A/C, No): (936) 539-1046	
	E-MAIL ADDRESS: clientservices@reavesinsurance.com		
	INSURER(S) AFFORDING COVERAGE		NAIC #
	INSURER A : Travelers Insurance Company		19046
INSURED Bleyl Interests, Inc. dba Bleyl Engineering 100 Nugent Street Conroe Tx 77301	INSURER B : Certain Underwriters at Lloyds of London		32727
	INSURER C :		
	INSURER D :		
	INSURER E :		
	INSURER F :		

COVERAGES**CERTIFICATE NUMBER:****REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	☐ COMMERCIAL GENERAL LIABILITY	☐	☐	680-006G774568	12/23/2024	12/23/2025	EACH OCCURRENCE \$ 1,000,000
	☐ CLAIMS-MADE ☐ OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000
							MED EXP (Any one person) \$ 5,000
							PERSONAL & ADV INJURY \$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE \$ 2,000,000
	☐ POLICY ☐ PRO-JECT ☐ LOC						PRODUCTS - COMP/OP AGG \$ 2,000,000
	OTHER:						\$
A	AUTOMOBILE LIABILITY	☐	☐	680-006G774568	12/23/2024	12/23/2025	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
	☐ ANY AUTO						BODILY INJURY (Per person) \$
	☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS NON-OWNED AUTOS ONLY						BODILY INJURY (Per accident) \$
	☐ HIRED AUTOS ONLY ☐						PROPERTY DAMAGE (Per accident) \$
							\$
A	☐ UMBRELLA LIAB ☐ OCCUR	☐	☐	CUP-6G877336	12/23/2024	12/23/2025	EACH OCCURRENCE \$ 5,000,000
	☐ EXCESS LIAB ☐ CLAIMS-MADE						AGGREGATE \$ 5,000,000
	DED ☐ RETENTION \$						\$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	☐	☐				☐ PER STATUTE ☐ OTH-ER
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	☐	N/A				E.L. EACH ACCIDENT \$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE \$
							E.L. DISEASE - POLICY LIMIT \$
B	Professional Liability	☐	☐	ANE0559	06/24/2025	06/24/2026	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Certificate Holder listed as additional insured when required by written contract.

CERTIFICATE HOLDER**CANCELLATION**

City of LaMarque
1111 Bayou Rd
La Marque, TX 77568

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

© 1988-2015 ACORD CORPORATION. All rights reserved.



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

6/17/2025

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must have **ADDITIONAL INSURED** provisions or be endorsed. If **SUBROGATION IS WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Aon Risk Services, Inc. of Florida 4010 W. Boy Scout Boulevard, Suite 200 Tampa, FL 33607 www.aon.com	CONTACT NAME: Questco Risk Management PHONE (A/C, No, Ext): 936-521-5753 FAX (A/C, No): E-MAIL ADDRESS: coirequest@questco.net
	INSURER(S) AFFORDING COVERAGE INSURER A: State National Insurance Company, Inc.
	INSURER B:
	INSURER C:
	INSURER D:
	INSURER E:
	INSURER F:

NAIC #

12831

COVERAGES**CERTIFICATE NUMBER:** 85803715**REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☐ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☐ PROJECT ☐ LOC OTHER:						EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OP AGG \$ \$
	AUTOMOBILE LIABILITY ☐ ANY AUTO ☐ OWNED AUTOS ONLY ☐ HIRED AUTOS ONLY ☐ SCHEDULED AUTOS ☐ NON-OWNED AUTOS ONLY						COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
	UMBRELLA LIAB ☐ OCCUR EXCESS LIAB ☐ CLAIMS-MADE DED RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$ \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below Y/N ☐ N/A			AMX-221-0001-007	10/1/2024	10/1/2025	☐ PER STATUTE ☐ OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Project /Job#: Project/Job: -
Client Name/Alt. Employer: Bleyl Interests, Inc. dba Bleyl Engineering Client ID #: 7838
Main Location: 100 Nugent Street, Conroe, TX 77301 Add'l Locations: See Page 2
Workers Compensation coverage is provided for only co-employees of, but not subcontractors to Bleyl Interests, Inc. dba Bleyl Engineering.

CERTIFICATE HOLDER**CANCELLATION**

City of La Marque 1111 Bayou Rd La Marque TX 77568	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE David E. Carothers

© 1988-2015 ACORD CORPORATION. All rights reserved.

ACORD 25 (2016/03)

The ACORD name and logo are registered marks of ACORD



ADDITIONAL REMARKS SCHEDULE

AGENCY Aon Risk Services, Inc. of Florida		NAMED INSURED Questco Holdings, Inc. Client Name/Alt. Employer: Bleyl Interests, Inc. dba Bleyl Engineering 480 Wildwood Forest Drive, Suite 250 The Woodlands TX 77380	
POLICY NUMBER AMX-221-0001-007			
CARRIER State National Insurance Company, Inc	NAIC CODE 12831	EFFECTIVE DATE: 10/1/2024	

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 **FORM TITLE:** Certificate of Liability Insurance (03/16)

HOLDER: City of La Marque

ADDRESS: 1111 Bayou Rd La Marque TX 77568

Workers Compensation coverage is provided for only co-employees of, but not subcontractors to Bleyl Interests, Inc. dba Bleyl Engineering.

Additional Locations:

1722 Broadmoor Dr Ste 210, Bryan, TX 77802
 7701 San Felipe Suite 200, Austin, TX 78729
 10515 Rodgers Rd, Houston, TX 77070



STATEMENT OF QUALIFICATIONS FOR
**Engineering/Architectural/
Surveying Services**

Presented to: City of La Marque





Danieldale Road // Duncanville, Texas

TABLE OF CONTENTS

Cover Letter	2
Firm Introduction	3
Matters of Concern for the City of La Marque	5
Specific Services offered	7
Capacity to Perform	10
Project Experience	11
Organizational Chart	31
Resumes	32
List of Past Local Government Clients	55
Attachments	56

COVER LETTER



July 3, 2025

Dear Selection Committee,

**RE: Statement of
Qualifications
for Engineering/
Architectural/Surveying
Services**

TO:

Kierra Nance
City Clerk
City of La Marque
1111 Bayou Road
La Marque, Texas 77568

FROM:

Trent Perez, PE
Principal
832.465.3561
tperez@dunaway.com

Dunaway

12621 Featherwood Drive
Suite 200
Houston, Texas 77034

dunaway.com

As the City of La Marque considers trusted firms to provide professional engineering services, we appreciate that these firms are crucial to the success of your projects for years to come.

We understand the City's need for flexible, as-needed professional engineering and land surveying services, and we have the resources, experience, and qualifications to support the City's infrastructure projects during the design, study, and construction phases. Our in-house services, from surveying to engineering design, allow us to complete all project tasks efficiently and to your satisfaction.

The Dunaway team offers:

- **Veteran Design Team** – Our team has worked together on a wide variety of municipal projects for various public clients over the past decade, providing expedited plan production and cost-effective designs.
- **Streamlined Collaboration** – We provide a highly collaborative environment with flexible and accessible in-house and web-based communication, ensuring a responsive and efficient team.
- **Responsiveness** – We pride ourselves on being extremely responsive to our client's needs and their ongoing capital improvement programs, delivering high-quality design in a timely manner.

Dunaway is dedicated to delivering high-quality services and fostering a collaborative relationship with the City of La Marque.

We appreciate the opportunity to submit our qualifications and look forward to the possibility of working with the City of La Marque. Please feel free to contact us if you have any questions or require additional information.

Sincerely,

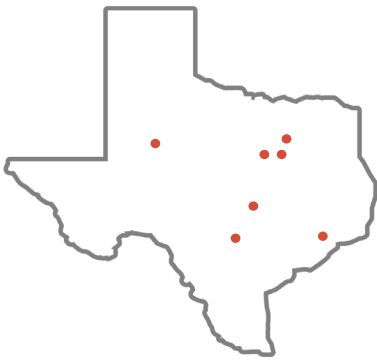
A handwritten signature in black ink that reads "TRENT PEREZ". The signature is stylized with a large, looped "P" and a distinct "T".

Trent Perez, PE
Principal



FIRM INTRODUCTION

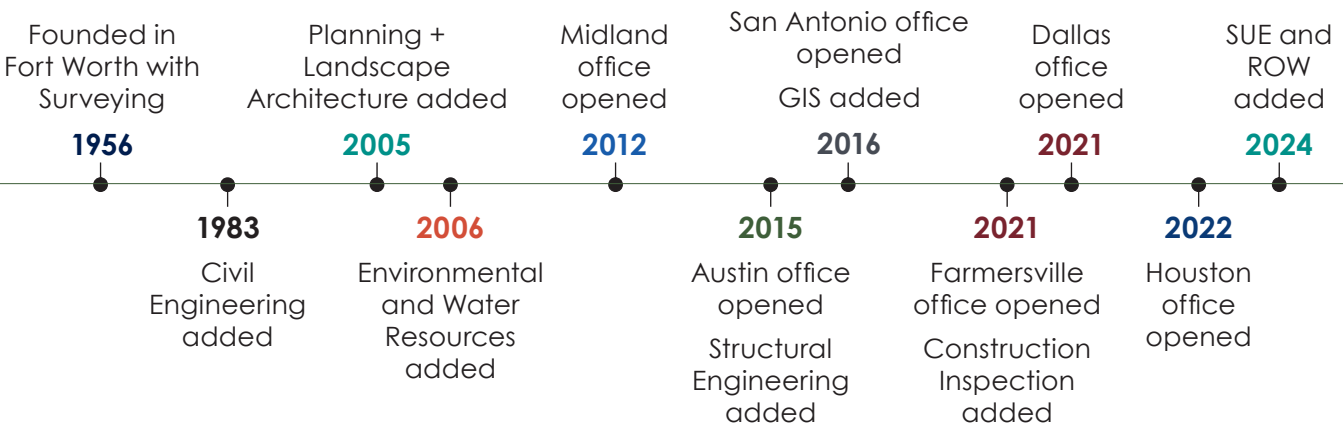
Dunaway opened our Fort Worth office in 1956, and we continue to build a solid diversified firm that is loyal to our clients. Founded and based in Fort Worth with offices in Austin, Dallas, Farmersville, Houston, Midland, and San Antonio, Dunaway has provided civil and structural engineering, planning, environmental, landscape architecture, GIS, surveying, ROW, and SUE services around the state of Texas for over 68 years.



- AUSTIN
- DALLAS
- FARMERSVILLE
- FORT WORTH
- HOUSTON
- MIDLAND
- SAN ANTONIO

12.02	AVERAGE YEARS OF EXPERIENCE	69	YEAR TENURE
88%	EMPLOYEE RETENTION	370+	EMPLOYEES
30	STATES LICENSED IN	80%	REPEAT CLIENTS

FIRM HISTORY



SERVICES PROVIDED:

- Civil Engineering
 - Structural Engineering
 - Planning + Landscape Architecture
 - Subsurface Utility Engineering (SUE)
 - Right-of-Way (ROW)
 - Survey
 - Construction Inspection
 - GIS
 - Environmental
-

PRIMARY REPRESENTATIVE FOR THE CITY OF LA MARQUE:

Trent Perez, PE will serve as the Primary Representative for the City of La Marque. As a Principal at Dunaway, Trent brings over two decades of experience in civil engineering, with a strong focus on municipal infrastructure and public works. Based in South Houston, he is a licensed Professional Engineer in the State of Texas and has led multidisciplinary teams on a wide range of projects involving roadway design, drainage improvements, and utility coordination. His deep technical knowledge, collaborative leadership style, and familiarity with the regulatory landscape make him well-suited to represent Dunaway's interests while aligning closely with the City's expectations. Trent's commitment to responsive service and high-quality project delivery will support a productive and results-driven partnership with the City.



MATTERS OF CONCERN FOR THE CITY OF LA MARQUE

Dunaway's team has the experience and expertise to serve the City of La Marque's unique engineering and surveying needs. While the scope of preliminary and final design plans and specifications may vary based on project type, our general approach remains consistent.

PRELIMINARY AND FINAL DESIGN PLANS + SPECIFICATIONS

PRELIMINARY DESIGN

During the Preliminary, or Feasibility Phase, we meet with City leaders and staff to discuss project scope, priorities, and objectives. We take pride in dedicating extra time at the beginning of every project to listen to stakeholders, learn the history of the area, and gather all available information. Our goal is to gain the most complete understanding possible to ensure we deliver solutions that best serve the community's needs.

With this foundation, we evaluate the project's scope, budget, and schedule to confirm each is sufficient to meet the City's expectations. If any feasibility concerns are identified, Dunaway will immediately notify the City to allow ample time for decisions or adjustments early in the process.

Following the Preliminary Phase, we advance to the Design Development Phase, generally referred to as the 30% design stage. At this point, we prepare a conceptual design to assess project fit, identify potential challenges, and perform initial detailed calculations. This stage provides an excellent opportunity to visualize the project, engage with stakeholders, and proactively address any concerns. We also use this stage to prepare an initial project manual, which includes draft specifications, unit price bid documents, and preliminary construction contract terms.

FINAL DESIGN

Building on the 30% plans, we progress to 50% and 90% design submittals, incorporating City staff feedback at each stage. At the 90% milestone, we submit plans to all applicable agencies for review, which may include the US Army Corps of Engineers (USACE), TxDOT, Texas Commission for Environmental Quality (TCEQ), Galveston County Drainage District No. 2, pipeline companies, railroads, and of course, the City of La Marque. After addressing all agency comments, we deliver the Final Design plans as a complete Issue for Bid (IFB) set.

SPECIFICATIONS

Dunaway will provide a Construction Manual to accompany the 100% IFB set. This manual includes all required general and special specifications, a list of associated quantities for bidding purposes, and construction contract documents in accordance with City requirements.

PREPARATION OF THE BID PACKET

Dunaway will assist the City of La Marque with preparing and advertising bid documents to solicit qualified contractors. During the bidding process, our team will assist in organizing and hosting a pre-bid meeting, addressing questions from potential bidders, and issuing any necessary addenda. After receiving bids, Dunaway will evaluate each proposal, confirm bidder qualifications, and provide a recommendation to the City for contract award. An engineer's construction cost estimate will be prepared in advance to serve as a benchmark for comparing bids and ensuring alignment with current market conditions.

FIELD TESTING AND INSPECTIONS

The level of testing and inspection varies depending on the type of construction project. For example, floodplain mitigation ponds may require minimal inspection, while roadway and utility projects demand frequent, scheduled inspections and a variety of tests. Dunaway will coordinate all required tests and inspections, utilizing either our in-house inspectors or selected subcontractors. Our experienced team will also manage Requests for Information (RFIs), Product Submittals, and Change Orders, ensuring their validity and providing prompt, informed responses.

In short, Dunaway is committed to supporting the City of La Marque from project initiation through completion, providing reliable, comprehensive service every step of the way.

ADDITIONAL SERVICES

As a full-service multidisciplinary firm, Dunaway offers more than civil design and surveying. We can provide the City of La Marque with a wide range of services to meet its needs.





SPECIFIC SERVICES OFFERED

CIVIL ENGINEERING

- Comprehensive Plans
- Master Planning and Land Use Plans
- Due Diligence/Feasibility Study
- Entitlement Services
- Site Design Engineering
- Permitting Services
- Drainage and Stormwater Management
- Hydraulics + Hydrology
- Water and Sewer Treatment
- Elevated Storage Tanks
- Water Transmission and Distribution
- Pumping, Lift and Booster Stations
- Traffic and Transportation Engineering
- Environmental Planning and Permitting
- Wetland and Stream Restoration

PLANNING + LANDSCAPE ARCHITECTURE

- Comprehensive Planning
- Urban and Master Planning
- Aquatics, Spraygrounds, and Water Features
- Parks and Recreation
- Trails and Greenways
- Site Planning
- Planting and Softscape features
- Hardscape
- Site Lighting
- Urban Forestry Permitting
- Irrigation and Water Management
- Landscape Ordinance Development

SURVEY

- Boundary Survey
- Construction Staking
- Deed Research
- Right-of-Way Surveys
- Platting
- Certified Drone Pilots
- Topographic Surveys
- Utility + Infrastructure Services
- Energy Services
- Terrestrial Lidar Scanning

GIS

- Facility Management
- Land Use Planning
- Event Planning
- Operational Management
- Real Estate Assessments
- Emergency Operations
- Resource Allocation and Planning
- Police and Emergency Dispatch
- Transportation Analysis
- Citizen Services
- Risk Compliance
- ArcGIS Online, Enterprise, and Portal Implementation

SUBSURFACE UTILITY ENGINEERING AND UTILITY COORDINATION (SUE)

- Engineering/Field Observation
- Field Inspection
- Post-Construction Evaluations
- Project Controls
- Quality Levels A-D
- Utility Mapping Coordination
- Utility Portal



QUALITY ASSURANCE PROGRAM

Dunaway enforces a Quality Assurance and Quality Control (QA/QC) plan on every project. QA/QC procedures are performed at every stage of the project delivery process, from the pre-conceptual plan through final submittal. Our QA/QC staff is involved in all phases of the project from the beginning kick-off meeting through project closeout. We have established a formal QA/QC program that achieves the following critical elements:



QUALITY CONTROL is a detailed review performed by specific and specialized members of the project team to check the accuracy of the work product. Checklists and reviews are planned for the life of the project, at each phase and/or task. These processes can be customized based on the standards and processes defined by the client.

QUALITY ASSURANCE is performed by a senior-level staff member to help ensure that the deliverables meet the contract requirements, meet the project plan, satisfy the client's expectations, are constructible, and meet our standards for quality. We provide the QA function for the sub-consultant team members. Based on the QC processes determined at the start of the project, QA occurs before key submittals. In-house documentation of the QA/QC activity must be completed before deliverables are submitted to the client.

The mission of the QA/QC team is to remain independent of the production team and to ensure the delivery of a quality product, and each project has a dedicated task lead for QA/QC. Each project and client requires its own unique QA/QC process. Dunaway customizes internal processes checked against client needs, standards, and procedures. Newforma Project Center and Bluebeam Revu are integrated into the QA/QC process to provide efficient tracking of important project information. Newforma enables searches of all project files from a unified dashboard, streamlines workflows, manages project deliverables with reporting and proactive accountability, as well as enables collaboration while tracking, logging, and preserving project audit trails. Bluebeam Revu speeds up design reviews by allowing project partners to mark up and collaborate on the same documents in real-time, at any time, with built-in QA/QC functionality, quantity take-offs, mark-up and editing tools, hyperlinking, and visualization

ABILITY TO PROVIDE SERVICES IN A TIMELY MANNER:

Our management team understands that planning and keeping a schedule are paramount to delivering a successful project. At the start of every project, we intentionally evaluate scheduling goals with our clients, work with them to establish realistic milestones, and discuss acceleration strategies if needed. Once goals are identified, the team will prepare a schedule, which becomes a living document updated regularly and discussed with the client at key points throughout the project timeline.

PROACTIVE AND RESPONSIVE COMMUNICATION:

Key to our success is strong project management, close coordination with City staff, and regular status meetings to maintain clear communication and understanding of project expectations. Consistent communication during design minimizes rework, and thorough QA/QC maximizes design economy and minimizes change orders, resulting in a cost-effective product. We understand our clients need to receive timely information on individual and assigned projects. We will use various methods for day-to-day communication, always focusing on the city's needs. Most communication is accomplished by:



PHONE CALLS: Efficient and cost-effective for direct, immediate communication. Our team handles a wide range of inquiries promptly and effectively, fostering a personal connection.



TELECONFERENCING: Ideal for large groups and sharing exhibits without meeting in person. We use Microsoft Teams, Zoom, and Google Meet to facilitate seamless communication and collaboration, regardless of participants' locations.



IN-PERSON AND SITE MEETINGS: We are available for council and board meetings, site visits, and public meetings. Our proximity to the City of La Marque allows us to provide immediate support and address any concerns promptly and effectively.

LOCAL PRESENCE:

Our two offices in Houston work together simultaneously with our other Texas office locations as needs arise for clients. Please see our staff available to help below:

69	CIVIL ENGINEERING
21	PLANNING + LANDSCAPE ARCHITECTURE
44	LICENSED ENGINEERS

4	GIS + ENVIRONMENTAL
29	SURVEY
38	CORPORATE SUPPORT

CAPACITY TO PERFORM

Dunaway's team is fully and uniquely qualified to fulfill any engineering and survey needs for the City of La Marque. We have included an extensive list of relevant projects as part of this Statement of Qualifications to demonstrate the breadth and depth of our team's expertise.

Dunaway and all of our licensed and certified professionals remain in good standing with the State of Texas and all applicable accrediting agencies.

Our long history has given us the privilege of working on projects funded through a variety of sources, including federal agencies such as Community Development Block Grants (CDBG) and FEMA. We have also delivered numerous projects funded by the State of Texas, whether directly through agencies like TxDOT or through programs such as Safe Routes to Schools and the Texas Water Development Board.

Dunaway proudly serves communities across Texas, including our expanded presence in the Gulf Coast Region. The acquisition of PRD Land Development Services, LLC added significant expertise in addressing the unique challenges of the Houston/Galveston area. Our experience in this region includes publicly funded projects for Galveston County, the City of Alvin, the City of Pearland, Texas City ISD, and Clear Creek ISD, among others. We have also completed countless privately funded subdivision and commercial developments across the region.

Dunaway is fully prepared and qualified to support projects funded by any source, including federal agencies. We have never been, nor are we currently, disbarred from performing work for any agency.

DISADVANTAGE BUSINESS ENTERPRISE (DBE) GOALS

Dunaway recognizes and supports the goal of providing historically underutilized, minority-owned, and woman-owned businesses the opportunity to participate in meaningful projects such as those being considered by the City of La Marque. We maintain a strong network of specialty engineers, surveyors, and vendors within these categories, with whom we have built positive and productive working relationships. Dunaway is confident in our ability to meet any DBE participation goals the City of La Marque may require for its projects.

SAMPLE CONTRACT RECOGNITION

Dunaway and its legal counsel recognize the inclusion of a sample contract as part of the City of La Marque's RFQ solicitation. Given that this sample contract provides numerous references and provisions that are project-specific, Dunaway will reserve the right to review and modify each contract as they are awarded. This will allow both the City of La Marque and Dunaway flexibility to amend the contract to meet the specific needs of the project and reflect potential changes in State Law and Local Ordinances.



PROJECT EXPERIENCE

ROADWAY PROJECT EXPERIENCE

TRAIL DRIVE EXTENSION

Fort Worth, Texas

COMPLETED:

2020

COST:

\$5.51 Million (construction)

SERVICES PROVIDED:

CAD plans; In-house survey; Franchise utilities; Construction admin; Roadway, pavement, storm sewer, and pavement markings design; Traffic analysis; Traffic and transportation engineering; Hydrologic; Hydraulic; Cost estimating

TEAM:

Don Szczesny, PE, PTOE
Alan Moore, RPLS
Kervin Campbell, PE
Tanner Underwood, PE
Quinten Plumer, PE
Daniel Tremper, PE
Josh Wright, PE
Mark Yale, RPLS

REFERENCE:

Leon Wilson

Senior Professional Engineer, City of Fort Worth
200 Texas Street
Fort Worth, Texas 76102
817.392.8883



Trail Drive Extension is a newly constructed 3,000 linear foot neighborhood connector that extends Trail Drive from University Drive to Lancaster Avenue. This roadway was constructed through an existing parking lot providing connectivity between the entertainment district and stock show venues to the south. Farm House Way is a newly constructed street that connects the Trail Drive Extension to Foch Street and Trinity Park to the east.

Dunaway closely collaborated with the Fort Worth Independent School District, the City of Fort Worth, and Tarrant County on the design coordination of the Trail Drive Extension roadway, while incorporating the stakeholders' needs into the roadway design whenever possible.

The roadway includes parkway landscaping and trees, lighting, and 10- and six-foot sidewalks with enhanced stamped and stained concrete in the pedestrian walkways. This high-profile project provides improved access to one of Fort Worth Independent School District's most historic football stadiums, in addition to providing greater overall event access and functionality to the FWISD schools surrounding infrastructure and land.

COLLEGE PARK ROUNDABOUT

Weatherford, Texas

2017
APWA TEXAS
CHAPTER
PROJECT OF
THE YEAR



COMPLETED:
2019

COST:
\$784,147 (construction)

SERVICES PROVIDED:
CAD plans; Franchise utilities; Construction admin; Roadway, pavement, storm sewer, and pavement markings design; Traffic analysis; Traffic and transportation engineering; Hydrologic; Hydraulic; Cost estimating

TEAM:
Quinten Plumer, PE
Anita Beard, PLA, ASLA
Don Szczesny, PE, PTOE
Kervin Campbell, PE

REFERENCE:
Chad Marbut
CIP Manager, City of Weatherford
119 Palo Pinto Street
Weatherford, Texas 76086
817.598.4000

Dunaway provided civil engineering and landscape architecture services to design a roundabout at the southern entrance to Weatherford College. This prominent intersection of College Park Drive and Martin Drive not only serves as a vehicular gateway to the college but also as a major pedestrian connection between the main campus and key destinations like off-campus housing and baseball/softball fields. Dunaway developed construction documents for the design of paving, underground storm drain, signing and pavement markings, street lighting, hardscape paving, pedestrian walkways, landscape planting and irrigation, ornamental elements, structural walls, and public easements. Dunaway also assisted the city during the bid phase by serving as bid host. During construction Dunaway performed construction administrative services for the city and responsively communicated with the contractor and city inspectors.

COOKS LANE AND EDERVILLE ROAD SIGNAL IMPROVEMENTS

Fort Worth, Texas



COMPLETED:
2020

COST:
\$382,900 (construction)

SERVICES PROVIDED:
CAD plans; In-house survey; Franchise utilities; Construction admin; Signals and signage design; Cost estimating; Traffic and transportation engineering

TEAM:
Daniel Tremper, PE
Josh Wright, PE
Alan Moore, RPLS
Don Szczesny, PE, PTOE

REFERENCE:
Lissette Acevedo
Program Manager, City of Fort Worth
200 Texas Street
Fort Worth, Texas 76102
817.392.7862

As part of a design project for the City of Fort Worth, Dunaway designed a traffic signal at the intersection of Cooks Lane and Ederville Road in Fort Worth. Our team was also tasked to prepare a traffic signal warrant analysis to determine if the existing traffic volumes met any of the traffic signal warrants. The intersection was previously a four-legged unsignalized intersection operating as an all-way stop controlled intersection. The new traffic signal is fully actuated and includes Wavetronix detectors for vehicle detection. In addition to the design of the traffic signal, the Dunaway team also designed sidewalk improvements to a nearby Metro Trinity bus stop and intersection improvements, including realigning the north and southbound left-turn lanes to provide safer operations.

Duncanville, Texas



COST:

SERVICES PROVIDED:

CAD plans; Franchise
utilities; Construction
admin; Traffic analysis;
Traffic and transportation
engineering

TEAM:

Josh Wright, PE
Don Szczesny, PE, PTOE
Quinten Plumer, PE
Daniel Tremper, PE

REFERENCE:

Matt Bryant

Assistant Director of Public
Works, City of Duncanville
203 E. Wheatland Road
Duncanville, Texas 75138
972.780.5015

Dunaway was tasked by the City of Duncanville to perform an operational analysis along Cedar Ridge Drive from IH 20 to Santa Fe Drive to determine the feasibility of reducing the overall number of lanes along the corridor. Cedar Ridge Drive is currently a six-lane divided roadway and the City of Duncanville wanted to examine the potential impacts along the corridor with a reduction to a four-lane divided roadway. Traffic volumes were collected at nine intersections during morning, afternoon, and evening peak periods and traffic models were developed using Synchro to establish the existing conditions along the corridor and which were field verified. During the operational analysis, it was determined that the southern section of the study corridor could be reduced with minimal impact, but the section of Cedar Ridge Drive near Duncanville High School needed to remain a six-lane roadway. Operational improvements were identified along the corridor that would improve operations without impacting capacity at various intersections. The recommendations from the operational analysis are being incorporated into a roadway design project for the middle section of the corridor.

OAK POINT PARK LOMR

Plano, Texas



COMPLETED:

2022

COST:

\$10 Million (construction)

SERVICES PROVIDED:

CAD plans; In-house survey; Franchise utilities; Construction admin; LOMRs; Cost estimating; Final platting

TEAM:

Daniel Tremper, PE
Anita Beard, PLA, ASLA
Josh Wright, PE
Kervin Campbell, PE
Alan Moore, RPLS
Mark Yale, RPLS
Derek Sellers, PE, CFM

REFERENCE:

Liz Del Turco

Landscape Architect
Supervisor, City of Plano
Parks Department
5901 Los Rios Boulevard
Plano, Texas 75074
972.941.7152

Over the past several years, Dunaway team members have worked with the City of Plano and other consultants on multiple phases of design improvements at Oak Point Park and Nature Preserve, one of the most spectacular natural resources in the city's park system.

Dunaway provided civil engineering, flood study/hydraulic engineering, landscape architecture, and surveying services for the Nature and Retreat Center facility to be programmed for private group rentals, hosting school outings, and to serve as the new home of the Parks and Recreation Department. Dunaway design services included design and engineering of all site improvements including drives and roadways, utilities, trails, outdoor classroom spaces, and planting/irrigation with an emphasis on a native plant palette that will be suitable for educating Plano citizens and visitors to the park.

WATER PROJECT EXPERIENCE

RIC WILLIAMSON MEMORIAL HIGHWAY WATERLINE

Weatherford, Texas



COMPLETED:

2018

COST:

\$1 Million (construction)

SERVICES PROVIDED:

CAD plans; In-house survey; Franchise utilities; Construction admin; Water main design; Pipe jacking; Directional boring; Cost estimating; TxDOT utility permitting

TEAM:

Alan Moore, RPLS
Daniel Tremper, PE
Tanner Underwood, PE
Kervin Campbell, PE

REFERENCE:

Richard Shaffer

Director of Water Utilities,
City of Weatherford
917 Eureka Street
Weatherford, Texas 76086
817.598.4473

Dunaway provided civil design services for 1.5 miles of proposed 12- and 16-inch waterline for the City of Weatherford to extend their water service area west to the Ric Williamson Memorial Highway. The city had recently annexed additional property into city limits and pending land development in the area was spurring the need for new water service on the west side of the city.

The main project challenge was that the AT&T fiber lines were buried right where TxDOT wanted the proposed 16-inch waterline to go within their right-of-way. We were able to work around the fiber optic lines to avoid project delays, and developed an acceptable waterline alignment while keeping the project on schedule with the city.

This project was completed on schedule and under budget. Communication with all parties involved was key in making sure we had approval from the State, Union Pacific Railroad, and city staff.

PRESTON PGA ELEVATED STORAGE TANK

Frisco, Texas



COMPLETED:

2025 (currently under construction)

COST:

\$14 Million (construction)

SERVICES PROVIDED:

CAD plans; In-house survey; Franchise utilities; Construction admin and inspection; Elevated storage design; Cost estimating

TEAM:

Daniel Tremper, PE
Mark Yale, RPLS
Jazmin Venegas, PE
Anita Beard, PLA, ASLA
Tanner Underwood, PE
Bryan Sherrieb, PE
Alan Moore, RPLS
Nick Stevens, EIT

REFERENCE:

Matt Phillips

*Sr. Civil Engineer,
City of Frisco
6101 Frisco Square Blvd.
Frisco, Texas 75034
972.292.5430*

Dunaway is providing engineering services for the Preston Road/PGA Parkway 2.5 MG Elevated Storage Tank for the City of Frisco. Our services include survey, environmental permitting, tree survey, tank and civil design, landscaping design, site plan and plat submittals, bid phase services, general construction representation services, and tank inspection services. In addition to the tank improvements the project includes design of other infrastructure needed for the site.

CANYON CREEK PUMP STATION

Granbury, Texas



COMPLETED:

2022

COST:

\$1 Million (construction)

SERVICES PROVIDED:

CAD plans; In-house survey; Franchise utilities; Construction admin and inspection; Pump station design; Cost estimating

TEAM:

Daniel Tremper, PE
Tanner Underwood, PE
Josh Wright, PE

REFERENCE:

Darryl Waldock

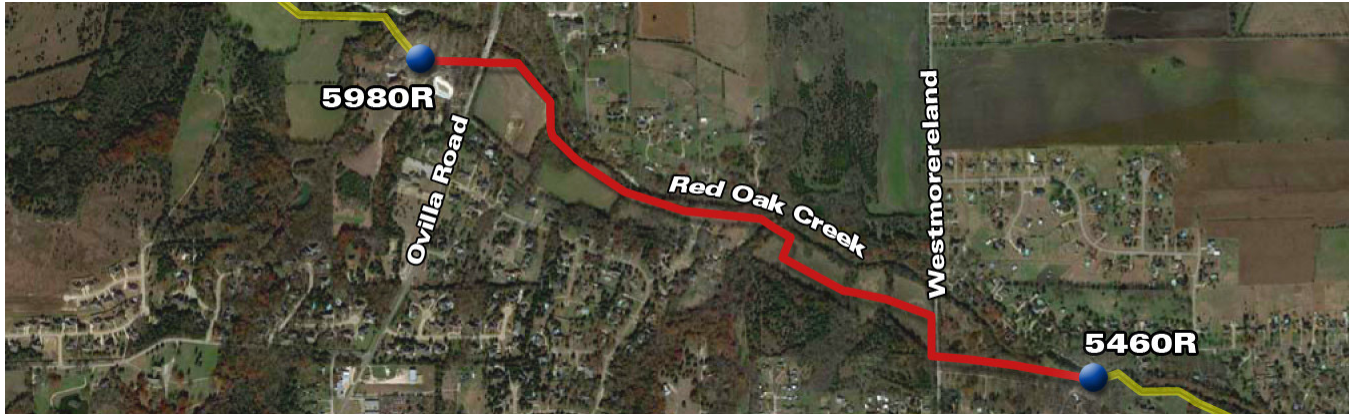
Area Manager - North Texas, Aqua Texas, Inc.
3201 Curtis Drive
Fort Worth, Texas 76116
817.367.1401

Canyon Creek housing addition, near Lake Granbury, is experiencing rapid growth. Aqua Texas, water utility supplier for Canyon Creek, contracted with Dunaway to analyze what improvements needed to be made to the additions aging and undersized water distribution system. Dunaway designed an entire pump station with booster pumps, hydrodynamic tanks, corrosion treatment, and liquid chlorine disinfection.

WASTEWATER PROJECT EXPERIENCE

RED OAK CREEK RELIEF RO-3 INTERCEPTOR DESIGN

Ovilla, Texas



EST. COMPLETION:

2027

COST:

\$5.7 Million (construction)

SERVICES PROVIDED:

CAD plans; In-house survey; Franchise utilities; Construction admin; Wastewater main design; Directional boring; Pipe jacking; Tunneling; Cost estimating

TEAM:

Nick Stevens, EIT
Josh Wright, PE
Daniel Tremper, PE
Mark Yale, RPLS
Kervin Campbell, PE
Tanner Underwood, PE

REFERENCE:

Blayne Johnson

Assistant Manager,
Engineering Services,
Trinity River Authority of
Texas
5300 S. Collins Street
Arlington, Texas 76018
817.493.5100

Dunaway designed over 8,700 linear feet of 27- to 30-inch PVC sanitary sewer relief Interceptor pipeline designated as Segment RO-3. The scope of this project included topographic survey, geo-electrical subsurface imaging and geotechnical investigations, SUE and relocation coordination, structural design of aerial crossings, pipe and embedment design, land rights coordination, TxDOT and county floodplain permitting, tree ordinance coordination, and preparation of final construction plans and technical specifications.

Dunaway worked closely with the Trinity River Authority (TRA) land rights team to secure a number of easements at key access points across properties that added value to the project. This project allowed our team to meticulously assess each property, recognizing the significance of protected trees, cherished meadows, and features significant to each owner. We then worked closely with TRA staff and property owners to craft a pipeline alignment that respected these valued elements. Through careful communication and collaboration, we achieved a win-win scenario, ensuring the project's progress without disturbing a single piece of cherished land.

WALSH RANCH WALNUT CREEK WASTEWATER INTERCEPTOR EXTENSION

Fort Worth, Texas



COMPLETED:
2024

COST:
\$10.4 Million (construction)

SERVICES PROVIDED:
CAD plans; Franchise utilities; Construction admin; Wastewater main design; Cost estimating; Railroad crossing permitting

TEAM:
Josh Wright, PE
Nick Stevens, EIT
Daniel Tremper, PE
Kervin Campbell, PE

REFERENCE:
Tony Sholola
Assistant Water Director,
City of Fort Worth
200 Texas Street
Fort Worth, Texas 76102
817.392.6054

The City of Fort Worth continues to grow westward at a high level. To serve the needs of future residents and businesses of west Fort Worth, the city constructed 12,000 linear feet of new 27- to 30-inch sanitary sewer interceptor. Dunaway designed this new interceptor in two phases. This project required close coordination with the City of Fort Worth, UPRR, TxDOT, and Tarrant County.

HARMONSON ROAD 18-INCH SANITARY SEWER REPLACEMENT

Fort Worth, Texas



COMPLETED:

2018

COST:

\$466,000 (construction)

SERVICES PROVIDED:

CAD plans; In-house survey; Franchise utilities; Construction admin; Wastewater main design; Cost estimating

TEAM:

Alan Moore, RPLS
Tanner Underwood, PE
Daniel Tremper, PE
Kervin Campbell, PE

REFERENCE:

Brad Hearne

Program Manager, Tarrant County
1509B S. University Drive,
Suite 276
Fort Worth, Texas 76107
817.850.7942

When a simple repair of a 35-year-old damaged sanitary sewer line was not a viable option, the City of North Richland Hills requested that Dunaway design and replace approximately 2,000 linear feet of an existing 18-inch line within Harmonson Road. With no previous plans, our team utilized video capabilities to help locate most of the existing four-inch service connections to the transmission main. Field surveys located clean-outs for each property. Video was also used to review existing condition, revealing a large obstruction. Our team's design successfully avoided a newly constructed four-foot wide sidewalk at the surface level, directly adjacent and buried to, the sanitary sewer line. The alignment of the line was designed to allow as much space possible between the trench wall and sidewalk. The new sanitary sewer line is more accessible with additional manholes and drop-manholes to receive lateral lines.

Evaluating the existing CCTV footage was challenging, as there was a large obstruction in the existing line. The video didn't have distances called out, therefore our team had to make assumptions on how far the camera had traveled down the pipe and count services per each lot passed. Another challenge we overcame was the proximity to a major creek and culvert crossing, necessitating bypass pumping during construction.

DRAINAGE PROJECT EXPERIENCE

ON-CALL CITYWIDE DRAINAGE REHAB

Fort Worth, Texas

COMPLETED:

2016 - Ongoing

COST:

\$300,000 (professional services fee)

SERVICES PROVIDED:

On-Call Civil Engineering

TEAM:

Daniel Tremper, PE
Josh Wright, PE
Derek Sellers, PE

REFERENCE:

Linda Young
TPW Capital Delivery
City of Fort Worth
200 Texas St.
Fort Worth, Texas 76102
817.392.7862



As part of an ongoing on-call service agreement, the City of Fort Worth engaged Dunaway to support project development and prepare construction documents for storm drain rehabilitation projects. The primary objective was to evaluate feasibility and constructibility during preliminary design and accelerate delivery of final documents for repairing or installing drainage infrastructure at multiple sites throughout the City.

PROJECTS PERFORMED HAVE INCLUDED:

- Design of closed and open storm drain systems to alleviate localized flooding issues.
- Conceptual design of in-line trash removal/water quality systems.
- Design of erosion repair improvements along natural creeks.
- Drainage easement research/documentation.
- Preparation of drainage easement and temporary construction easement documents.
- Project development/design for closed storm drain realignment projects.
- Development of project priority ranking system for closed storm drain system rehab project utilizing ground penetrating radar.
- Compiled bid item list and documents for on-call storm drain construction projects.

PARKS PROJECT EXPERIENCE

MARY WILL CRAIG PARK IMPROVEMENTS

McKinney, Texas

COMPLETED:

2023

COST:

\$2.5 Million (construction)

SERVICES PROVIDED:

Trails and walkways, site, playground, tennis court, and skate park design

TEAM:

Alan Moore, RPLS
Arron Law, PLA, ASLA
Brad Moulton, PLA, ASLA

REFERENCE:

Jenny Baker

*Parks, Planning, and
Development Manager,
City of McKinney*
1611 N. Stonebridge Drive
McKinney Texas, 75071
972.547.2644



2023
TRAPS
NORTH REGION
PARK DESIGN
EXCELLENCE
AWARD

Mary Will Craig Park is a 10-acre neighborhood park that experienced a complete renovation in 2023. Originally opened in 1998, this renovation project allowed the City to make significant changes to the park's design and flow for a better visitor experience.

Park improvements included a new playground with poured-in-place surfacing, a skate spot, ballfield enhancements, a barrier-free playground with asphalt running track, full use baseball diamond, open turf play area, existing basketball court enhancements, an ADA portable restroom, and landscape/irrigation enhancements. The poured-in-place surfacing allowed the City an opportunity to have an ADA-accessible playground.



RICHARDSON PARKS, RECREATION, AND OPEN SPACE MASTER PLAN

Richardson, Texas

COMPLETED:

2023

COST:

\$235,275 (professional services fee)

SERVICES PROVIDED:

Master planning (parks)

TEAM:

Brad Moulton, PLA, ASLA

REFERENCE:

Shohn Rodgers

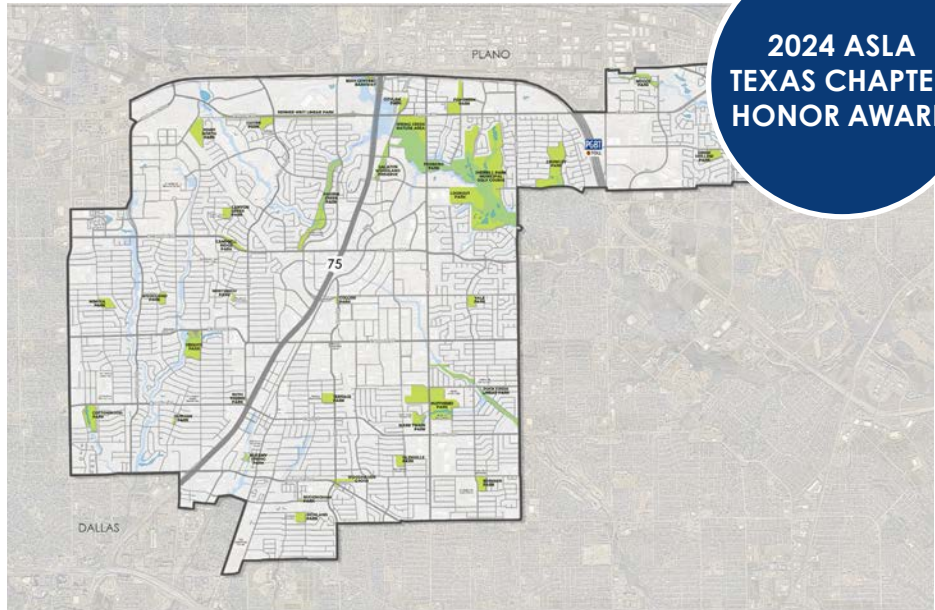
Assistant Director of Parks and Planning, City of Richardson

2360 Campbell Creek

Bld. Suite 550

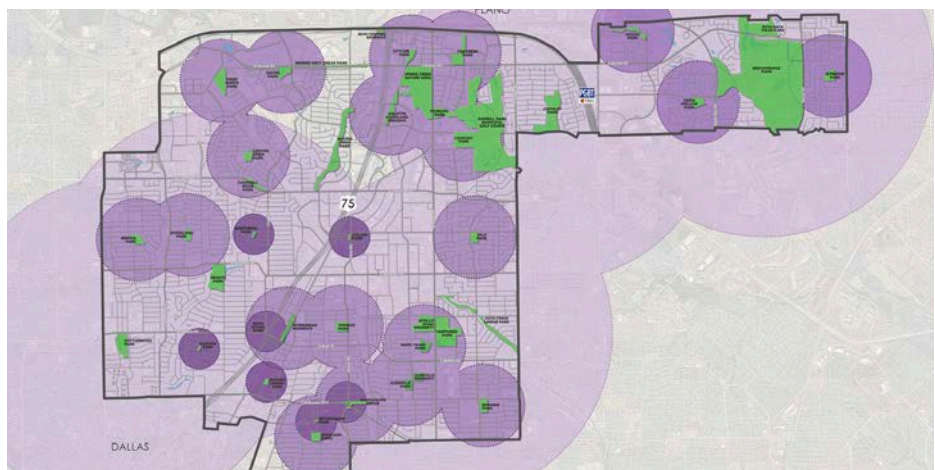
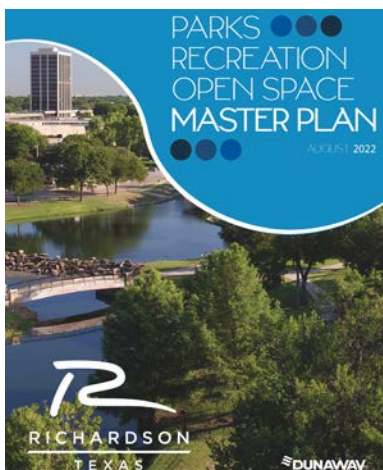
Richardson, Texas 75082

972.744.4300



Dunaway worked with the City of Richardson to update their Parks, Recreation, and Open Space Master Plan. Uniquely, the city's park system was almost fully built-out, so key priorities and strategies were critical for keeping Richardson's system as one of the best in North Texas. In the first phase, the Dunaway team engaged residents and key stakeholders in four focus groups and two open houses. This strong involvement by the community was followed-up with an online citizen survey available for all residents.

This far-reaching master plan will help guide the city in both redevelopment and new development of park resources, as well as expanding public and private civic spaces. The master plan also addresses short-term and long-term needs, focusing on parks, trails, aquatics, facilities, urban plazas, open space, and recreational programming over the next 5-10 years.



FRONTIER PARK NORTH

Prosper, Texas

COMPLETED:

2019

COST:

\$8.6 Million (construction)

SERVICES PROVIDED:

Trails and walkways,
parking lot, site,
playground, and
sports complex design;
Conceptual planning;
Master planning (parks);
SWPPPs; Pedestrian bridge
design and engineering

TEAM:

Anita Beard, PLA, ASLA
Daniel Tremper, PE
Alan Moore, RPLS
Tanner Underwood, PE

REFERENCE:

Kurt Beilharz

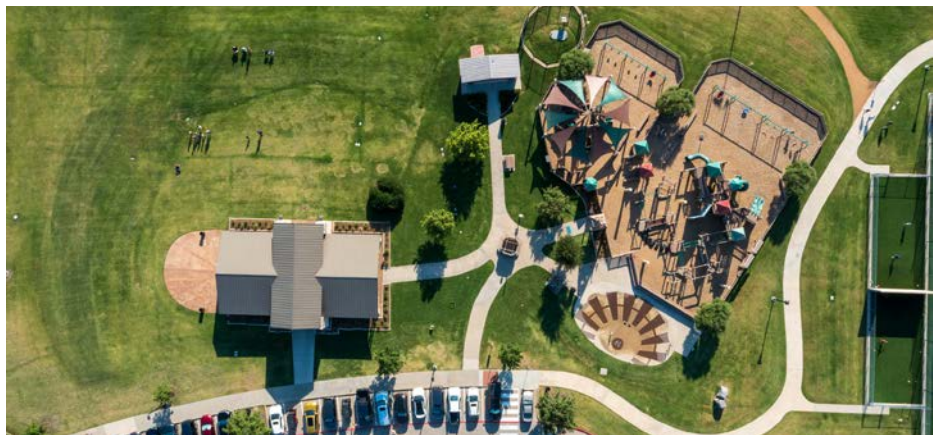
Assistant Director, Town of
Prosper

407 E. First Street
Prosper, Texas 75078
972.569.1063



In response to increasing demand for field use at Prosper's signature sports complex, town leaders and staff engaged Dunaway to prepare design development drawings and construction documentation for a new expansion at the northern edge of the park. Features include a new ballfield triplex with a restroom/concession area and shaded terrace seating, as well as fenced multi-use field areas. The new fields are finished with artificial turf surfacing to maximize play time and reduce long term maintenance expenses. Also included are parking improvements, town-wide trail network connections, and a passive lakeside picnic area.

With a previous firm, Dunaway team members also developed an overall master plan for Frontier Park in addition to phase one design development.



CAMPION TRAILS UNIFICATION

Irving, Texas

COMPLETION:

2025 (Phase 1 currently under construction)

COST:

\$10.5 Million (construction)

SERVICES PROVIDED:

Trails and walkways and site design; Conceptual planning; Master planning (trails); SWPPPs; Pedestrian bridge design and engineering

TEAM:

Arron Law, PLA, ASLA
Quinten Plumer, PE
Kervin Campbell, PE
Mark Yale, RPLS

REFERENCE:

Gene Moulden

Senior Landscape
Architect, City of Irving
825 West Irving Blvd.
Irving, Texas 75060
972.721.2712



Dunaway led a multidisciplinary team in designing the high-profile trail connection for Campion Trails along the Elm Fork and West Fork of the Trinity River. The Campion Trail system has become one of the most popular corridors in the North Texas region, with over 15 miles in the current system. Dunaway designed the missing “center” link of approximately six miles, completing the 22-mile trail connection that was originally envisioned back in 1995. The new development includes numerous low water crossings, some major pedestrian bridges spanning the river, and themed trailhead amenities at various stopping points. The team is also part of the extensive coordination with agencies such as the U.S. Army Corps of Engineers, Irving Flood Control District #1, Trinity River Authority, TxDOT, and the City of Dallas.



CIVIC FACILITIES PROJECT EXPERIENCE

ALVIN FIRE AND EMS STATION NO. 1

Alvin, Texas

COMPLETED:

2021

COST:

\$11 Million (construction)

SERVICES PROVIDED:

CAD plans; Site grading design; Floodplain analysis and mitigation; Drainage design; SWPPP's; Driveway and emergency vehicle access; Paving design; Utility design; Permitting and coordination

TEAM:

Trent Perez, PE
Robert Farnie, PE

REFERENCE:

Joby Copley

Executive vice President
Joiner Architects, Inc.
700 Rockmead Dr.,
Suite 265
Humble, TX 77339
281.359.6401



Alvin Fire and EMS Station No. 1 is a state-of-the-art, dual-purpose facility that houses both the Alvin Volunteer Fire Department and the Alvin Emergency Medical Services Department. The City of Alvin previously selected a 4.38-acre site adjacent to Mustang Bayou, which was initially six feet below the 100-year floodplain elevation and two feet below the 500-year floodplain. As a critical facility, it was essential for the building to remain operational under the most extreme conditions. Therefore, the building was required to be elevated above the 500-year floodplain, and the site design was meticulously planned to ensure emergency vehicle access during the most severe conditions.

The Dunaway team, formerly known as PRD Land Development Services, expertly coordinated the complex design process with the City of Alvin staff and the local drainage district to meet all necessary criteria. The project was successfully completed on time, within budget, and without complications.



CEDAR PARK PUBLIC LIBRARY

Cedar Park, Texas

COMPLETION:

2024

COST:

\$31 Million (construction)

SERVICES PROVIDED:

CAD Plans; Civil site planning and design; Drainage Design, SWPPP's; Paving design; Utility design, Permitting and coordination

TEAM:

J Segura, PE
Michael Mullone, PE,
CESSWI, CFM, CPESC
Laura Toups, PE
Gilberto Mota, PE
Simon Tseng, PE
Austin Carr, PE

REFERENCE:

Jim Adams, AIA, LEED AP

*McCann-Adams Studio
President*

1905 Aldrich St.,
Suite 140
Austin, Texas 78723
512.732.0001



Located in Cedar Park, approximately 16 miles northwest of Austin along US-183, is the Bell District, a new destination offering a fresh take on a walkable, mixed-use development. The Bell District is just one component of the Bell Boulevard Redevelopment Plan which aims to address community concerns and aid in economic growth for the city.

Dunaway partnered with McCann-Adams Studios on the Cedar Park Public Library, providing civil engineering services, including grading and utilities for the 47,000-square-foot library.

Dunaway worked closely with the architect, landscape architect, and City of Cedar Park staff to expedite comment responses, resulting in a review time of just five months. This collaboration extended to the Bell District developer, RedLeaf Properties, enabling the library design to adapt to the changing constraints of the district.



REFERENCES:

YUKON ROAD EXTENSION

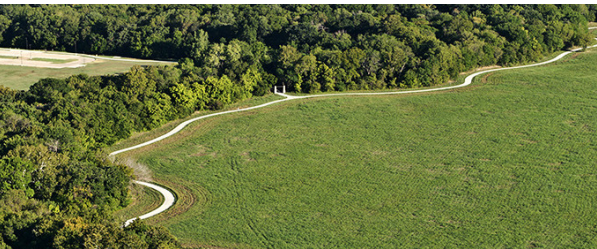
Midland County, Texas | 2018- 2022 | \$5.1 Million

The 3.5-mile extension of Yukon Road enhances connectivity and alleviates traffic between SH 191 in Odessa and SH 349 at the Midland International Air and Space Port in Midland. This project required coordination with multiple municipalities, TxDOT, surrounding landowners, oil and gas operators, and owners of subsurface utilities and pipelines. Dunaway managed all phases of planning and engineering, including driveway coordination, access management, and final TxDOT intersection design and driveway approval.



CLIENT:

Andrew Avis
Midland County
500 N. Loraine Street, #1100,
Midland, Texas 79701
aavis@mcounty.com
432.688.4872



CLIENT:

Liz Del Turco
City of Plano
1520 K Avenue,
Plano, Texas 75074
lizde@plano.gov
972.941.7152

OAK POINT PARK AND NATURE PRESERVE

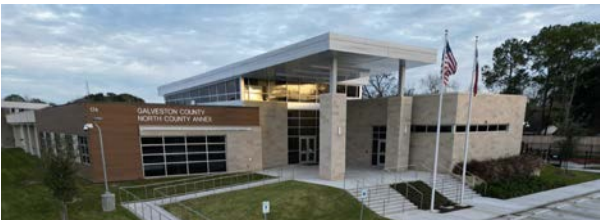
City of Plano, Texas | 2016 - 2024 | \$10 Million

Oak Point Park and Nature Preserve is a 775-acre park in Plano, located along Rowlett Creek. It stretches from Parker Road to State Highway 5, and from Spring Creek Parkway to Los Rios Boulevard. The park features multi-use trails, nature trails, a central lake, environmental learning areas, picnic spots, fishing, and bird-watching. A new Visitor Center hosts private groups, field trips, and school outings. The park preserves the natural setting while allowing public access for learning and recreation. Services performed include topographic surveys for LOMR, platting, and easements.

GALVESTON NORTH COUNTY ANNEX

League City, Texas | 2017 - 2024 | \$5 Million

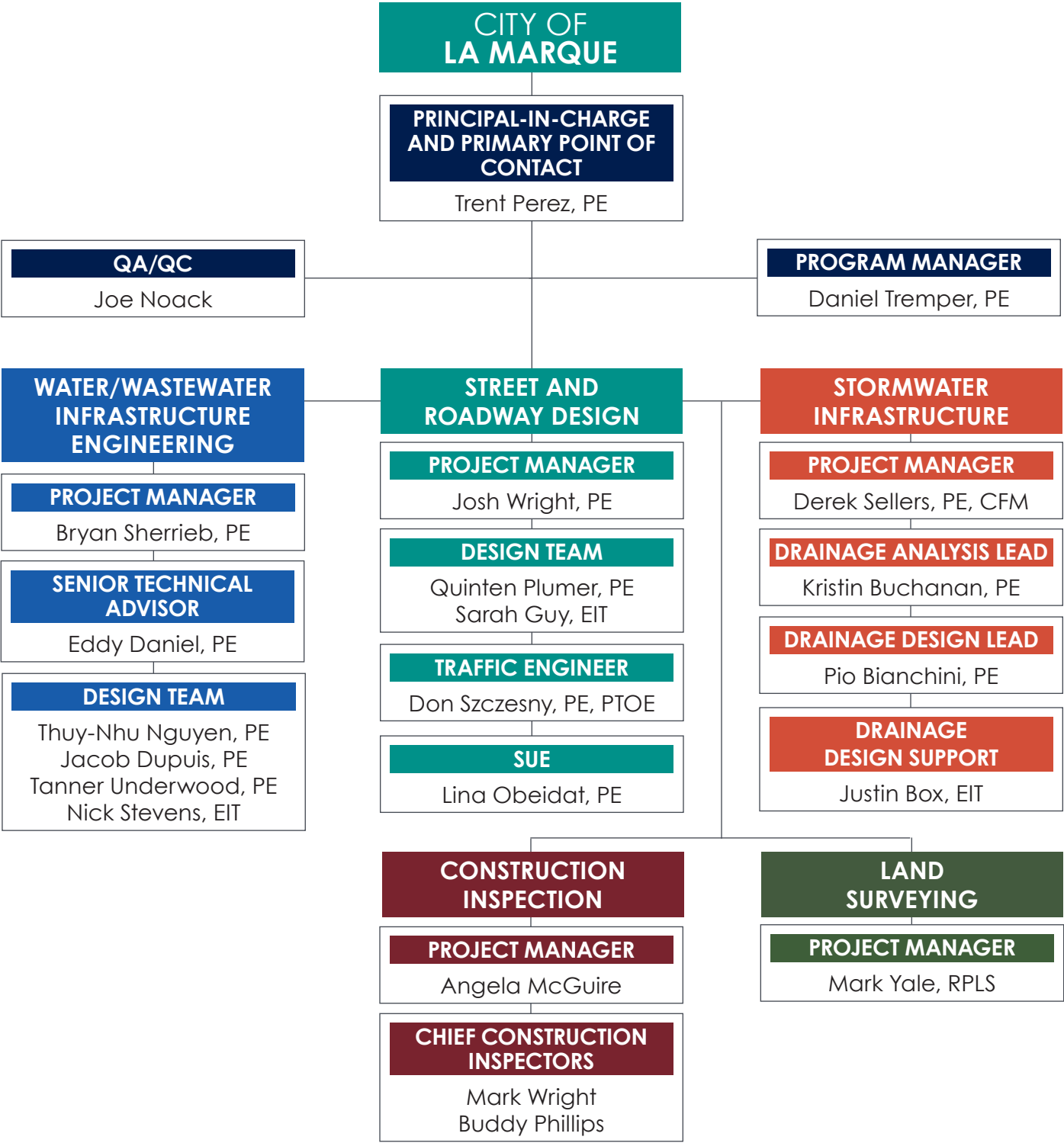
Our civil engineering team played a key role in the Galveston North County Annex project, providing comprehensive services from site assessment and environmental review to infrastructure and utility design. Drawing on deep experience, we ensured the new facility meets high standards of safety, functionality, and sustainability to serve the Galveston community well into the future.



CLIENT:

Joby Copley
Joiner Architects
700 Rockmead Drive,
Kingwood, Texas 77339
jobyc@joinerarchitects.com
281.359.6401

ORGANIZATIONAL CHART



RESUMES



Trent PEREZ PE

Principal

ROLE: Principal-In-Charge and Primary Point of Contact



EXPERIENCE

26 years

EDUCATION

Bachelor of Science,
Civil Engineering //
University of Houston

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer
//TX #103701

TRENT PEREZ as Principal at Dunaway brings a unique blend of technical engineering and political expertise to projects. His experience as Assistant City Engineer in Pearland allows him to assist clients in avoiding unnecessary costs and delays while providing top-notch civil engineering and land development services.

PROJECT EXPERIENCE

- **GALVESTON COUNTY NORTH COUNTY ANNEX // GALVESTON, TEXAS**
Trent served as Project Executive for the expansion of the North County Annex. The project involved renovating and expanding an 80-year old structure to accommodate new courtrooms and a county commissioner's office. The site presented numerous challenges, including tight spatial constraints, aging infrastructure, and the need to retrofit detention ponds to meet current municipal ordinances. Trent's leadership was instrumental in navigating these complexities while maintaining adherence to the project's scope, schedule, and budget.
- **ALVIN FIRE STATION // ALVIN, TEXAS**
As Project Executive for Alvin Fire and EMS Station No. 1, Trent evaluated the site and advised on scope, programming, and design. Challenges included floodplain encumbrances and protected trees. Midway through design, the Fire and EMS departments requested separate facilities, doubling the footprint. Trent guided the team through coordination and permitting, maintaining budget and schedule.
- **SUNSET RANCH DRIVE DEVELOPMENT // ALVIN, TEXAS**
As Project Manager and QA/QC Engineer for a residential development in Alvin, Trent led the design of roadways and utility infrastructure, including a regional stormwater lift station. Due to significant floodplain encroachment, he coordinated mitigation efforts and discovered an error in the 100-year floodplain maps. Trent worked with City of Alvin staff to correct the issue, resulting in an approved Letter of Map Revision (LOMR) that enabled responsible site development.



Daniel TREMPER PE

Engagement Manager | Principal

ROLE: Program Manager

EXPERIENCE

23 years

EDUCATION

Bachelor of Science,
Civil Engineering //
Texas Tech University

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer
//TX #98366

DANIEL TREMPER is an Engagement Manager and Principal at Dunaway. His experience includes extensive water and wastewater capital improvement infrastructure design, land development design and planning, water and wastewater modeling, water transmission pipeline design, elevated tank design and rehabilitation, sanitary sewer lift station design and pump selection, roadway design, drainage design, site grading, and City Engineering development and review services.

PROJECT EXPERIENCE

- **RED OAK CREEK INTERCEPTOR, SEGMENT 40 RO-2/RO-3.5/RO-4 // FORT WORTH, TEXAS**

As QA/QC, Daniel was responsible for managing quality control throughout the project lifecycle. He conducted detailed reviews at each submittal milestone, verifying that all deliverables aligned with project standards and expectations. His structured and consistent approach helped maintain technical accuracy and contributed meaningfully to the project's success.

- **TRAIL DRIVE EXTENSION // FORT WORTH, TEXAS**

In his QA/QC role, Daniel provided oversight across all phases of the project. He performed milestone-based reviews to validate technical quality and compliance with project requirements. His diligence and methodical review process supported smooth project execution and high-quality outcomes.

- **RANDOL MILL ROAD IMPROVEMENTS // FORT WORTH, TEXAS**

Serving as Discipline Lead, Daniel led QA/QC efforts and managed construction administration. He reviewed each submittal for technical accuracy and guided the project team through construction with a focus on quality and detail. His leadership was instrumental in maintaining project integrity and timely delivery.

- **WATER/WASTEWATER NEIGHBORHOOD REHAB // WEATHERFORD, TEXAS**

As Engagement Manager, Daniel combined quality oversight with client-facing responsibilities. He conducted QA/QC reviews at key milestones and represented the City throughout the project. His ability to bridge technical execution with client coordination helped align deliverables with expectations and supported overall project success.



Joe NOACK

Engagement Manager | Principal

ROLE: QA/QC



EXPERIENCE

21 years

EDUCATION

Associate of Applied
Science, Computer
Drafting and Design //
ITT Technical Institute

REGISTRATIONS AND CERTIFICATIONS

Certificate of
Management, Building
Information Modeling
(CM-BIM)

JOE NOACK is a Principal and Engagement Manager for Dunaway. With over 20 years of experience managing hundreds of successful site development projects, Joe brings a wealth of experience to the table and the ability to navigate project issues that may arise in a timely manner. Joe manages a diverse team of engineers and designers across multiple offices throughout Dunaway, and coordinates teams across Dunaway's various lines of business to help make every project successful.

PROJECT EXPERIENCE

- **TRAIL DRIVE // FORT WORTH, TEXAS**

Joe led civil design and production staff for grading, paving, drainage, and utilities supporting over 1,800 parking spaces and 80 RV spaces at the Will Rogers Memorial Center. The project included a 2,100-foot retaining wall and a new drainage system to divert runoff away from the Botanic Garden. Dunaway also provided survey, landscape architecture, irrigation, and construction administration services.

- **CHISHOLM TRAIL RANCH // FORT WORTH, TEXAS**

Joe managed production for Phase 2 which included arterial paving, water and sewer improvements, and a 2,800-foot hike and bike trail. The project also involved landscape and irrigation design, environmental and geotechnical studies, and coordination with NTTA and the City of Fort Worth. This segment links the future Chisholm Trail Parkway to a planned roundabout at Summer Creek Drive.

- **FOREST PARK ZOO CREEK DRAINAGE IMPROVEMENTS // FORT WORTH, TEXAS**

As Civil Discipline Lead, Joe directed a flood mitigation study in the Forest Park/Berry Street watershed. He led the design of a large-diameter stormwater tunnel and surface improvements to reduce flooding near Biddison Street and protect the Fort Worth Zoo. His work included survey coordination, 2D hydraulic modeling, and tunnel layout, along with support for a 275-foot weir and flood wall to manage flows in Forest Park.

- **TEXAS CHRISTIAN UNIVERSITY // FORT WORTH, TEXAS**

For over a decade, Joe has provided civil engineering and project management for public infrastructure and utility projects on and around the TCU campus. Notable efforts include the University Drive Corridor, Amon G. Carter Stadium East Addition and Storm Drain, and the Bellaire Drive 16-Inch Water Line.



Bryan SHERRIEB PE

Senior Discipline Lead | Associate

ROLE: Project Manager | Water/Wastewater

EXPERIENCE

28 years

EDUCATION

Bachelor of Science,
Civil Engineering //
Texas A&M University

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer
//TX #92723

BRYAN SHERRIEB is a Senior Discipline Lead and Associate in Dunaway's Fort Worth office. He has extensive experience providing engineering, design, and permitting services to both municipal and private clients. His general background includes the rehabilitation and expansion of arterial streets, water and sewer line replacement, single family subdivisions, and site work.

PROJECT EXPERIENCE

- **WATER/SANITARY SEWER REPLACEMENT CONTRACT WSM-G // FORT WORTH, TEXAS**

As Project Manager, Bryan led the rehabilitation of 8,000 linear feet of 8- and 12-inch water lines and 9,100 linear feet of 8-, 12-, and 20-inch sanitary sewer lines in a redeveloping residential area.

- **WATER/SANITARY SEWER REPLACEMENT CONTRACT 2021 WSM-C // FORT WORTH, TEXAS**

Bryan managed the replacement of 6,500 linear feet of 10- and 12-inch water mains with 12-inch pipe, upgraded 3,760 linear feet of 24-inch mains to 30-inch, and renewed 3,600 linear feet of sanitary sewers. He also oversaw pavement design for 7,600 linear feet of collector roadway and led construction phase services and public meetings.

- **NORTH RIVERSIDE DRIVE 36-INCH WATERLINE // FORT WORTH, TEXAS**

Bryan managed the design of a two-mile 36-inch waterline to connect two new segments by other consultants. The project included relocating smaller water lines, upgrading sanitary sewer mains, and crossing a railroad and two TxDOT roads, including SH 121.

- **CONTRACT 17 AND 18 WATER MAIN REPLACEMENTS // FORT WORTH, TEXAS**

Bryan managed the project overseeing the design and replacement of 27,000 linear feet of neighborhood roadways, including 18,000 linear feet of water mains, 8,000 linear feet of sanitary sewers, and 7.8 miles of pavement across 12 residential and one arterial street in the southern region of Fort Worth. The project also encompassed traffic control plans and the acquisition of easements. During construction, an expedited relocation of storm drains was necessitated when the contractor discovered storm drains that were not documented accurately. Additionally, Bryan played a role in facilitating a public meeting.



Eddy DANIEL PE

Senior Line of Business Manager

ROLE: Senior Technical Advisor | Water/Wastewater

EXPERIENCE

39 years

EDUCATION

Bachelor of Science,
Mechanical
Engineering // Texas
A&M University

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer
// TX #72181

EDDY DANIEL is a Senior Line of Business Manager in Dunaway's Civil Engineering Group with 39 years of experience designing, constructing, inspecting, operating, and managing water systems. His background as both a manager and operator brings valuable insight to engineering design and implementation. Eddy also has specialized expertise in water system automation and instrumentation. He has held leadership roles in various state and regional boards, councils, and associations, including serving as Vice President of the Texas Rural Water Association. Known for his innovative problem-solving, Eddy is highly respected across both regulatory and industry communities.

PROJECT EXPERIENCE

- **LUELLA SUD PUMP STATION PRESSURE TANK GROUND STORAGE TANK // SHERMAN, TEXAS**

Dunaway provided civil design and construction inspection for a project that included a 200 GPM water well, 100,000-gallon ground storage tank, 10,000-gallon pressure tank, booster pumps, disinfection equipment, and related infrastructure. As Project Manager, Eddy Daniel led all design, inspection, and permitting efforts.

- **LAKEHAVEN 12-INCH WATERLINE IMPROVEMENTS SH 78 // COPEVILLE, TEXAS**

Dunaway provided civil engineering services for the installation of approximately 4,900 linear feet of 12-inch waterline along SH 78. The installation was performed on the Copeville Special Utility District water system to help provide service to Lakehaven, a new 1,800 residential home development.

- **AZTEC TRAIL GST PUMP STATION // WYLIE, TEXAS**

Eddy served as Project Manager for civil engineering services for a new NTMWD take-point, 350,000 underground concrete storage tank, two 1500 GPM vertical turbine booster pumps, electrical/SCADA controls and disinfection building. The project was funded by District Funds.

- **CITY OF JOSEPHINE - MAGNOLIA POINTE PHASE 10 // JOSEPHINE, TEXAS**

Eddy served as Project Manager for the design and construction inspection services for an 800 GPM sanitary sewer lift station. This project serves a DR Horton development, named Magnolia Pointe, for the City of Josephine. This sewer infrastructure component transfers residential sewer to the City of Josephine's wastewater treatment plant #2.



Thuy-Nhu NGUYEN PE

Discipline Lead | Associate Principal

ROLE: Design Team | Water/Wastewater

EXPERIENCE

10 years

EDUCATION

Bachelor of Science,
Civil Engineering //
University of Texas at
Arlington

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer
// TX #135427

THUY-NHU NGUYEN serves as a Discipline Lead within Dunaway's civil team. As a firm Associate Principal, she has experience working on public projects for municipalities in various cities throughout Texas. Thuy-Nhu's knowledge extends to roadway, water, sanitary sewer, and storm drain design projects. Prior to Dunaway, her skills were utilized in site development and ADA site analysis and design solutions.

PROJECT EXPERIENCE

- **CALENDER ROAD // ARLINGTON, TEXAS**

Thuy supported public street improvements for 3,500 linear feet of Calender Road, including new paving, drainage, and installation of 3,600 feet of 16-inch water line and 2,200 feet of 8-inch sanitary sewer. Thuy contributed to final submittal responses and supported a broad scope that included a flood study, impact analysis, natural resources report, geotechnical work, SUE, survey, and ROW/easement documentation.

- **WATER/WASTEWATER NEIGHBORHOOD REHAB // WEATHERFORD, TEXAS**

Thuy served as the Lead Civil Engineer on a project that involved the rehabilitation and replacement of 7,400 linear feet of 6-inch, 8-inch, and 12-inch water lines, as well as 8,500 linear feet of 6-inch, 8-inch, and 12-inch sanitary sewer lines. This project was divided into two separate packages: one to be bid out and the other to be executed by city crews. Thuy's role encompassed overseeing the design process, maintaining compliance with engineering standards, and coordinating with various stakeholders to facilitate the successful completion of both packages. Their expertise and leadership were crucial in addressing the technical challenges and achieving the project's timely and efficient execution.

- **WATER/SANITARY SEWER REPLACEMENTS CONTRACT 2019 WSM-H // FORT WORTH, TEXAS**

Thuy played a key role in addressing comments for the final design, contributing to the successful rehabilitation and replacement of critical water and sanitary sewer infrastructure. Her efforts were instrumental in refining the design to meet project specifications and stakeholder requirements, ultimately supporting the project's overall objectives and timely completion.



Jacob DUPUIS PE

Senior Discipline Lead - Civil | Principal

ROLE: Design Team | Water/Wastewater

EXPERIENCE

12 years

EDUCATION

Bachelor of Science,
Environmental
Engineering // Tarleton
State University

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer
// TX #133398

JACOB DUPUIS is Senior Discipline Lead and Principal in Dunaway's Civil Engineering group. His experience includes planning, designing and managing public works projects in water, wastewater, transportation, and drainage for federal, state, and municipal clients.

PROJECT EXPERIENCE

- **BOIS D' ARC MUD - CR 2725, CR 2730, CR 2770 WATERLINE IMPROVEMENTS // WINDOM, TEXAS**

Dunaway provided design for 30,000 linear feet of new and upsized 8-inch and 6-inch water line to serve new residential development. The project also included offsite improvements for the feeder system.

- **CR 558 NTMWD TAKE POINT, GST, AND BOOSTER PUMP STATION // FARMERSVILLE, TEXAS**

Project Manager for civil engineering services for a new 500,000 gallon above-ground water storage tank, NTMWD take point with meter vault, and two 750 GPM booster pumps and a disinfection building. The building also included electrical and controls with appurtenances for operation of the pump station.

- **CR 543 NTMWD TAKE POINT // JOSEPHINE, TEXAS**

Project Manager for civil engineering services for improvements at the City's existing pump station site that consisted of a new 500,000 gallon above-ground storage tank, NTMWD meter vault, and two 1500 GPM vertical turbine booster pumps. The building also included electrical and controls with appurtenances for operation of the pump station.

- **COPEVILLE SUD - LAKEHAVEN ELEVATED STORAGE TANK // FARMERSVILLE, TEXAS**

As Project Manager, Jacob Dupuis oversaw design, inspection, and permitting of the elevated storage tank, related site work, and other related projects including a wastewater treatment plant. Dunaway provided civil engineering design and construction inspection for this project including a 750,000-gallon composite elevated storage tank to serve the new Lakehaven residential development, financed by the Texas Water Development Board Development Fund. Dunaway prepared submitted all necessary permitting documents with the City of Farmersville and TCEQ. The design also included 12- inch waterline connections and site grading.



Tanner UNDERWOOD PE

Discipline Lead - Civil | Associate

ROLE: Design Team | Water/Wastewater

EXPERIENCE

9 years

EDUCATION

Bachelor of Science,
Civil Engineering //
University of Texas at
Arlington

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer
//TX #143042

TANNER UNDERWOOD is a talented Discipline Lead and firm Associate who has led with the design of public sector civil infrastructure improvements projects for the City of Fort Worth, White Settlement, Southlake, and Dallas. Tanner's experience includes modeling water systems for Upper Trinity Regional Water District (UTRWD) and for the Bethany SUD. As a student, Tanner interned with Dunaway for two summers before joining us full-time after graduation.

PROJECT EXPERIENCE

- **RIC WILLIAMSON MEMORIAL HIGHWAY WATERLINE // WEATHERFORD, TEXAS**
Tanner provided civil design for 1.5 miles of 12- and 16-inch waterline to extend water service west to the Ric Williamson Memorial Highway. The project supported new development in recently annexed areas. When AT&T fiber lines conflicted with the proposed alignment, Tanner helped develop an alternative route to avoid delays and keep the project on schedule.
- **JOSEPHINE 18-INCH WATER MAIN IMPROVEMENTS // JOSEPHINE, TEXAS**
Tanner served as the Project Manager for a fast-tracked project that involved designing from zero percent to one-hundred percent completion within 12 weeks, including a topographic survey. He oversaw the installation of five miles of 18" water main from a wholesale supplier through two existing pump stations, terminating at the City's elevated storage tank. Tanner coordinated with Oncor, several cross-country gas lines, a dormant but not abandoned railroad, the county, TxDOT, and two water districts to ensure the project's successful completion.
- **WATER/SANITARY SEWER REPLACEMENT CONTRACT WSM-G // FORT WORTH, TEXAS**
Tanner Underwood served as the Project Engineer for a project that involved designing the replacement of approximately 9,200 linear feet of water line and 8,500 linear feet of sanitary sewer in the residential areas northwest of downtown.
- **WATER/WASTEWATER NEIGHBORHOOD REHAB // WEATHERFORD, TEXAS**
Tanner Underwood served as the Project Engineer for a project that involved designing the replacement of approximately 9,200 linear feet of water line and 8,500 linear feet of sanitary sewer in the residential areas northwest of downtown.



Nick STEVENS EIT

Graduate Engineer

ROLE: Design Team | Water/Wastewater

EXPERIENCE

4 years

EDUCATION

Bachelor of Science,
Civil Engineering //
Texas A&M University

REGISTRATIONS AND CERTIFICATIONS

Engineer-In-Training //
TX #75846

NICK STEVENS is a detailed-oriented and responsive graduate engineer. His background is in transportation research and water resources, and he currently works on large-scale public infrastructure projects. In his time with Dunaway, he has worked on roadway, water, and sewer system improvements for various municipalities.

PROJECT EXPERIENCE

- **WALSH RANCH WALNUT CREEK WASTEWATER INTERCEPTOR EXTENSION
// FORT WORTH, TEXAS**

Engineer-In-Training for the design of 12,000 linear feet of new 27 to 30-inch sanitary sewer interceptor. Project involved coordination with City of Fort Worth, Union Pacific, TxDOT, and Tarrant County.

- **RED OAK CREEK INTERCEPTOR, SEGMENT 40 RO-2/RO-3.5/RO-4 // FORT WORTH, TEXAS**

Engineer-In-Training for the design of 26,000 linear feet of 24 to 48-inch sanitary sewer. Project scope includes 15,000 linear feet of alignment, clearing, and grubbing fully cleared in three months.

- **FM 2514 PIPELINE RELOCATIONS, PROJECT NO. 101-0585-21 // WYLIE, TEXAS**

Engineer-In-Training for design services for NTMWD on FM 2514 Pipeline Relocations. This project is necessitated by Ballard Street improvements being performed by TxDOT. This scope of work included the survey and design for the relocation of approximately 1,400 linear feet of 14-inch water main replacement, by open cut on the easterly side of the existing railroad ROW and running parallel to the ROW; abandonment of 14 and 20-inch water mains along Ballard Street and Brown Street; and extending casing pipe for two 60-inch pipelines and one 72-inch pipeline crossing to the proposed TxDOT FM 2514 ROW. We provided Topographic Survey and Base Mapping, SUE Level D, SUE Level A thru C, Permitting and Easement Acquisition Services, Easement Documents Preparation (Special Services), TxDOT Coordination Services, Design and Plan Preparation (50, 90 and 100%), and Preparation of Bid Documents.



Josh WRIGHT PE

Senior Discipline Lead | Associate Principal

ROLE: Project Manager | Street and Roadway Design

EXPERIENCE

18 years

EDUCATION

Bachelor of Science,
Civil Engineering
// University of
Oklahoma

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer
// TX #125733

TxDOT Local
Government Project
Procedures (LGPP)
Certification

JOSH WRIGHT is a Senior Discipline Lead and Associate Principal at Dunaway. He has wide-ranging experience in roadway design, storm drain design, water and sewer design, hydrologic/hydraulic studies, floodplain management, detention/retention ponds, utility relocation, and bridge inspection. Josh's experience also includes all aspects of project management from schematic design through construction.

PROJECT EXPERIENCE

- **VISTA WAY PAVING AND DRAINAGE IMPROVEMENTS // BENBROOK, TEXAS**

As Project Manager, Josh facilitated local commercial access and utility services to a previously inaccessible prime parcel. He directed the design of Vista Way Road, which included essential features like storm drainage and a 12-inch water line. His management extended to improving U.S. 377 access via Benbrook Field Drive and driveways, requiring close coordination with TxDOT. Josh's role also involved the preparation and submission of right-of-way parcels and easements.

- **TRAIL DRIVE EXTENSION // FORT WORTH, TEXAS**

As Project Manager, Josh oversaw the extension of Trail Drive from University Drive to Lancaster Avenue, including the addition of Farmhouse Way, which connects to Foch Street and Trinity Park. This 2,800 linear feet of roadway alleviated traffic on Lancaster Avenue and West 7th Street, while improving access around Farrington Field and Will Rogers Memorial Center. The project also featured new walkways and landscaping with over 100 new trees.

- **CITY OF ARLINGTON HIGHWAY SAFETY IMPROVEMENTS PROGRAM // ARLINGTON, TEXAS**

Josh managed the City of Arlington's 2016 Highway Safety Improvement Project (HSIP). He led the Dunaway team in improving safety at the intersections of Ryan Plaza Drive with East Lamar Road and Lincoln Drive with Van Buren Drive by applying high friction surface treatments. Josh's leadership ensured detailed plans, specifications, and cost estimates for these enhancements, significantly improving road safety in Arlington.

- **DANIELDALE ROAD // DUNCANVILLE, TEXAS**

Josh, as QA/QC for the Danieldale Road project, was pivotal in upholding design standards for a 2,300 linear feet 4-lane arterial roadway, including sidewalks and ADA ramps. He conducted a corridor study, leading to a 4-lane arterial with shared-use trails, approved by the City Council after his detailed presentation.



Quinten PLUMER PE

Discipline Lead - Civil | Associate Principal

ROLE: Design Team | Street and Roadway Design

EXPERIENCE

9 years

EDUCATION

Bachelor of Science,
Civil Engineering //
Texas A&M University

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer
//TX #138475

QUINTEN PLUMER is a Discipline Lead and Associate Principal in Dunaway's civil engineering group. Quinten's primary focus has been the design of large-scale infrastructure projects involving complex roadway, drainage, water, and sanitary sewer systems. His project experience includes work for municipalities such as the City of Arlington, City of Weatherford, City of Dallas, City of Keller, and publicly funded entities like TxDOT. He also has specialty experience in the design of single- and multi-lane roundabouts and performed corridor studies for paving section improvements.

PROJECT EXPERIENCE

- **TRAIL DRIVE EXTENSION // FORT WORTH, TEXAS**

As a Graduate Engineer, Thuy supported the design of Trail Drive, a new 4,000-foot boulevard connecting Montgomery Street to University Drive through the Will Rogers Memorial Center. The project improved traffic flow and enhanced the pedestrian experience with tree-lined walkways, paver crosswalks, specialty lighting, and an 8-foot-wide horse trail alongside landscaped parkways and sidewalks.

- **CALENDER ROAD // ARLINGTON, TEXAS**

Quinten served as Lead Designer for 3,500 linear feet of major collector rebuild for Calender Road between Eden Road to the north and Harris Road to the south and includes two roundabouts. The project included approximately 3,600 linear feet of new 16-inch water line, and approximately 2,200 linear feet of new 8-inch sanitary sewer line.

- **DANIELDALE ROAD // DUNCANVILLE, TEXAS**

Quinten studied the Daniieldale Road corridor for paving section improvements to accommodate bike lanes and meandering pedestrian trails. The ultimate plan is to implement a road diet from a 6-lane arterial to a 4-lane arterial with bike lanes. He assisted with the drainage improvements on Daniieldale Road from South Main Street to the US Highway 67 southbound frontage road and is currently performing construction administration services..

- **JOHNSON ROAD IMPROVEMENTS // KELLER, TEXAS**

Quinten served as lead designer for the 4,000-foot collector road rebuild from Hallelujah Trail to Rhonda Road. The project included the City of Keller's first publicly funded roundabout, new 12- and 16-inch water lines, drainage upgrades to address residential flooding, and pedestrian safety enhancements.



Sarah GUY EIT

Graduate Engineer

ROLE: Design Team | Street and Roadway Design

EXPERIENCE

5 years

EDUCATION

Bachelor of Science,
Civil Engineering //
Purdue University

REGISTRATIONS AND CERTIFICATIONS

Engineer-In-Training //
TX #75502

SARAH GUY is a Graduate Civil Engineer specializing in Dunaway's Fort Worth office. She is an experience water, sewer, roadway, and drainage designer. Sarah is passionate about roundabouts and designing public infrastructure that improves the quality of life for the community through sidewalks, street lights, and waterlines.

PROJECT EXPERIENCE

- **UNIVERSITY DRIVE COMPLETE STREETS // FORT WORTH, TEXAS**

As Engineer In Training and Design Support, Sarah contributed to the second phase of University Drive enhancements in Fort Worth, a project focused on improving aesthetics, pedestrian access, and connectivity near the Botanic Gardens and Trinity Park. She supported the design of new medians, sidewalks, trails, traffic signals, and extensive landscaping.

- **SHADDOCK CREEK MINI-ROUNDABOUTS // FRISCO, TEXAS**

As Engineer In Training, Sarah contributed to the design of two mini-roundabouts and a median island for traffic calming along Shaddock Creek Lane. She supported the preparation of construction documents and assisted during the bid and construction phases, helping to deliver improvements that reduced speeding and cut-through traffic in the residential area.

- **WALSH RANCH PARKWAY AND I-30 INTERCHANGE // FORT WORTH, TEXAS**

As Engineer In Training and Design Support, Sarah contributed to the planning and design of key infrastructure for the 7,250-acre Walsh Ranch master-planned community. Her work supported the design of a new IH-30 interchange, including three bridges, five ramps, and frontage road improvements. She also assisted with utility planning, water and sewer line design, and roadway infrastructure.

- **WATER/WASTEWATER NEIGHBORHOOD REHAB // WEATHERFORD, TEXAS**

Provided design support for replacing 9,200 linear feet of water line and 8,500 linear feet of sanitary sewer in residential areas northwest of downtown.

- **RED OAK CREEK INTERCEPTOR, SEGMENT 40 RO-2/RO-3.5/RO-4 // FORT WORTH, TEXAS**

Engineer In Training for the design of 26,000 linear feet of 24-to-48-inch sanitary sewer. Project scope includes 15,000 linear feet of alignment, clearing, and grubbing fully cleared in three months.



Don SZCZESNY PE, PTOE

Senior Discipline Lead - Traffic | Associate Principal

ROLE: Traffic Engineer | Street and Roadway Design

EXPERIENCE

36 years

EDUCATION

Master of Engineering,
Civil Engineering //
Texas A&M University

Bachelor of Science,
Civil Engineering //
Texas A&M University

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer
// TX #72556

Professional Traffic
Operations Engineer //
TX #1952

DON SZCZESNY is a firm Associate Principal and Senior Discipline Lead with decades of experience in the field of traffic safety and operations pertaining to urban street and freeway systems, as well as system-wide planning applications. He has worked on various operational and design type projects for TxDOT, Cities throughout the State of Texas, and for private developers throughout the metroplex.

PROJECT EXPERIENCE

- **AVONDALE-HASLET ROAD AND FM718 TXDOT IMPROVEMENTS // FORT WORTH, TEXAS**

Don led the completion of a comprehensive traffic study for a new Walmart Supercenter located along Avondale Haslett Road. Additionally, Don spearheaded the design of two traffic signals along Avondale Haslet Road, ensuring improved traffic flow and safety for the area.

- **COOKS LANE & EDERVILLE ROAD SIGNAL IMPROVEMENTS // FORT WORTH, TEXAS**

Don led the design of a traffic signal at the intersection of Cooks Lane and Ederville Road in Fort Worth, Texas. This project involved completing a traffic signal warrant analysis and coordinating turn bay improvements along Cooks Lane to enhance traffic flow and safety.

- **MIDLAND - TRAFFIC STUDY // MIDLAND, TEXAS**

Don performed various traffic engineering tasks as part of the 2013 Citywide Traffic Analysis project for the City of Midland, Texas. The first major task completed was the evaluation and signal retiming for 30 signalized intersections which were a part of various coordinated and isolated traffic signal systems. In addition to these signalized intersections, Don and his team performed field timing implantation, testing and adjustments for the entire city-wide signalized network.

- **WALSH RANCH PARKWAY AND I-30 INTERCHANGE // FORT WORTH, TEXAS**

Don provided traffic engineering services for Walsh Ranch, including designing alignments, interchanges, and conducting traffic studies. Dunaway also handled master planning, landscape architecture, civil engineering, drainage and floodplain analysis, survey, and environmental services for this 7,250-acre, 50-year build-out project, one of the largest master-planned communities in North Texas.



Lina OBEIDAT PE

Senior Technical Engineer - SUE

ROLE: SUE | Street and Roadway Design



EXPERIENCE

23 years

EDUCATION

Bachelor of Science,
Civil Engineering //
Jordan University
of Science and
Technology

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer
// TX #123510

LINA OBEIDAT is a Senior Technical Engineer in Dunaway's SUE department who brings over 20 years of experience in utility design, operations, and project oversight. She specializes in utility investigations, relocations, and conflict resolution, with a strong background in Quality Level A–D SUE projects. Lina has led large-scale coordination efforts for clients ranging from TxDOT and municipalities to railroads and private developers. Her global experience, technical precision, and leadership—highlighted by her role as former Vice President of the Texas Rural Water Association—make her a respected expert in the field.

PROJECT EXPERIENCE

- **LOOP 12, TXDOT DALLAS DISTRICT // DALLAS, TEXAS**

As SUE Project Manager, Lina oversaw operations and deliverables for this complex corridor from Mountain Creek Parkway to Grauwyler Road. The project involved identifying numerous underground and aerial utilities—including nine fiber optic owners, water lines, sewers, gas, cable, and power—within a heavily developed right-of-way. Her early coordination helped avoid delays and kept the project on time and within budget.

- **SH 205 BYPASS, TXDOT DALLAS DISTRICT // ROCKWALL, TEXAS**

Lina and her team successfully adhered to a demanding timeline of completing 238 QL-A SUE test holes by effectively utilizing both prime and subprovider resources. To ensure efficient resource allocation, Lina employed critical path schedule analysis, aiding in prioritizing tasks.

- **W CR 130 FROM 1200 TO 1140 // MIDLAND, TEXAS**

Lina oversaw the implementation of Quality Level (A) (QL-A) Subsurface Utility Engineering (SUE) on a \$1.5 million engineering project stretch six miles between SCR 1210 and SCR 1140. Dunaway successfully completed over 70 test holes (QLA) ahead of schedule and within budget, providing exceptional deliverables certified by a licensed Professional Engineer. Regular progress reports and real-time field updates, including detailed notes and photographs, kept the county informed every step of the way.

- **U.S. 287, TXDOT FORT WORTH DISTRICT // FORT WORTH, TEXAS**

Lina served as SUE Project Manager overseeing SUE and utility coordination for this project. Project limits were US 287 from the u-turn at Union Pacific Rail Road to Lone Star Road.



Derek SELLERS PE, CFM

Senior Technical Engineer | Associate Principal

ROLE: Project Manager | Stormwater Infrastructure

EXPERIENCE

18 years

EDUCATION

Bachelor of Science,
Civil Engineering //
Texas Tech University

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer
//TX #110279

CFM //TX #1829-10N

DEREK SELLERS is a Senior Technical Engineer and Associate Principal, who leads the Water Resources Department at Dunaway. With extensive expertise in stormwater infrastructure projects across Texas, Derek is known for delivering innovative solutions to complex water resource challenges. His experience includes designing open channels, storm drain systems, culverts, bridge hydraulics, detention facilities, and bank stabilization repairs. Derek is also skilled in hydrologic and hydraulic modeling, developing watershed master plans, conducting open channel studies, performing flood damage analyses, and managing FEMA map revisions. Derek's leadership and technical expertise ensure successful project execution that safeguards communities and addresses critical water resource needs.

PROJECT EXPERIENCE

- **MONAHANS DRAW FLOOD PLAIN MAP REVISION // MIDLAND, TEXAS**

As Drainage Lead, Derek managed design, hydraulic analysis, and FEMA coordination for culvert improvements at Monahans Draw. His team used Conspan arches to reduce culvert count and cost, and prepared CLOMR and LOMR submittals using updated HEC-RAS modeling. FEMA approved the LOMR within a year.

- **FOREST PARK ZOO CREEK DRAINAGE IMPROVEMENTS // FORT WORTH, TEXAS**

As Project Manager, Derek led hydrologic and hydraulic analysis for a flood wall and stormwater tunnel to reduce flooding in the Forest Park/Berry Street watershed. He developed a hydraulic model, submitted a LOMR to FEMA, and supported tunnel routing, surface improvements, and cost estimates.

- **WILSON CREEK PARK PHASE I // CELINA, TEXAS**

Derek performed hydrologic, hydraulic, and detention analysis for park improvements along Wilson Creek, supporting development of 100 acres of athletic fields, trails, buildings, and parking within the FEMA floodplain.

- **ON-CALL CITYWIDE DRAINAGE REHAB // FORT WORTH**

As Project Manager, Derek led hydraulic analysis and design for storm drains, culverts, and open channels across multiple sites. His work included erosion mitigation, drainage easement research, storm drain realignment, and public infrastructure rehab. He also developed construction documents, conceptual designs for in-line trash removal, a project ranking system, and bid item lists.



Kristin BUCHANAN PE

Project Engineer

ROLE: Drainage Analysis Lead | Stormwater Infrastructure

EXPERIENCE

15 years

EDUCATION

Bachelor of Science,
Physics // Angelo State
University

Master of Engineering,
Civil Engineering
with an emphasis in
Environmental // Texas
Tech University

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer
// TX #121611

KRISTIN BUCHANAN is an Associate at Dunaway and serves as a project engineer in the civil engineering department. Her project experience focuses on hydrologic and hydraulic studies for development and municipal projects. These studies include hydrologic modeling of watersheds and hydraulic modeling of streams and creeks. She is also experienced in analyzing and designing detention ponds and roadway culverts to mitigate downstream impacts of a development. Her understanding of regulatory standards helps developments and municipalities obtain permits and meet compliance requirements for governing agencies.

PROJECT EXPERIENCE

- **BELLAIRE PARK COURT STORM DRAIN IMPROVEMENTS // FORT WORTH, TEXAS**

Our team utilized InfoWorksSD® 2D software to analyze the flow through the existing pond and storm drain system, evaluating potential improvement alternatives. We recommended an innovative, basin-wide approach that not only alleviates flooding in the Bellaire Park Court area but also significantly reduces the flooding potential in a downstream neighborhood with a history of flooding.

- **WALSH RANCH WALNUT CREEK WASTEWATER INTERCEPTOR EXTENSION // FORT WORTH, TEXAS**

Kristin performed water modeling for the 7,200-acre Walsh Ranch development, calculating demands across three pressure planes to size transmission mains, a pump station, and a water tower

- **NAAMAN FOREST CONNECTION TRAIL // GARLAND, TEXAS**

Kristin conducted hydraulic modeling for trail and pedestrian bridge improvements along Spring Creek, a FEMA Zone AE floodway, and recommended grading adjustments to meet no-rise criteria.

- **WALSH RANCH PARKWAY AND I-30 INTERCHANGE // FORT WORTH, TEXAS**

Kristin provided civil engineering including updates to a previous study of new public water capacities to serve future single family residential and commercial development for the new Walsh Ranch Master Plan Development.



Pio BIANCHINI PE

Project Engineer

ROLE: Drainage Design Lead | Stormwater Infrastructure

EXPERIENCE

14 years

EDUCATION

Bachelor of Science,
Civil Engineering
// Metropolitan
University/ Caracas
Venezuela

REGISTRATIONS AND CERTIFICATIONS

Professional Engineer
// TX #140541

PIO BIANCHINI is a dedicated Civil Project Engineer on Dunaway's Water Resources team, driven by a passion for creating, designing, and building large and small drainage infrastructure for towns and cities. Pio's technical proficiency in Hydrology and Hydraulics, coupled with his experience in project management, QA/QC, and construction administration, has been instrumental in the successful completion of numerous remarkable projects. Pio continues to contribute to the community welfare through his innovative solutions and dedication to solving complex drainage problems.

PROJECT EXPERIENCE

- **E CR 120 PHASE 2 RECONSTRUCTION // MIDLAND, TEXAS**
As Drainage Engineer, Pio performed hydraulic analysis of Midland Draw to size box culverts and evaluate drainage improvements from B-IH-20 to East CR 120, addressing site-specific stormwater challenges.
- **CR 1270 PHASE 2 RECONSTRUCTION // MIDLAND, TEXAS**
Pio led hydraulic analysis of Monahans Draw to determine culvert sizing and drainage feasibility from S FM 1788 to SCR 1270, supporting safe and effective stormwater conveyance.
- **WILSON CREEK PARK PHASE I // CELINA, TEXAS**
As Drainage Engineer for Wilson Creek Park Phase I, Pio performed hydrologic, hydraulic, and detention analyses to support park improvements along Wilson Creek and within the associated FEMA floodplain. The development encompassed approximately 100 acres and included athletic fields, park amenity buildings, pedestrian trails, vehicular drives, and parking facilities. His work ensured that the drainage design met regulatory requirements while supporting the functionality and resilience of the park infrastructure.
- **FARMERSVILLE PARKWAY // FARMERSVILLE, TEXAS**
Pio designed a storm drainage channelization system for a tributary of Elm Creek by modifying the natural stream to improve stormwater conveyance and protect adjacent properties and infrastructure from flooding and erosion. His work included a hydraulic analysis of 2,400 linear feet of the tributary, the proposed construction of 1,800 linear feet of a trapezoidal earthen channel, and the design of culverts at multiple road crossings using advanced hydraulic modeling in HEC-RAS.



Justin BOX

Graduate Engineer

ROLE: Drainage Design Support | Stormwater Infrastructure



EXPERIENCE

6 years

EDUCATION

Bachelor of Science,
Animal Sciences //
Auburn University

Bachelor of
Science, Biosystems
Engineering // Auburn
University

REGISTRATIONS AND CERTIFICATIONS

Engineer-In-Training //
TX #80408

JUSTIN BOX is a Graduate Engineer in Dunaway's Water Resources department. Justin will support the drainage analysis team developing both the hydrologic and hydraulic models with the supporting GIS documentation. He has worked on numerous projects that focus on urban hydrology and hydraulics. He has been instrumental in developing new and innovative ways to display model results in GIS and parameter development and documentation to floodplain mapping. He has previous experience preparing multiple LOMR's and CLOMR's for both public and private clients. Justin is an expert user of HEC-HMS, HEC-RAS, PondPack, Civil 3D and GIS.

PROJECT EXPERIENCE

- **THE PRESERVE PHASE 1 // MIDLAND, TEXAS**

As a Graduate Engineer, Justin performed hydrologic and hydraulic analysis for this 223-acre mixed-use development. He modeled watershed conditions, designed detention and drainage systems, and completed a downstream assessment to support drainage study approval.

- **MIRA VISTA COUNTRY CLUB - GOLF COURSE // FORT WORTH, TEXAS**

Justin conducted hydraulic modeling and floodplain impact analysis for golf course improvements near the Clear Fork Trinity River. He updated models, simulated flood events, and prepared technical documentation to meet CDC compliance and support agency approval.

- **ALL SAINTS EPISCOPAL WEST FORT WORTH // FORT WORTH, TEXAS**

Justin supported hydrologic, hydraulic, detention, and downstream assessment analysis for future campus improvements. He developed detention analyses for modifications to an existing pond, completed a downstream assessment, and participated in technical data analysis, model documentation, and report preparation for client and municipal review.

- **FARMERSVILLE - HAMILTON STREET CAPITAL IMPROVEMENTS PROJECT // FARMERSVILLE, TEXAS**

Performed hydrologic and hydraulic analysis to size and design culvert improvements for the Hamilton Street project. Improvements included roadways widening, curb/gutter, close storm drain system, upsizing existing culvert crossing, and implement erosion protection measures.



Justin BOX

Graduate Engineer

ROLE: Drainage Design Support | Stormwater Infrastructure



EXPERIENCE

6 years

EDUCATION

Bachelor of Science,
Animal Sciences //
Auburn University

Bachelor of
Science, Biosystems
Engineering // Auburn
University

REGISTRATIONS AND CERTIFICATIONS

Engineer-In-Training //
TX #80408

JUSTIN BOX is a Graduate Engineer in Dunaway's Water Resources department. Justin will support the drainage analysis team developing both the hydrologic and hydraulic models with the supporting GIS documentation. He has worked on numerous projects that focus on urban hydrology and hydraulics. He has been instrumental in developing new and innovative ways to display model results in GIS and parameter development and documentation to floodplain mapping. He has previous experience preparing multiple LOMR's and CLOMR's for both public and private clients. Justin is an expert user of HEC-HMS, HEC-RAS, PondPack, Civil 3D and GIS.

PROJECT EXPERIENCE

- **THE PRESERVE PHASE 1 // MIDLAND, TEXAS**

As a Graduate Engineer, Justin performed hydrologic and hydraulic analysis for this 223-acre mixed-use development. He modeled watershed conditions, designed detention and drainage systems, and completed a downstream assessment to support drainage study approval.

- **MIRA VISTA COUNTRY CLUB - GOLF COURSE // FORT WORTH, TEXAS**

Justin conducted hydraulic modeling and floodplain impact analysis for golf course improvements near the Clear Fork Trinity River. He updated models, simulated flood events, and prepared technical documentation to meet CDC compliance and support agency approval.

- **ALL SAINTS EPISCOPAL WEST FORT WORTH // FORT WORTH, TEXAS**

Justin supported hydrologic, hydraulic, detention, and downstream assessment analysis for future campus improvements. He developed detention analyses for modifications to an existing pond, completed a downstream assessment, and participated in technical data analysis, model documentation, and report preparation for client and municipal review.

- **FARMERSVILLE - HAMILTON STREET CAPITAL IMPROVEMENTS PROJECT // FARMERSVILLE, TEXAS**

Performed hydrologic and hydraulic analysis to size and design culvert improvements for the Hamilton Street project. Improvements included roadways widening, curb/gutter, close storm drain system, upsizing existing culvert crossing, and implement erosion protection measures.



Angela MCGUIRE

Discipline Lead | Associate

ROLE: Project Manager | Construction Inspection



EXPERIENCE

17 years

EDUCATION

Bachelor of Business
Administration //
Florida State College

REGISTRATIONS AND CERTIFICATIONS

Six Sigma Lean
Certified //TX

Date Communication
and Networking
Certified //TX

ANGELA MCGUIRE has over 15 years of experience in project management and serves as a Discipline Lead overseeing Construction Services in Dunaway's civil engineering group. She is very knowledgeable in construction management, construction inspection, construction administration, contract management, data analysis and project coordination. Angela has been able to leverage her prior experience with her current role in Dunaway to be an asset in several areas. Her ability to multi-task combined with her experience in working on large projects has helped her to be a valuable resource to our company and clients.

PROJECT EXPERIENCE

- **CITY OF JOSEPHINE - MAGNOLIA POINTE PHASE 10 // JOSEPHINE, TEXAS**

Angela oversaw the construction inspection of an 800 GPM sanitary sewer lift station for the DR Horton development, Magnolia Pointe, in the City of Josephine. This infrastructure component transfers residential sewer to the city's wastewater treatment plant #2.

- **SOUTH GRAYSON SUD WATERLINE IMPROVEMENT PROJECTS // VAN ALYSTYNE, TEXAS**

Performed construction inspection services to upgrade and extend multiple waterlines in various areas of the South Grayson SUD system.

- **CADDO MILLS UNDERGROUND CONCRETE GROUND STORAGE TANK AND BOOSTER PUMP // CADDO MILLS, TEXAS**

Angela performed construction inspection for the construction of a 0.300 MG underground concrete ground storage tank, complete with necessary appurtenances. Additionally, it included the development of a disinfection and electrical/controls building, the installation of two 1,500 GPM vertical turbine booster pumps with appurtenances, and the installation of 12-inch and 8-inch yard piping for the city.

- **CITY OF FARMERSVILLE CIP - TRICKLING ARM FILTER // FARMERSVILLE, TEXAS**

This was a grant funded project. Provided construction management assistance throughout the project by completing all grant requirements including ledgers, forms, budgets, checklists and spreadsheets. Coordinated construction inspection throughout project to ensure installation was in conformance with city standard details, plans and specifications.



Mark WRIGHT



Construction Inspection Chief of Parties | Associate

ROLE: Chief Construction Inspector | Construction Inspection

EXPERIENCE

16 years

EDUCATION

REGISTRATIONS AND CERTIFICATIONS

TCEQ Water Operator
Class "D", License
#WO0026375

MARK WRIGHT is a Chief of Parties and Associate in Dunaway's construction inspection group. He manages and inspects engineered projects including: water wells, pump stations, elevated tanks, ground storage tanks, pressure tanks, water distribution, wastewater collection, pump stations, and lift stations and sewer distribution lines, and water and sewer lift stations.

PROJECT EXPERIENCE

- **MAGNOLIA POINTE PHASE 10 // JOSEPHINE, TEXAS**

As Construction Inspector, Mark oversaw field activities for the installation of an 800 GPM sanitary sewer lift station serving the Magnolia Pointe development in the City of Josephine. His responsibilities included monitoring construction quality, verifying compliance with design specifications, and coordinating with contractors to support timely and accurate delivery of infrastructure that conveys residential wastewater to the City's treatment plant #2.

- **CITY OF FARMERSVILLE CIP - TRICKLING ARM FILTER // FARMERSVILLE, TEXAS**

As Construction Inspector, Mark oversaw the rehabilitation of a trickling filter arm at the City of Farmersville Wastewater Treatment Plant. He coordinated with engineers, contractors, and the North Texas Municipal Water District to support the conversion from a hydraulic to a motorized arm and the addition of two new arms. Mark provided daily updates and helped manage field challenges to keep the project on track.

- **CADDO MILLS UNDERGROUND CONCRETE GROUND STORAGE TANK AND BOOSTER PUMP // CADDO MILLS, TEXAS**

As Construction Inspector, Mark oversaw field activities for the installation of a 300,000-gallon underground storage tank and vertical turbine pumps for the City of Caddo Mills. He monitored construction quality, verified compliance with design plans, and coordinated with contractors to support timely and accurate project delivery.

- **JOSEPHINE 18-INCH WATER MAIN IMPROVEMENTS // JOSEPHINE, TEXAS**

As Construction Inspector, Mark supported the installation of five miles of 18-inch water main connecting a wholesale supplier to the City's elevated storage tank. He coordinated with contractors and multiple stakeholders—including Oncor, gas utilities, TxDOT, and two water districts—to monitor construction quality and maintain progress across complex utility crossings and right-of-way constraints.



Buddy PHILLIPS

Construction Inspector

ROLE: Chief Construction Inspector | Construction Inspection



EXPERIENCE

28 years

EDUCATION

REGISTRATIONS AND CERTIFICATIONS

OSHA 10

OSHA 30

TCEQ Water Operator,
Class "D" #WO0026375

BUDDY PHILLIPS is a seasoned Construction Inspector with 28 years of experience in the construction industry, and 15 years of experience in engineering. He has held significant roles such as Project Foreman at the City of Lewisville and Senior Engineering Inspector at the City of Allen, among other construction-related positions. Buddy is OSHA 30 certified and CPR certified, demonstrating his commitment to safety and professional standards. Currently, he serves as a Field Inspector for Dunaway, working out of the Dallas office on Civil Wet Utilities Projects. His extensive background and certifications make him a valuable asset to any construction team.

PROJECT EXPERIENCE

- **CHINA SPRING WATER LINE IMPROVEMENTS // CHINA SPRINGS, TEXAS**

Buddy Phillips served as an inspector at Aqua Texas-China Spring, where he oversaw new water line improvements for the community of China Springs. In this role, he inspected all new water connections, supervised the installation of a 6,345 linear foot 6-inch water main, and managed the installation of new fire hydrants.

- **CULLEOKA WSC - CR 392 - 12/16-INCH WATER MAIN IMPROVEMENTS // CULLEOKA, TEXAS**

Buddy oversaw the installation of new storm, water, and sewer lines for a new neighborhood in Culleoka. Buddy was onsite daily to inspect plan details and address contractor requests, making sure that the project was executed according to specifications.

- **CULLEOKA WSC (KH) - ARBOR TRAILS SOUTH PAVING INSPECTION // PRINCETON, TEXAS**

Buddy Phillips served as an inspector at Culleoka WSC Arbor Trail, where he oversaw the installation of all new storm, water, and sewer lines for a new neighborhood in Culleoka. He was onsite daily to inspect plan details and address contractor requests.



Mark **YALE** RPLS

Senior Discipline Lead - Survey | Associate

ROLE: Project Manager | Land Surveying

EXPERIENCE

55 years

EDUCATION

Courses Taken //
Tarrant County
College

REGISTRATIONS AND CERTIFICATIONS

Registered
Professional Land
Surveyor //TX #5975

MARK YALE has over four decades of experience in right-of-way and boundary surveying, horizontal and vertical control surveying, and topographical surveying. He has also prepared more than 300 right-of-way parcel acquisition surveys on more than 148.5 miles of various rights-of-way. His survey experience encompasses on a wide range of projects, including major highways, tollways, and water pipelines.

PROJECT EXPERIENCE

- **MIDLAND COUNTY ROAD 1232 // MIDLAND, TEXAS**

Mark served as the Survey Team Lead for Midland County's County Road 1232 and 140 improvements, overseeing boundary and topographic surveys, right-of-way acquisition, and supporting the preparation of construction documents. As the first phase of the South Loop 250 project, CR 1232 was divided into three phases totaling over 22 miles. The work included drainage improvements and coordination with the City of Midland and oil and gas operators to protect existing pipelines with specialized encasements. This critical corridor will serve as a southern reliever route and lay the groundwork for the future South Loop 250 expansion.

- **THE PRESERVE PHASE 1 // MIDLAND, TEXAS**

Mark served as the Survey Team Lead for The Preserve at Midland, a 173-acre mixed-use redevelopment of the former Nueva Vista Golf Course. The project features commercial, retail, office, and a 100-acre zoo, with 44% preserved as open space. Mark led survey efforts in support of Dunaway's design and construction plans for public and private infrastructure in Phase I, including roadway extensions, utility infrastructure, and platting. He also supported a watershed study analyzing a 1,500-acre drainage area, which informed downstream impact assessments and storm system design, ultimately helping the project eliminate the need for on-site detention and reduce flood risk to neighboring properties.

- **ECR 120 // MIDLAND, TEXAS**

Mark served as the Survey Team Lead for the seven-mile reconstruction of a key east-west corridor in eastern Midland County. The project included major drainage improvements at Midland Draw, featuring fifteen 10-foot by 7 foot reinforced concrete boxes. Located in FEMA floodway, it required C-LMOR approval, with LOMR in progress. Mark's survey efforts supported hydraulic analysis across five crossings, helping optimize culvert design and improve flood resilience.

LIST OF PAST LOCAL GOVERNMENT CLIENTS

For over 50 years, Dunaway has partnered with cities, counties, and public agencies to help them identify their needs, plan for sustainable growth, and implement effective solutions. These organizations count on our deep expertise to navigate the challenges of growing populations, aging infrastructure, and limited budgets. Our multidisciplinary team collaborates closely with public entities to uncover innovative, cost-effective strategies that maximize impact.

- City of Alvin
- City of Arlington
- City of Austin
- City of Balch Springs
- City of Bells
- City of Benbrook
- City of Blue Ridge
- City of Bridgeport
- City of Burleson
- City of Caddo Mills
- City of Carrollton
- City of Cedar Hill
- City of Celeste
- City of Celina
- City of Cibolo
- City of Colleyville
- City of Coppell
- City of Crowley
- City of Dallas
- City of Dorchester
- City of Duncanville
- City of Euless
- City of Farmers Branch
- City of Farmersville
- City of Forney
- City of Fort Worth
- City of Frisco
- City of Garland
- City of Grand Prairie
- City of Grapevine
- City of Highland Village
- City of Horseshoe Bay
- City of Hurst
- City of Hutchins
- City of Irving
- City of Josephine
- City of Keller
- City of Lake Dallas
- City of Lake Worth
- City of Lakeway
- City of Lancaster
- City of Lowry Crossing
- City of Mansfield
- City of McKinney
- City of Mesquite
- City of Midland
- City of Mount Pleasant
- City of Nederland
- City of North Richland Hills
- City of Odessa
- City of Pearland
- City of Pflugerville
- City of Pilot Point
- City of Plano
- City of Port Neches
- City of Red Oak
- City of Richardson
- City of San Angelo
- City of San Antonio
- City of Scurry
- City of Sherman
- City of Southlake
- City of Sugar Land
- City of Tomball
- City of Trenton
- City of University Park
- City of Uvalde
- City of Weatherford
- City of Wylie
- Galveston County
- Port of Houston

ATTACHMENTS

**Texas Board of Professional Engineers
CERTIFICATE OF REGISTRATION**

This acknowledges that

DUNAWAY ASSOCIATES, LLC

**has fulfilled the requirements of the Texas Board of
Professional Engineers to offer and perform
engineering services in the state of Texas**

**Registration Number
F-1114**

**Expiration Date
09/30/2025**



DUNAWAY ASSOCIATES, LLC

Unique Entity ID GSX4BLJ3RAF5	CAGE / NCAGE 4UZG4	Purpose of Registration All Awards
Registration Status Active Registration	Expiration Date Jan 15, 2026	
Physical Address 550 Bailey AVE STE 400 Fort Worth, Texas 76107-2100 United States	Mailing Address 550 Bailey AVE STE 400 Fort Worth, Texas 76107-2100 United States	

Business Information

Doing Business as DUNAWAY	Division Name Dunaway Associates, Llc	Division Number (blank)
Congressional District Texas 12	State / Country of Incorporation Texas / United States	URL (blank)

Registration Dates

Activation Date Jan 17, 2025	Submission Date Jan 15, 2025	Initial Registration Date Apr 6, 2021
--	--	---

Entity Dates

Entity Start Date Dec 30, 2004	Fiscal Year End Close Date Dec 31
--	---

Immediate Owner

CAGE (blank)	Legal Business Name (blank)
------------------------	---------------------------------------

Highest Level Owner

CAGE (blank)	Legal Business Name (blank)
------------------------	---------------------------------------

Executive Compensation

In your business or organization's preceding completed fiscal year, did your business or organization (the legal entity to which this specific SAM record, represented by a Unique Entity ID, belongs) receive both of the following: 1. 80 percent or more of your annual gross revenues in U.S. federal contracts, subcontracts, loans, grants, subgrants, and/or cooperative agreements and 2. \$25,000,000 or more in annual gross revenues from U.S. federal contracts, subcontracts, loans, grants, subgrants, and/or cooperative agreements?

No

Does the public have access to information about the compensation of the senior executives in your business or organization (the legal entity to which this specific SAM record, represented by a Unique Entity ID, belongs) through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986?

Not Selected

Proceedings Questions

Is your business or organization, as represented by the Unique Entity ID on this entity registration, responding to a Federal procurement opportunity that contains the provision at FAR 52.209-7, subject to the clause in FAR 52.209-9 in a current Federal contract, or applying for a Federal grant opportunity which contains the award term and condition described in 2 C.F.R. 200 Appendix XII?

No

Does your business or organization, as represented by the Unique Entity ID on this specific SAM record, have current active Federal contracts and/or grants with total value (including any exercised/unexercised options) greater than \$10,000,000?

Not Selected

Within the last five years, had the business or organization (represented by the Unique Entity ID on this specific SAM record) and/or any of its principals, in connection with the award to or performance by the business or organization of a Federal contract or grant, been the subject of a Federal or State (1) criminal proceeding resulting in a conviction or other acknowledgment of fault; (2) civil proceeding resulting in a finding of fault with a monetary fine, penalty, reimbursement, restitution, and/or damages greater than \$5,000, or other acknowledgment of fault; and/or (3) administrative proceeding resulting in a finding of fault with either a monetary fine or penalty greater than \$5,000 or reimbursement, restitution, or damages greater than \$100,000, or other acknowledgment of fault?

Not Selected

Exclusion Summary

Jan 23, 2025 04:48:08 PM GMT
<https://sam.gov/entity/GSX4BLJ3RAF5/coreData?status=null>

Page 1 of 3



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

10/21/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Risk Strategies 12801 North Central Expy. Suite 1725 Dallas, TX 75243	CONTACT NAME: Joe Bryant PHONE (A/C, No, Ext): (214) 323-4602 FAX (A/C, No): (214) 503-8899 E-MAIL ADDRESS: RSCcertrequest@risk-strategies.com														
INSURED Dunaway Associates, LLC 550 Bailey Avenue, Suite 400 Fort Worth TX 76107	<table><tr><th>INSURER(S) AFFORDING COVERAGE</th><th>NAIC #</th></tr><tr><td>INSURER A: Hartford Insurance Company of MidW</td><td>37478</td></tr><tr><td>INSURER B: XL Specialty Insurance Company</td><td>37885</td></tr><tr><td>INSURER C: Travelers Indemnity Co of America</td><td>25666</td></tr><tr><td>INSURER D: Travelers Property Casualty Co of Amer</td><td>25674</td></tr><tr><td>INSURER E:</td><td></td></tr><tr><td>INSURER F:</td><td></td></tr></table>	INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A: Hartford Insurance Company of MidW	37478	INSURER B: XL Specialty Insurance Company	37885	INSURER C: Travelers Indemnity Co of America	25666	INSURER D: Travelers Property Casualty Co of Amer	25674	INSURER E:		INSURER F:	
INSURER(S) AFFORDING COVERAGE	NAIC #														
INSURER A: Hartford Insurance Company of MidW	37478														
INSURER B: XL Specialty Insurance Company	37885														
INSURER C: Travelers Indemnity Co of America	25666														
INSURER D: Travelers Property Casualty Co of Amer	25674														
INSURER E:															
INSURER F:															

COVERAGES

CERTIFICATE NUMBER: 82434557

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSD WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
C	☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☒ POLICY ☒ PRO-JECT ☒ LOC OTHER:	☒	680003Y721350	11/1/2024	11/1/2025	EACH OCCURRENCE \$2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$1,000,000 MED EXP (Any one person) \$5,000 PERSONAL & ADV INJURY \$1,000,000 GENERAL AGGREGATE \$2,000,000 PRODUCTS - COMP/OP AGG \$2,000,000 \$
C	AUTOMOBILE LIABILITY ☒ ANY AUTO ☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS ☒ HIRED AUTOS ONLY ☒ NON-OWNED AUTOS ONLY	☒	BA3Y75293A	11/1/2024	11/1/2025	COMBINED SINGLE LIMIT (Ea accident) \$1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
D	☒ UMBRELLA LIAB ☒ OCCUR EXCESS LIAB ☐ CLAIMS-MADE DED ☒ RETENTION \$10,000	☐	CUP003Y760387	11/1/2024	11/1/2025	EACH OCCURRENCE \$10,000,000 AGGREGATE \$10,000,000 \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	☒	84WBGK5VGE	11/1/2024	11/1/2025	☒ PER STATUTE ☐ OTH-ER E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE - EA EMPLOYEE \$1,000,000 E.L. DISEASE - POLICY LIMIT \$1,000,000
B	Professional Liability	☒	DPR5028271	11/1/2024	11/1/2025	Per Claim 5,000,000 Annual Aggregate 10,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

The claims made professional liability coverage is the total aggregate limit for all claims presented within the annual policy period and is subject to a deductible.

CERTIFICATE HOLDER

Master Certificate

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Joe Bryant

© 1988-2015 ACORD CORPORATION. All rights reserved.

ACORD 25 (2016/03)

The ACORD name and logo are registered marks of ACORD

82434557 | 24/25 GL/AL/UL/WC/PL DUNAWAY ONLY | Lisa Lattuga | 10/21/2024 9:40:04 AM (CDT) | Page 1 of 1

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

FORM CIQ**This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.**

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of vendor who has a business relationship with local governmental entity.

Dunaway Associates, LLC

2 ☐ Check this box if you are filing an update to a previously filed questionnaire. (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 Name of local government officer about whom the information is being disclosed.

Not applicable

Name of Officer

4 Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.

Not applicable

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes☐ No

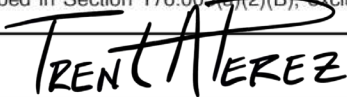
B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes☐ No

5 Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.

Not applicable

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7 
Signature of vendor doing business with the governmental entity

07/03/25

Date



STATEMENT OF QUALIFICATIONS

CITY OF LA MARQUE

Engineering/Architecture/
Surveying Services LM 25-03

July 7, 2025



POINT OF CONTACT

Mark Havran, PE 

Project Manager 

713.657.6014 

mhavran@lja.com 

July 7, 2025

City of La Marque
Kierra Nance, City Clerk
1111 Bayou Rd.
La Marque, TX 77568

Re: Engineering/Architecture/Surveying Services LM 25-03

Dear Selection Committee,

LJA Engineering, Inc. (LJA) is an **Employee-Owned and Client Focused**, full-service, consulting engineering firm serving public and private sectors in Texas, and other states, with a history of providing exceptional service and solutions to make the most of project resources and budgets. We have assembled a team of highly experienced professionals capable of providing the City with professional engineering services for Texas GLO Community Development Fund projects. Our depth of services is comprehensive, our breadth of knowledge leads the industry, and our regional influence continues to positively impact our personal and professional communities.

FIRM'S UNDERSTANDING OF THE SCOPE OF WORK TO BE PERFORMED

It is our understanding that the following services are of interest to the City at this time: Preliminary and final design plans and specifications, preparation of the bid packet, conducting all field testing and inspections (interim and final), and other special services.

ADDITIONAL INFORMATION

Through our experience with numerous cities, counties, and projects that grew out of Hurricanes Rita, Ike, and Harvey, as well as numerous other disaster declarations, LJA is very familiar with the special requirements of public funding and grant administration to achieve successful results for our clients. LJA works closely with our clients' staff and grant administrators to provide project scopes, budgets, and exhibits to support the application process. We understand that each federal and state grant program has its unique requirements. LJA provides each of our clients with the necessary support to effectively support the process.

LJA accepts all terms and conditions contained in this Request for Qualifications. Additionally, LJA is registered with the Texas Board of Professional Engineers (Firm Registration No. TBPELS F-1386) and is in good standing, in accordance with the Texas Engineering Practice Act. LJA has not, and will not, engage in any unethical practices at any time. No substandard work has been performed within the last five years.

We appreciate the opportunity to submit this Statement of Qualifications. LJA is committed to providing quality professional services to the City on this project, and we look forward to your favorable consideration. If you have any questions concerning our submittal, please call Mark Havran, PE at 713.657.6014.

Sincerely,



Jimmy Flowers, PE
Principal-in-Charge
Vice President

TABLE OF CONTENTS

TAB A ► EXPERIENCE.....1

- » Company Profile
- » Experience in Public Works/Federally-Funded Construction
- » Similar Project Experience in the General Region
- » Scope of Work the Service Provider Proposes to Perform
- » Project Approach
- » List of Specialized Services

TAB B ► WORK PERFORMANCE..... 8

- » Past Projects Completed On Schedule, Within Budget, and High Quality
- » References
- » Past Local Government Clients

TAB C ► CAPACITY TO PERFORM..... 22

- » Resources and Ability to Carry Out the Scope of Work
- » Staff Level/Experience of Staff
- » Resumes

TAB D ► SUBMISSION REQUIREMENTS.....36

- » Certificate of Insurance
- » Statement of Conflicts of Interest
- » System for Award Management
- » Conflict of Interest Questionnaire
- » Certification Regarding Lobbying
- » Form 1295/Required Contract Provisions





TAB A **EXPERIENCE**



TAB A ▶ EXPERIENCE

HISTORY

LJA was established to be the premier engineering firm across the southeastern US and beyond by providing high-quality, innovative, and cost-effective services to our clients. From the beginning, the firm stood out by recognizing the importance of quality engineering solutions amid a culture of visionary leadership and collaborative delivery. Our reputation is built upon a 53-year legacy of mutual trust – among our staff and our clients – driving our commitment to deliver the best solutions for complex building and business challenges.

Founded in 1972 when John “Dutch” Lichliter established The Lichliter Company, Bill Jameson joined the firm in 1976 as president and the firm was renamed Lichliter/Jameson & Associates. The firm evolved into LJA Engineering, Inc. in 2011, as it is known today. At LJA, we continue to build upon our reputation, while broadening our knowledge and constantly striving to be better.

To us, there is no measure that matters more than our own drive to exceed the firm we were yesterday. And, to our clients, this is what they value most and have come to expect. Our history defines us, but in no way limits us. We are proud of landmark projects from our past and look forward to blazing a new path and setting the new standard. The best companies are about great people – and great people, working together, make great projects.

AREAS OF EXPERTISE

- » Public Works
- » Transportation
- » Land Development
- » Energy
- » Environmental
- » Surveying
- » Rail Services
- » Telecom

AWARDS

LJA has received awards for not only project excellence, but more importantly for our ability to connect with our employees, our clients, and our communities. Recent awards include:

#1

TOP WORK PLACE BY USA TODAY (2025)

#5

BY ENR TEXAS & LOUISIANA (2024)

#42

BY ENR TOP 100 PURE DESIGNERS (2025)

#52

BY ENR TOP 500 DESIGN FIRMS (2025)

Firm Information

53

YEARS IN BUSINESS

2,900+

EMPLOYEE-OWNERS

100%

EMPLOYEE OWNED

80+

OFFICES

Offices Providing Services



11821 East Freeway
Suite 360
Houston, TX 77029

EXPERIENCE IN MUNICIPAL CONSTRUCTION

LJA has completed numerous engineering projects for municipalities, as well as federally-funded construction projects. We have an excellent history of working with municipalities through the design phase and during construction to minimize any disruptions to the surrounding communities.

EXPERIENCE IN PUBLIC WORKS/FEDERALLY-FUNDED CONSTRUCTION

With an extensive history of successful drainage, road and bridge, and public utility projects on every scale, LJA is uniquely qualified to provide exceptional service to the City in conjunction with H&H studies, flood mitigation, rehabilitation of storm damaged infrastructure, drainage enhancements, water infrastructure projects, and sanitary sewer plants. Through our experience with numerous city, district, and county recovery projects in the aftermath of Hurricanes Rita, Ike, and Harvey, LJA is intimately familiar with the special requirements of the GLO, FEMA, TDEM, and a variety of other storm recovery funding sources. LJA's staff has a demonstrated history of successfully navigating the grant administration and public funding processes to achieve successful results for our clients.

With a headquarters located in southeast Texas, LJA has a long-standing record of work on primarily public works infrastructure projects for local government entities. We have served as the design engineer on many Community Development Block Grant (CDBG) funded projects administered through the Texas General Land Office (GLO), Texas Department of Agriculture (TDA), and the Texas Water Development Board (TWDB) dating back to the mid-1970s. Additionally, LJA has successfully assisted clients with obtaining grant funds and completed many road rehabilitation, drainage improvement, and water and wastewater service enhancement projects funded through various grant and cost sharing programs.

EXPERIENCE WITH TWDB, DWSRF, CWSFR, OR SIMILAR PROJECTS

LJA has completed numerous successful projects that developed from disaster events on the Texas Gulf Coast and successfully navigated the funding and permitting systems associated with a wide variety of federal grant programs, including:

- » Hazard Mitigation Grant Program (HMGP)
- » Flood Mitigation Assistance Program (FMA)
- » Drinking Water State Revolving Fund (DWSRF)
- » Community Development Block Grant (CDBG)
- » Community Development Block Grant Disaster Recovery Program (CDBG-DR)
- » Community Development Block Grant Mitigation Program (CDBG-MIT)
- » Clean Water State Revolving Fund (CWSRF)

Through our broad range of projects, we have gained invaluable experience with successful permitting and project management under the terms of various state and federal agencies, including TWDB, DWSRF, CWSFR, GLO, FEMA, USACE, SHPO, THC, EPA, TDEM, and TDA among others.

We have been integrally involved in state and federally-funded disaster recovery and mitigation projects dating back to Hurricane Rita in 2005, Hurricane Ike in 2008, and Hurricane Harvey in 2017.

These projects include Disaster Recovery projects through the Texas General Land Office for CDBG and projects through the regular CDBG program for the municipalities. For the Disaster Recovery type projects, these projects were based on facilities that had a failure to function or that were damaged from the disaster. The projects included items such as generators, paving/drainage rehabilitation, stormwater pump stations, lift stations rehabilitation, water distribution rehabilitation, sanitary sewer rehabilitation, water plant rehabilitation, and wastewater plant rehabilitation.

SIMILAR PROJECT EXPERIENCE IN THE GENERAL REGION

- | | | |
|------------------------|------------------------|---------------------|
| » City of La Marque | » City of Galena Park | » City of Baytown |
| » City of Alvin | » City of Hardin | » Harris County |
| » City of Rosenberg | » City of Prairie View | » City of La Porte |
| » City of Friendswood | » Galveston County | » City of Galveston |
| » City of Kemah | » City of Dickinson | |
| » City of Jacinto City | » City of Houston | |



SOQ • City of La Marque
Engineering/Architecture/Surveying Services LM 25-03

SCOPE OF WORK THE SERVICE PROVIDER PROPOSES TO PERFORM

PROJECT DESCRIPTION

LJA will provide all necessary services including grant application assistance, preliminary engineering, field work, design phase services, bidding phase services, construction contract administration, and contract close out. We will be available to attend status meetings with the City, as necessary, in order to keep the City informed of project progress and issues.

PROJECT CONSSTRUCTION MANAGEMENT

LJA proposes Mark Havran, PE, to serve as the Project Manager and Jimmy Flowers, PE to serve as Principal-in-Charge for the City's projects. Mark and Jimmy each have extensive experience in the design and construction of municipal and public infrastructure projects in addition to managing projects funded through a wide variety of state and federal programs. Together, they will manage and allocate the necessary LJA resources to meet the City's specific needs and ensure that all possible variables are considered in all phases of the project.

Project Manager



Mark Havran, PE, will serve as Project Manager. He has over 15 years of experience in the civil engineering field. This work has been for a myriad of projects in water distribution, sanitary sewer collection, drainage, and roadway systems, paving, municipal water, and wastewater treatment facilities.

Principal-in-Charge



Jimmy Flowers, PE, will serve as Principal-in-Charge. He brings over 27 years of civil engineering experience for public works projects, serving several cities and counties across the state of Texas. As Principal-in-Charge, he will oversee the entire LJA team on this project to ensure client satisfaction.

LJA understands the value of service and will be available to the City, whenever needed, throughout this process. While a returned phone call may not be seen as much, a phone call that is not returned in a very timely manner is tremendous and can have a lasting negative effect on how our clients view us.

PROJECT APPROACH

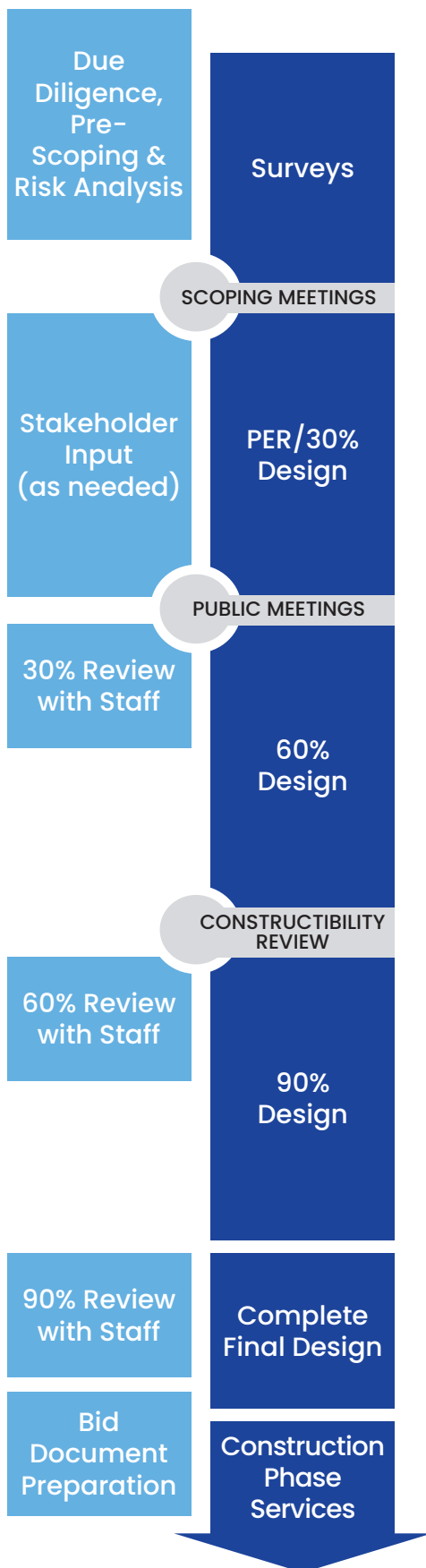
The emphasis of LJA's technical approach will be to ensure that the project will be completed in a timely manner and assure that any potential project savings, both in time and cost, will be realized by the City, thereby maximizing benefits.



LJA's technical approach utilizes a systematic, chronological, and qualitative process to meet outlined milestones. This approach demonstrates our understanding of the project and how LJA will provide innovative design solutions, along with a practical engineering basis regarding design, rehabilitation, methodology, material selection, and construction phasing, while meeting the client's engineering and operational requirements.

The overall scope includes specific tasks drawing upon LJA's technical and management skills. These tasks include the following: initial engineering and design support, final engineering and design support, contract procurement support, project construction management, and special services. LJA utilizes its technical skills and project management experience to ensure that projects are completed on schedule and within budgetary constraints, when possible. We have a history of providing exceptional service and solutions to make the most of project resources and budgets. *To illustrate how we achieve these goals, we outline our project approach phases and specific tasks for each phase on the following pages.*

BASIC DESIGN PROCESS



1. Attend preliminary conferences with the City regarding the requirements of the project
2. Determine necessity for acquisition of any additional real property/ easements/right-of-ways (ROWs) for the TxCDBG project and, if applicable, furnish to the City:
 - » a. Name and address of property owners;
 - » b. Legal description of parcels to be acquired; and
 - » c. Map showing entire tract with designation of part to be acquired.
3. Make any necessary surveys of existing rights-of-way, topography, utilities, or other field data required for proper design of the project. Provide consultation and advice as to the necessity of the City providing or obtaining other services such as auger borings, core borings, soil tests, or other subsurface explorations; laboratory testing and inspecting of samples or materials; other special consultations. The Firm will review any tests required and act as the City's representative in connection with any such services.
4. Prepare railroad/highway permits
5. Prepare a preliminary engineering/architectural study and report on the project in sufficient detail to indicate clearly the problems involved and the alternate solutions available to the City, to include preliminary layouts, sketches and cost estimates for the project, and to set forth clearly the Firm's recommendations
6. Furnish the City copies of the preliminary report, if applicable (additional copies will be furnished to the City at direct cost of reproduction)
7. Make periodic visits, no less than every 30 days during the construction period, to the construction site to observe the progress and quality of the work, to ensure that the work conforms with the approved plans and specifications, and to determine if the work is proceeding in accordance with the Agreement
8. Furnish the City a written monthly status report at least seven days prior to the regularly scheduled council meeting until the project is closed by TDA
9. Submit detailed drawings and plans/specifications to appropriate regulatory agency(ies) and obtain clearance
10. Prepare bid packet/contract documents/advertisement for bids. At the time the bid packet is completed, the Firm shall also furnish to the City an updated written Estimate of Probable Costs for the Project.
11. Make 10-day call to confirm prevailing wage decision
12. Incorporate any and all wage rate modifications or supersedes via bid addendum (if applicable)
13. Conduct bid opening and prepare minutes
14. Tabulate, analyze, and review bids for completeness and accuracy
15. Accomplish construction contractor's eligibility verification through www.SAM.gov
16. Conduct pre-construction conference and prepare copy of report/minutes
17. Issue Notice to Proceed to construction contractor

18. Provide in all proposed construction contracts deductive alternatives where feasible, so that should the lowest responsive base bid for construction exceed the funds available, deductive alternatives can be taken to reduce the bid price
19. Design for access by persons with disabilities for those facilities to be used by the public in accordance with Public Law 504
20. Use TDA-approved forms for instructions to bidders, general conditions, contract, bid bond, performance bond, and payment bond
21. Consult with and advise the City during construction; issue to contractors all instructions requested by the City; and prepare routine change orders if required, at no charge for engineering services to the City when the change order is required to correct errors or omissions by the Firm; provide price analysis for change orders; process change orders approved by City and the Firm and submit to TDA for approval prior to execution with the construction contractor
22. Review shop and working drawings furnished by contractors for compliance with design concept and with information given in contract documents (contractors will be responsible for dimensions to be confirmed and correlated at job site)
23. Resolve all payment requests within 14 days of receipt of signed pay request from the construction contractor
24. Based on the Firm's on-site observations and review of the contractor's applications for payment, determine the amount owed to the contractor in such amounts; such approvals of payment to constitute a representation to the City, based on such observations and review, that the work has progressed to the point indicated and that the quality of work is in accordance with the plans, specifications and contract documents
25. Recommend that a 10% retainage is withheld from all payments on construction contracts until final acceptance by the City and approval by TDA, unless State or local law provides otherwise
26. Prepare Certificate of Construction Completion and Clean Lien Certificate. A Clean Lien Certificate may be prepared for each of the Prime Contractor(s) and each of the subcontractor(s)
27. Conduct interim/final inspections
28. Revise contract drawings to show the work as actually constructed, and furnish the City with a set of "record drawings" plans
29. The Firm will provide a copy of the final project record drawing(s) engineering schematic(s), as constructed using funds under this contract. These maps shall be provided in digital format containing the source map data (original vector data) and the graphic data in files on machine readable media, such as compact disc (CD), which are compatible with computer systems owned or readily available to the owner. The digital copy provided shall not include a digital representation of the engineer's seal but the accompanying documentation from the Firm shall include a signed statement of when the map was authorized, that the digital map is a true representation of the original sealed document, and that a printed version with the seal has been provided to the City. In addition, complete documentation as to the content and layout of the data files and the name of the software package(s) used to generate the data and maps shall be provided to the owner in written form.

CURRENT CERTIFICATION OF TXCDBG PROJECT IMPLEMENTATION TRAINING

LJA staff members have completed the TxCDBG Implementation Training Workshop and have been certified as Administrators of the TxCDBG Program by the Texas Department of Agriculture.

LIST OF SPECIALIZED SERVICES



ENGINEERING AND DESIGN SERVICES

LJA's public works experience includes general engineering consultation, studies, capital improvement planning, program/construction management, and public/private partnerships. Our team's experience includes water/wastewater lines and treatment plants, pump stations, drainage, roads, highways, and other municipal infrastructure. With over 159 personnel dedicated to water/wastewater and water resources, our team deftly supports clients as they work on complex projects that require detailed planning and design of major infrastructure such as wastewater treatment and collection systems, and water treatment and distribution systems. Additionally, our staff is able to provide feasibility studies, master planning, detailed design, construction administration services, drainage, channel improvements, hydraulic structures, and other civil/structural projects.



SURVEYING SERVICES

LJA Surveying (LJAS) is a subsidiary of LJA and is a multi-discipline surveying, aerial systems, and subsurface utility engineering (SUE) firm, serving both the public and private sectors. Our survey team has the resources and capabilities to perform the services outlined in the City's scope of work because the key points of our surveying sector include: the location of utility rights of way and easements, location and acquisition of highway right of way, as well as topographic design and construction surveying. Topographic surveys for engineering design, digital terrain modeling of bridges and overpasses, and establishing precise vertical/horizontal control for aerial mapping are handled under this division. With the addition of laser scanning technology, crews can safely collect data of busy roadways and intersections, and clearances for bridges and roadways can be accurately mapped. We offer many alternative options for large scale projects to help reduce project cost and scheduling including aerial photogrammetry, SUE, aerial LiDAR mapping, mobile 3D laser mapping, and terrestrial 3D laser scanning.



ENVIRONMENTAL SERVICES

LJA Environmental Services, LLC (LJAES) is a subsidiary of LJA that was formed in 2017 and consists of over 58 dedicated specialists and over 100 service offerings. LJAES includes seasoned professional leaders in the fields of wetland and water sciences, permitting, wildlife ecology, aquatic and terrestrial biology, hydro- and karst-related geology, prehistoric and historic archeology, and historical architecture.



GEOTECHNICAL SERVICES

Geotechnical services will be provided by Geotest Engineering, Inc. (GEO), a certified HUB, DBE, and MBE firm with over four decades of experience delivering high-quality geotechnical engineering and materials testing services for public and private sector clients. GEO was founded in July 1979 to provide personal attention and high-quality service in geotechnical engineering and materials testing for corporate clients and government agencies. GEO has established a reputation for providing cost-effective and reliable high-quality service. The company's commitment to customer satisfaction and high-quality work has resulted in numerous long-term relationships and repeat business. Geotest has grown significantly over the past over the past "almost 40 years" and services a broad range of industries and clients for various projects in the following categories. GEI has participated in over 2,000 projects and has managed individual projects with testing and inspection fees in excess of \$1M. *Geotest is a certified HUB, DBE, and MBE with various local, state and federal agencies including the City of Houston, State of Texas, HISD, METRO, Houston Minority Business Council and the Port of Houston.*





TAB B

WORK PERFORMANCE

TAB B ► WORK PERFORMANCE

GRANT-FUNDED INFRASTRUCTURE PROJECTS

Disaster Relief, Texas Department of Rural Affairs

 **Client:** City of La Marque  La Marque, TX
 **Performance:** ✓ On Time, ✓ Within Budget, ✓ High Quality

LJA has been responsible for designing major upgrades to the City of La Marque's infrastructure which includes the complete design of multiple water plants, groundwater well rehabilitations, multiple 500,000-gallon pre-stressed concrete ground storage tanks, groundwater well addition, installation of generators ranging in size from 30kW to 350kW, sanitary sewer collection system rehabilitation, 12-inch waterline interconnect, and street improvements.

- » **Fire Station Generator Replacement:** Construction Cost \$58k
- » **Generators (Volney LS, Delaney LS, and WWTP):** Construction Cost \$489k
- » **Backflow Preventer (Surface Water Take Point #1):** Construction Cost \$12k
- » **Replacement of Magnolia Water Plant:** Construction Cost \$1.2M
- » **Surface Water Take Point No. 2 (Well and Generator Addition):** Construction Cost \$915k
- » **Sanitary Sewer Rehab:** Construction Cost \$773k
- » **Woodland And Lake Street Improvements:** Construction Cost \$854k
- » **12-Inch Waterline Interconnect:** Construction Cost \$669k
- » **36-Inch Sanitary Sewer Rehab:** Construction Cost \$364k

Disaster Relief, Texas Department of Rural Affairs

 **Client:** County of Galveston  Galveston, TX
 **Performance:** ✓ On Time, ✓ Within Budget, ✓ High Quality

LJA prepared site work and design for a multitude of generators that ranged in size from 5kW to 125kW, located at sites that all required different needs to be addressed from utility service to public safety. LJA also prepared designs for a waterline rehabilitation and a sanitary sewer rehabilitation project for the City of Dickinson.

- » **Permanent Emergency Generators for Facilities;** Construction Cost \$862k
- » **Santa Fe High School Generator;** Construction Cost \$1.4M
- » **Galveston County Justice Center Generators;** Construction Cost \$1.5M
- » **High Island Middle School and Crenshaw Elementary School Generator Receptacles and Transfer Switches;** Construction Cost \$107k
- » **Waterline Rehabilitation;** Construction Cost \$1.4M
- » **Sanitary Sewer Rehabilitation;** Construction Cost \$720k

Disaster Relief, Texas Department of Rural Affairs

 **Client:** City of Friendswood  Friendswood, TX
 **Performance:** ✓ On Time, ✓ Within Budget, ✓ High Quality

LJA prepared site work and design for a multitude of generators that ranged in size from 20kW to 300kW to prevent utility failure and ensure the continuation of water and wastewater operations.

- » **Surface Water Plant #1 and Water Plant #2 Emergency Generators:** Construction Cost \$342k
- » **Lift Stations Group A Emergency Generators:** Construction Cost \$390k
- » **Lift Stations Group B Emergency Generators:** Construction Cost \$594k
- » **Fire Station #1 and #2 Emergency Generators:** Construction Cost \$113k
- » **Fire Station #3 Rehabilitation:** Construction Cost \$312k

Disaster Relief, Texas Department of Rural Affairs

 **Client:** City of Kemah  Kemah, TX

 **Performance:** ✓ On Time, ✓ Within Budget, ✓ High Quality

LJA designed a 50,000 GPM storm water pump station to prevent flooding in the lowest area of Kemah. Rehabilitation of Kipp and Harris Avenue included base repairs, asphalt overlay, and replacement of asphalt streets with concrete for the West Kemah Subdivision, including coordination with multiple pipeline crossings and residences.

- » **Storm Water Pump Station;** Construction Cost \$1.3M
- » **Kipp Avenue Rehabilitation;** Construction Cost \$336k
- » **West Kemah Street and Drainage Improvements;** Construction Cost \$1.5M

Disaster Relief, Texas Department of Rural Affairs

 **Client:** City of Jacinto City  Jacinto City, TX

 **Performance:** ✓ On Time, ✓ Within Budget, ✓ High Quality

LJA prepared approximately 2,600 LF of sanitary sewer rehabilitation, upgrades to the wastewater treatment plant that consisted of a motor control center and sludge dewatering facility, site work and design for a multitude of generators that ranged in size from 60kW to 350kW, and a water plant upgrade to increase operational capacity at the current plant.

- » **Wastewater Treatment Plant Upgrades (MCC, Generator and Sludge Dewatering);** Construction Cost \$1.8M
- » **Generators;** Construction Cost \$345k
- » **Cynthia Square Sanitary Sewer Rehab;** Construction Cost \$91k
- » **Market Street Water Plant Rehabilitation;** Construction Cost \$631k
- » **Sanitary Sewer Rehabilitation;** Construction Cost \$395k
- » **Mercury Drive Lift Station;** Construction Cost \$220k

CDBG-DR, Generator, Quick Connects, and SCADA

 **Client:** City of Freeport  Freeport, TX

 **Performance:** ✓ On Time, ✓ Within Budget, ✓ High Quality

LJA prepared site work and design for five generators, three located at the City's water plant sites, and two located at the City's storm water pumping stations. LJA also designed 31 quick connects to the City's existing lift station and a SCADA monitoring system.

- » Estimated Construction Cost: \$1.2M

Additional CDBG Experience

- » City of Jacinto City FY 2012 Waterline and Fire Protection Phase II, Jacinto City, TX
- » City of Jacinto City FY 2016 Water Mains and Fire Protection, Jacinto City, TX
- » City of Jacinto City FY 2018 Waterline Rehabilitation, Jacinto City, TX
- » City of Galena Park FY 2008 Wastewater Treatment Plant No. 1, Galena Park, TX
- » City of Galena Park FY 2010 Infrastructure Rehabilitation Project, Galena Park, TX
- » City of Galena Park FY 2016 Waterlines and Fire Protection, Galena Park, TX
- » City of Hardin FY 2017 Sanitary Manhole Rehabilitation, Hardin, TX
- » City of Kemah FY 2016 Kipp Avenue Waterline Replacement and Force Main Extension, Kemah, TX
- » City of La Marque FY 2018 Sanitary Sewer Rehabilitation, La Marque, TX
- » City of Prairie View FY 2017 Sanitary Sewer Rehabilitation, Prairie View, TX
- » City of Jacinto City FY 2020 Drainage Rehabilitation Project, Jacinto City, TX



CDBG-DR, Generators at Wastewater Treatment Plant and Water Well No. 8

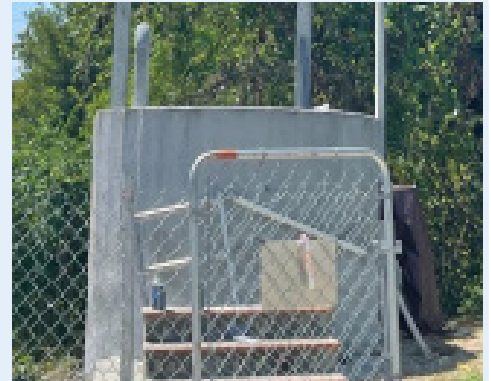
Client: City of Alvin **Alvin, TX**

Performance: ✓ On Time, ✓ Within Budget, ✓ High Quality

LJA designed improvements, consisting of standby emergency generators and required electrical provisions to the wastewater treatment plant, two water plants, and the public services facility in the City of Alvin. The scope of this project includes new structurally reinforced concrete pads and generators at each site. When the project bid in May of 2021, the bids were high due to price escalations and material shortages surrounding the pandemic. Working with the City, Grant Administrator, and General Land Office, we moved forward with a limited scope for the project perform the improvements at the Wastewater Treatment Plant and Water Well No. 8.

» Construction Cost: \$850k

» Estimated Completion: 2023



CDBG-DR, Lift Station 9 and 10 Electrical Improvements

Client: City of Rosenberg **Rosenburg, TX**

Performance: ✓ On Time, ✓ Within Budget, ✓ High Quality

LJA designed improvements to Lift Stations 9 and 10 which were overwhelmed by flooding caused by Hurricane Harvey. Lift Stations 9 and 10 were inundated by floodwater that submerged the lift stations control panels. LJA worked with the City of Rosenberg to design improvements to raise and harden the electrical components of both lift stations. The design scope of this project included new electrical controls placed on new elevated platforms at each site. When the project first bid in November of 2020 the bids were high due to price escalations and material shortages surrounding the pandemic. Working with the City, Grant Administrator, and General Land Office, we rebid the project in April of 2021 with the Lift Station 10 improvements included as an alternate and subsequently awarded the Lift Station 9 improvements only.

» Construction Cost: \$245k

» Completion: 2021

PAVING AND DRAINAGE PROJECTS



23rd Street County Road Bond

Client: Galveston County

Location: Galveston, TX

Performance:

- ✓ On Time
- ✓ Within Budget
- ✓ High Quality

LJA designed and provided plans and specifications for the construction of 23rd Street consisting of 3,880 LF of roadway including drainage/storm sewer, sanitary sewer, waterlines, and all appurtenances associated with rehabilitating an existing asphalt residential roadway and constructing a new concrete roadway, as well as all the utilities under the road.

» Construction Cost: \$10.2M

» Completion: 2024



73rd Street Reconstruction

Client: City of Galveston

Location: Galveston, TX

Performance:

- ✓ On Time
- ✓ Within Budget
- ✓ High Quality

Due to drainage concerns with existing infrastructure along 73rd Street, the City of Galveston hired LJA to investigate and address the issue. The existing asphalt surface was milled and replaced then the storm sewer underneath the road was upsized. As well as replacing storm sewer, new waterlines were installed during construction to limit further impacts to the new pavement. Special geomembrane material was used in order to prevent cracking due to poor subgrade and proximity to the water table. The existing drainage improvements require USACE approval and coordination for the new outfall that was installed in tidally influenced water. This project was built from July 2019 to February 2021.

» Construction Cost: \$2.2M

» Completion: 2022





Bel Road Extension and Linear Detention Ditch

Client: City of Kemah

Location: Kemah, TX

Performance:

- ✓ On Time
- ✓ Within Budget
- ✓ High Quality

LJA designed and provided plans and specifications for the construction of Bel Road Extension and Linear Detention Ditch. This included 2,000 LF of brand new roadway including drainage, pedestrian beautification, right of way acquisition, expansion of a 1,400 LF detention ditch and all appurtenances associated with building a new concrete roadway. Coordination with TxDOT, CenterPoint, pipelines, and the County of Galveston was needed for this project.

- » Construction Cost: \$1.4M
- » Completion: 2020



Sylvan and Jefferson Street Road Rehabilitation

Client: City of La Porte

Location: La Porte, TX

Performance:

- ✓ On Time
- ✓ Within Budget
- ✓ High Quality

LJA designed and provided plans and specifications for the construction of Sylvan Street and Jefferson Street consisting of 1,500 LF of roadway including drainage, waterlines, and all appurtenances associated with replacing an existing narrow concrete residential roadway, relocating its location within the right of way, and correcting its cross section. Special coordination with the City, Harris County, and private utilities was needed to design the road in such a way to impact residents as little as possible. The main purpose of the replacement was to increase the drainage capabilities of the existing storm water system, and to maximize the money spent while focusing on drainage.

- » Construction Cost: \$800k
- » Completion: 2020

Cien Road and Meadow Lane

Client: City of Kemah

Location: Kemah, TX

Performance: ✓ On Time, ✓ Within Budget, ✓ High Quality

Designed and provided plans and specifications for the construction of Cien Road and Meadow Lane consisting of 2,350 LF of roadway including drainage, pedestrian beautification, bike lane, drainage, and all appurtenances associated with rehabilitating an existing asphalt residential roadway and constructing a new concrete roadway. Special care was taken too impact the residents as little as possible during construction which rehabilitated park parking spaces for residents to use during construction and also better serve the residents.

- » Construction Cost: \$700k
- » Completion: 2017

Scotch Moss Lane

Client: City of La Porte

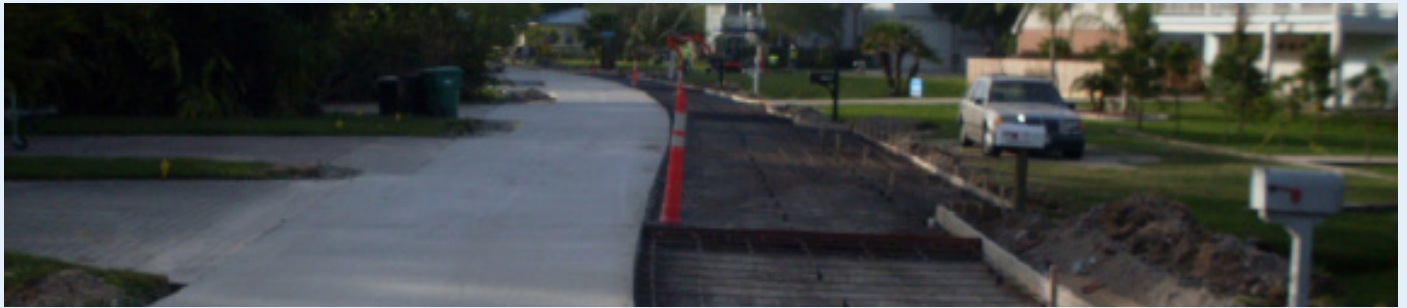
Location: La Porte, TX

Performance: ✓ On Time, ✓ Within Budget, ✓ High Quality

Designed and provided plans and specifications for the construction of Scotch Moss Lane consisting of 2,050 LF of roadway including drainage, sidewalk, waterlines, and all appurtenances associated with rehabilitating an existing failing concrete residential roadway and constructing a new concrete roadway. Special coordination with the City was needed to design the road in such a way to extend the money spent and fix the concrete roadway while salvaging as much of the existing concrete as possible.

» Construction Cost: \$650k

» Completion: 2017



Bayshore Drive

Client: City of Kemah

Location: Kemah, TX

Performance: ✓ On Time, ✓ Within Budget, ✓ High Quality

Designed and provided plans and specifications for the construction of Bayshore Drive consisting of 1,650 LF of roadway including drainage, pedestrian beautification and all appurtenances associated with rehabilitating an existing asphalt residential roadway and constructing a new concrete roadway. Special care was taken to impact the residents as little as possible during construction which included the rerouting of the new roadway to better serve the residents.

» Construction Cost: \$310k

» Completion: 2017

Woodland and Lake Street

Client: City of La Marque

Location: La Marque, TX

Performance: ✓ On Time, ✓ Within Budget, ✓ High Quality

LJA designed and provided plans and specifications for the construction of Woodland Street and Lake Street consisting of 3,500 LF of roadway and all appurtenances associated with rehabilitating an existing asphalt residential roadway and constructing a new concrete roadway. Special care was taken to impact the residents as little as possible during construction. Coordination with the County was also performed since the roadway crossed existing hurricane protection and levee gate used to protect residents from flooding in the City.

» Construction Cost: \$613k

» Completion: 2015





Seawall Sidewalk and Endcap

Client: Galveston County

Location: Galveston, TX

Performance: ✓ On Time, ✓ Within Budget, ✓ High Quality

In the wake of the devastation caused by Hurricane Ike in 2008, the iconic seawall structure protecting Galveston for over 100 years, was significantly damaged. LJA was charged with removing, replacing, and repairing 16 miles of sidewalks and storm drains that flowed through the impressive structure. Structural bedding was washed away by the storm, leaving voids that threatened the integrity of the seawall. The seawall endcap is now restored and the structure is intact and functioning as designed. The smoother surface invites bikers, joggers, and other recreational users to enjoy the new path.

» Construction Cost: \$1.25M

» Completion: 2016

WATER REHABILITATION PROJECTS



Kirby Street Water Plant Rehabilitation

Client: City of La Marque

Location: La Marque, TX

Performance:

✓ On Time

✓ Within Budget

✓ High Quality

LJA constructed a water supply plant to boost the pressure in the City's water distribution system, including a 500,000-gallon pre-stressed concrete ground storage tank, concrete masonry operations building housing three 50 hp horizontal split-case pumps each with a capacity of 1,000 GPM at 135 feet TDH, controls, and chemical feed systems, as well as a 300 kW emergency stand-by generator, connection to the City's on-site 400,000-gallon multi-legged elevated storage tank, and connection to the City's water distribution system.

» Construction Cost: \$1.7M

» Completion: July 2016





Waterline Rehabilitation, 2019

Client: City of Conroe

Location: Conroe, TX

Performance:

- ✓ On Time
- ✓ Within Budget
- ✓ High Quality

LJA provided engineering and design support services to provide plans and specifications for the construction of approximately 36,725 LF of waterlines, ranging in size from 4 inches to 8 inches, including valves, fire hydrants, the reconnections of more than 350 service connections, and all appurtenances. This waterline work is within both residential and commercial areas along the rights-of-way of Palestine, Roberson, Waco, Lewis, Dallas, San Jacinto, Thompson, Austin, Conroe, Adkins, Turner/Airport, Shady Oaks, Memory Lane, Shady Oaks, Pacific, N. 7th, N. 8th, N. 5th, Edgar, E. Phillips, S. 11th, S. 12th, N. 3rd, Sherman, Avenue A, Academy, and Criminal Justice within the City of Conroe. In an effort to get construction underway by the beginning of the next fiscal year, working with the City we combined the four separate projects into one and shortened our original schedule by four months. Topographic surveys, design, dry utility coordination and reviews, agency reviews, and City reviews for the seven miles of waterline rehabilitation was completed in under 10 months.

» Construction Cost: \$3.6M

» Completion: 2021

SANITARY SEWER REHABILITATION PROJECTS



Kidd Road Lift Station and Sanitary Sewer Rehabilitation

Client: New Caney MUD

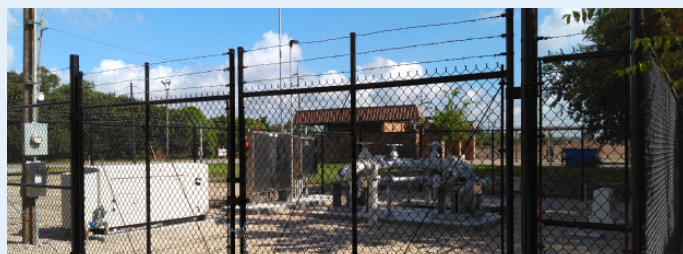
Location: New Caney, TX

Performance: ✓ On Time, ✓ Within Budget, ✓ High Quality

LJA provided project management, engineering, and design support services to provide plans and specifications for the demolition of the existing lift station and construction of a triplex submersible lift station with an 18-foot diameter (ID) concrete wet well, an expansion of the lift station's firm capacity to 3.1 MGD. Work includes all site work, structural, mechanical, electrical, and control components of the lift station, fencing, pavement, gravity sanitary sewers, force main, manholes, and all appurtenances necessary to deliver a complete and operational lift station to the owner.

» Construction Cost: \$955k

» Completion: 2019



Bluebell Lift Station Replacement

Client: Harris County WCID No. 1

Location: Harris County, TX

Performance: ✓ On Time, ✓ Within Budget, ✓ High Quality

LJA provided project management, engineering, and design support services to provide plans and specifications to replace the existing lift station with a new lift station. Work includes all site work, structural, mechanical, electrical, and control components of the lift station, fencing, pavement, gravity sanitary sewers, force main, manholes, as well as the rehabilitation of approximately 380 LF of sanitary sewer ranging in size from 6 inches to 12 inches, and all appurtenances necessary to deliver a complete and operational lift station to the owner.

» Construction Cost: \$665k

» Completion: 2019



SOQ • City of La Marque
Engineering/Architecture/Surveying Services LM 25-03



South Street Lift Station and Force Main Replacement

Client: New Caney MUD **Location:** New Caney, TX

Performance: ✓ On Time, ✓ Within Budget, ✓ High Quality

LJA provided project management, engineering, and design services for all site work, structural, mechanical, electrical, and control components necessary to deliver a complete and operational lift station for New Caney MUD. The project included fencing, pavement, gravity sanitary sewers, force mains, manholes, and appurtenances, as well as the construction of approximately 7,000 LF of sanitary sewer force main and 1,000 LF of 18-inch gravity sewer to divert flow to a large trunk sewer, alleviating other areas of the collection system.

» Construction Cost: \$1.4M

» Completion: 2020



Large Diameter Trunk Sewer Transmission Line

Client: New Caney MUD **Location:** New Caney, TX

Performance: ✓ On Time, ✓ Within Budget, ✓ High Quality

LJA provided project management, engineering, and design services for the construction of approximately 9,000 LF of 24- to 36-inch gravity sanitary sewer trunk lines, including manholes, service connections, system tie-ins, and appurtenances within New Caney MUD. During construction, utility relocations at Loop 494 and the proposed Grand Parkway overpass were required. LJA swiftly developed plans and specifications for relocating a force main and waterline with encased TxDOT ROW crossings, obtaining TxDOT UIR approval and adding the work as a change order to keep the project on schedule.

» Construction Cost: \$2.3M

» Completion: 2019



Trunk Sewer Rehabilitation

 **Client:** New Caney MUD  New Caney, TX

 **Performance:** ✓ On Time, ✓ Within Budget, ✓ High Quality

LJA provided project management, engineering, and design support services to provide plans and specifications for the construction of approximately 5,000 LF of 21-inch and 24-inch gravity sanitary sewer trunk lines including manholes, service connections, connections to the existing collection system, and all appurtenances necessary to deliver a complete and operational lift station to New Caney MUD.

» Construction Cost: \$907k

» Completion: 2017

Sanitary Sewer Rehabilitation

 **Client:** City of La Marque  La Marque, TX

 **Performance:** ✓ On Time, ✓ Within Budget, ✓ High Quality

LJA provided project management, engineering, and design support services to provide plans and specifications for the rehabilitation of 7,500 LF of 8-inch sanitary sewer lines utilizing mainly the pipebursting method within the city including manholes, service connections to the existing collection system, and all appurtenances necessary.

» Construction Cost: \$432k

» Completion: 2018

Oak Drive Force Main and Gravity Line Along Highway

 **Client:** City of La Marque  La Marque, TX

 **Performance:** ✓ On Time, ✓ Within Budget, ✓ High Quality

LJA provided project management, engineering, and design support services to provide plans and specifications for the rehabilitation of 3,440 LF of 10-inch sanitary sewer force main and 395 LF of 10-inch sanitary sewer within the city including manholes, service connections to the existing collection system, and all appurtenances necessary. This project also included coordination with several pipeline companies and the Union Pacific Railroad for the crossings of the proposed lines.

» Construction Cost: \$379k

» Completion: 2018

Sanitary Sewer Rehabilitation and Sanitary Sewer Lift Station Rehabilitation

 **Client:** City of Galena Park  Galena Park, TX

 **Performance:** ✓ On Time, ✓ Within Budget, ✓ High Quality

LJA is providing project management, engineering, design support services, and construction phase services for all site work, structural, mechanical, electrical, and control components of the two lift stations, fencing, pavement, force main, man-holes, and all appurtenances necessary to deliver a complete and operational lift stations to the City. LJA is also providing project management, engineering, design support services, and construction phase services for almost half of the City's Sanitary Sewer System by means of pipebursting, regrading new lines, and analyzing more appropriate system flow to maximize the efficiency and operational cost for the city. Over 65,000 LF of line were in-installed, and construction is scheduled to be completed in 2025 with an estimated budget of \$7M. This project is a disaster recovery project funded by the TxGLO and coordinated through the Harris County Community Services Department.

» Construction Cost: \$6.2M

» Est. Completion: August 2025

REFERENCES

LORENZO WINGATE, PE, CFM**City of Pearland**

Director of Engineering and Public Works

281.652.1900

lwingate@pearlandtx.gov

MICHAEL SHANNON, PE**Galveston County**

County Engineer

409.770.5552

michael.shannon@co.galveston.tx.us

JASON HULL, PE**Port Freeport**

Director of Engineering

979.233.2667

hull@portfreeport.com

THOMAS ROGERS**City of Jacinto City**

Director of Public Works

713.453.7411

thomas.rogers@jacintocity-tx.gov

TRINA JANKOWSKI**City of Galveston**

Construction Manager

409.797.3966

tjankowski@galvestontx.gov

MICHELLE SEGOVIA**City of Alvin**

City Engineer

281.388.4341

msegovia@cityofalvin.com

HERMAN R. GOODNEY**Harris County FWSD No. 6**

District Manager

281.642.4229

hcfw6@sbcglobal.net

JULIO BIZARRO**City of Galena Park**

Water and Wastewater Superintendent

713.855.2166

jbizarro@cityofgalenapark-tx.gov

RICKY MCDONALD**New Caney Municipal Utility District**

General Manager

281.659.5547

ricky@newcaneymud.org

MARK TAYLOR**Harris County WCID No. 1**

General Manager

281.426.2115

mark@hwcid1.com



The strongest indication of our success stems from client satisfaction and industry recognition. A carefully honed internal culture of dedication, commitment, and client-focused results is indicative of our approach to our work at all levels and evident in the way we conduct our business.



PAST LOCAL GOVERNMENT CLIENTS

Our Public Works division specifically serves cities, counties, and other municipalities, offering collective experience for a broad spectrum of services including general engineering consultation, city engineering, capital improvement planning, program/construction management, and public/private partnerships.



LJA's history of compliance with programs, schedules, and budgets is best exemplified by our record of attracting repeat and ongoing business with both public and private-sector clients for over 50 years.

ABBREVIATED LIST OF PAST LOCAL GOVERNMENT CLIENTS

- » Brazoria County
- » Brazos County
- » Chambers County
- » City of Alice
- » City of Alvin
- » City of Anahuac
- » City of Aransas Pass
- » City of Austin
- » City of Beaumont
- » City of Bevil Oaks
- » City of Bridge City
- » City of Cedar Park
- » City of China
- » City of Conroe
- » City of Corpus Christi
- » City of Dallas
- » City of Dayton
- » City of Dickinson
- » City of Eagle Pass
- » City of Freeport
- » City of Freer
- » City of Friendswood
- » City of Galena Park
- » City of Galveston
- » City of Groves
- » City of Hardin
- » City of Hedwig Village
- » City of Houston
- » City of Huntsville
- » City of Hutto
- » City of Ivanhoe
- » City of Jacinto City
- » City of Jasper
- » City of Kemah
- » City of Kingsville
- » City of Kyle
- » City of La Marque
- » City of La Porte
- » City of Lake Jackson
- » City of League City
- » City of Lumberton
- » City of Marble Falls
- » City of Mathis
- » City of Missouri City
- » City of Monroe
- » City of Nederland
- » City of New Braunfels
- » City of Nome
- » City of Orange
- » City of Pasadena
- » City of Pearland
- » City of Pflugerville
- » City of Pine Forest
- » City of Plum Grove
- » City of Port Arthur
- » City of Port Neches
- » City of Portland
- » City of Prairie View
- » City of Richmond
- » City of Richwood
- » City of Robstown
- » City of Rockport
- » City of Rosenberg
- » City of San Angelo
- » City of San Benito
- » City of San Marcos
- » City of Silsbee
- » City of Stafford
- » City of Sugar Land
- » City of Texas City
- » City of Vidor
- » City of West Columbia
- » City of Woodbranch Village
- » Fort Bend County
- » Galveston County
- » Hardin County
- » Harris County
- » Harris County Flood Control District
- » Harris County WCID
- » Hays County
- » Jasper County
- » Jefferson County
- » Jim Wells County
- » Kleburg County
- » Liberty County
- » Lumberton MUD
- » Montgomery County
- » New Caney MUD
- » Orange County
- » Orange County Drainage District
- » Orange County Water Control & Improvements District No. 1
- » San Jacinto County
- » Trinity Bay Conservation District
- » Tyler County



TAB C

CAPACITY TO PERFORM

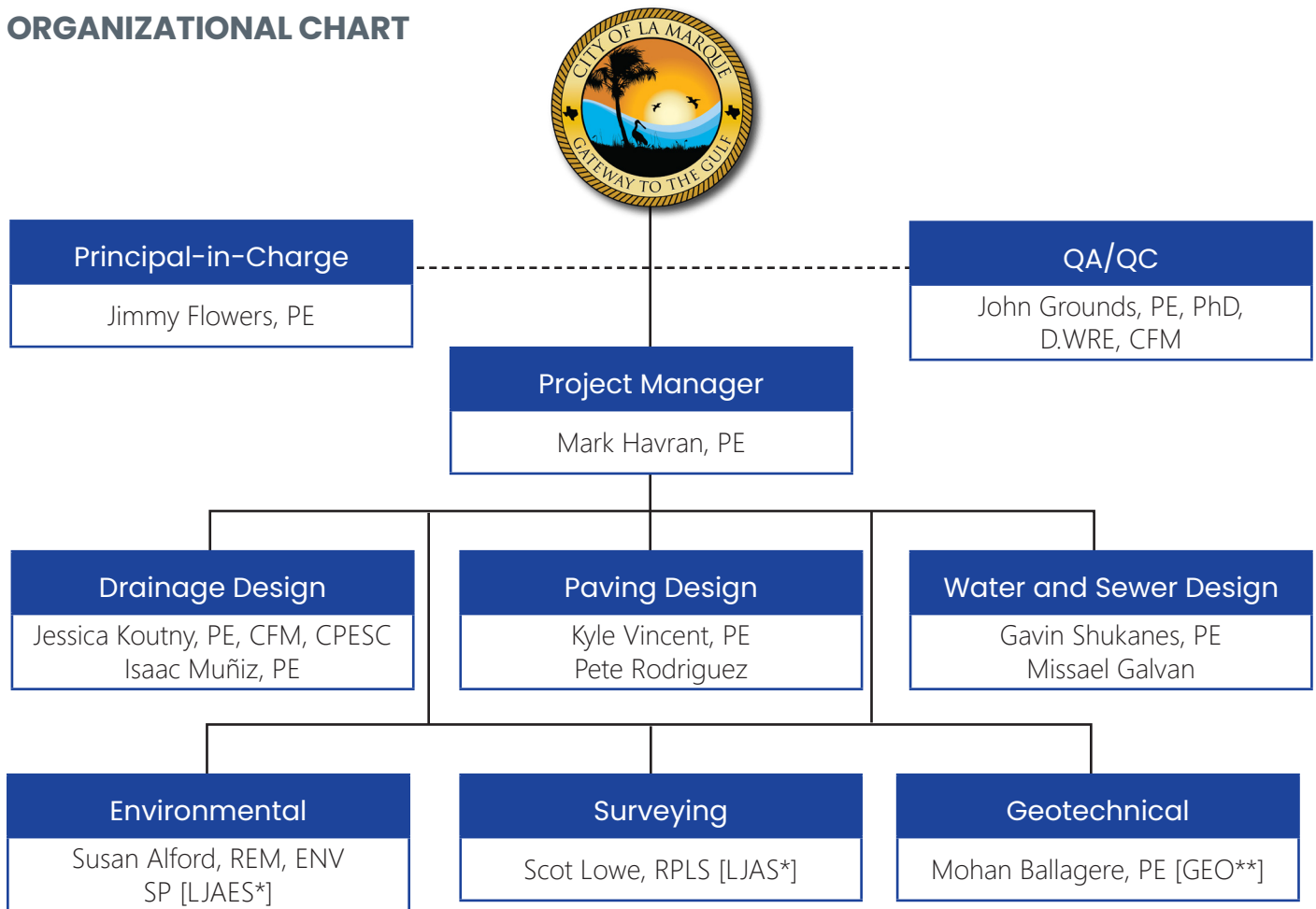
TAB C ► CAPACITY TO PERFORM

RESOURCES AND ABILITY TO CARRY OUT THE SCOPE OF WORK

LJA employs diverse competencies of staff with adequate resources and includes all engineering, design, construction management, and support personnel necessary to perform the scope of services required by the City. We have significant engineering, planning, surveying, GIS, and construction management talent to serve the technical needs of public and private entities in community and site development, midstream infrastructure, public works, transportation, water resources, and hydrology and hydraulics. This allows us to leverage our resources from across the company, provide expertise-driven teams, and deliver responsiveness to your specific needs and individualized project solutions.

LJA is capable of meeting the City's objectives with an efficient, knowledgeable, and responsive team. The current workload of the staff members proposed for this project is successfully managed to complete the tasks assigned to them in their roles on the project team. We carefully assess our project workload before committing to any project and make necessary adjustments to accommodate the demands for manpower or resources anticipated for successful project completion. The collective team assembled for this project anticipates no difficulty meeting schedule requirements. The project principal will closely monitor the availability of resources throughout the project, and act quickly to counterbalance any shifts in manpower or resources that could impede progress. ***All of our professional engineers are registered and in good standing with the Texas Professional Board of Engineers.***

ORGANIZATIONAL CHART



LJA Environmental Services, Inc. [LJAES] | LJA Survey, Inc. [LJAS] | Geotest Engineering, Inc. [GEO]

* A wholly owned subsidiary of LJA Engineering, Inc.

** Geotest Engineering, Inc. (GEO). LJA is committed to complying with EPA's Disadvantaged Business Enterprise (DBE) Program and will make a good faith effort to meet or exceed M/WBE participation goals. Our team includes GEO, a certified M/WBE firm, to support these efforts.

JIMMY FLOWERS, PE

PRINCIPAL-IN-CHARGE



EDUCATION

BS, Civil Engineering, University of Houston
AA, Engineering, San Jacinto College
AAS, Drafting Technology, Lee College

PROFESSIONAL LICENSE

2017, Professional Engineer, Texas #127107

SUMMARY OF QUALIFICATIONS

Jimmy has over 27 years of experience in design and civil engineering for public works projects. He manages the design, bidding, and construction administration of water and wastewater projects, as well as other public infrastructure improvement projects for Cities, Water Control and Improvement Districts (WCIDs), and Municipal Utility Districts (MUDs) in Harris, Montgomery, Brazoria, Fort Bend, and Liberty Counties. Jimmy's experience includes analysis and design of water and wastewater infrastructure, including sanitary sewer collection systems, water distribution systems, sanitary lift stations, groundwater treatment plants/booster pump stations with elevated storage, and wastewater treatment plant improvements, with a strong focus on the rehabilitation and expansion of existing infrastructure of developed and still developing MUDs and Cities.

PROJECT EXPERIENCE

New Caney MUD, Waterline Improvements, Bond Series 2019 and 2021, New Caney, TX – Provided engineering and design support services to provide plans and specifications for the construction of approximately 67,335 LF of waterlines, ranging in size from 6-inch to 12-inch, through eight phases of design and construction. This installation includes valves, fire hydrants, the reconnections of more than 765 service connections, and all appurtenances. These waterline improvements are within both residential and commercial areas within the New Caney Municipal Utility District.

City of Alvin, Waterline Improvements, Phases 1, Phase 2, and Phase 3, Alvin, TX – Provided engineering and design support services to provide plans and specifications for the construction of approximately 59,225 LF of waterlines, ranging in size from 6-inch to 10-inch, through three phases of design and construction. These installations included valves, fire hydrants, the reconnections of more than 700 service connections, and all appurtenances. These waterline improvements are within both residential and commercial areas within the City of Alvin.

City of Conroe, Waterline Rehabilitation Rivershire and Gladstell Area, Conroe, TX – Provided engineering and design support services to provide plans and specifications for the construction of approximately 41,000 LF of waterlines, ranging in size from 6-inch to 12-inch, including valves, fire hydrants, the reconnections of more than 600 service connections, and all appurtenances. This waterline work is within both residential and commercial areas along the rights of way of Gladstell Street, Sgt. Ed Holcomb Boulevard, all streets within the Rivershire neighborhood in the City of Conroe. To get construction underway by the beginning of 2022, working with the City we were able to shorten our established design schedule by two months.

Harris County WCID No. 1, Waterline Rehabilitation 2020 Bond Project, Houston, TX – LJA provided engineering and design support services to provide plans and specifications for the construction of approximately 25,630 LF of waterlines, ranging in size from 6-inch to 8-inch, including valves, fire hydrants, the reconnections of more than 250 service connections, and all appurtenances.



MARK HAVRAN, PE

PROJECT MANAGER



EDUCATION

BS, Civil Engineering, Texas A&M University

PROFESSIONAL LICENSE

2014, Professional Engineer, Texas #118610

SUMMARY OF QUALIFICATIONS

Mark Havran has worked with many municipalities throughout the greater Houston area. He has over 15 years of experience in the civil engineering field. This work has been for a myriad of projects in water distribution, sanitary sewer collection, drainage and roadway systems, paving, municipal water and wastewater treatment facilities, estimating, asset management plans, consumer confidence reports, wastewater treatment plant permits, drought contingency plans, water monitoring plans, costs/budgeting analysis, construction phase services, and project representation.

PROJECT EXPERIENCE

23rd Street County Road Bond, Galveston County, TX – Designing and providing plans and specifications for the construction of 23rd Street consisting of 3,880 LF of roadway including drainage/storm sewer, sanitary sewer, waterlines, and all appurtenances associated with rehabilitating an existing asphalt residential roadway and constructing a new concrete roadway as well as all the utilities under the road. The estimated construction amount is estimated at \$10.5M and is scheduled to be completed by the fourth quarter of 2023.

City of Galena Park, Sanitary Sewer Rehabilitation & Sanitary Sewer Lift Station Rehabilitation – Provided project management, engineering, and design support services to provide plans and specifications for the rehabilitation of approximately 2,700 LF of gravity sanitary sewer trunk lines, ranging in size from 21-inch to 36-inch, by method of cure-in-place pipe lining. This project also included the rehabilitation of approximately ten sanitary manholes, reconnection of existing service connections, connections to the existing collection system, and all appurtenances necessary to deliver a complete and operational trunk line to the City.

Cedar Bayou Park UD, TX, Transfer Lift Station & Demolition Of Existing Wastewater Treatment Plant – Provided project management, engineering, and design support services for all site work, structural, mechanical, electrical, and control components of the lift station, fencing, pavement, force main, manholes, and all appurtenances necessary to deliver a complete and operational lift station to Cedar Bayou Park Utility District, as well as the demolition of the existing wastewater treatment plant that was flooded during Hurricane Harvey. Construction of Cedar Bayou Park Lift Station started in November 2021 and was completed July 2022 in the amount of \$1,325,000. The District used three separate sources of funding for the project which include FEMA funding, TML Insurance funding, and a TWDB Disaster Forgiveness loan.



JOHN GROUNDS, PE, PHD, D.WRE, CFM

QA/QC



EDUCATION

PhD, Civil Engineering, University of Houston
MS, Civil Engineering, University of Houston
BS, Civil Engineering, Southern Methodist University

PROFESSIONAL LICENSE

1990, Professional Engineer, Texas #68799
Certified Flood Plain Manager, #0267-00

TXDOT PRECERTIFICATIONS

Employee Sequence No. 1322 // Categories: 4.1.1, 4.2.1, 8.1.1, 10.1.1, 10.2.1, 10.3.1, 10.4.1

SUMMARY OF QUALIFICATIONS

John has over 33 years of unparalleled civil engineering experience which has included the planning, analysis and design of complex drainage and flood control projects, water resource systems, water supply, conveyance systems, site grading and drainage, and hydraulic structures. His relevant experience includes serving as Deputy Project Manager for the George Bush Intercontinental Airport Drainage Master Plan Update; Project Manager for the City of Bellaire Storm Water Management Plan utilizing SWMM; Project Manager for the Tropical Storm Allison Recovery Project and Project Manager for the Floodplain Improvement Study in Alvin, Texas. He also served as Project Engineer for the Sabine River Flood Analysis and Toledo Bend Reservoir Dam Break; Project Manager for the Hydrologic and Hydraulic Impacts of Proposed Street and Drainage Improvements in the City of Houston utilizing SWMM; and numerous county-wide and site-specific FEMA Physical Map Revisions and Letters of Map Changes across the State of Texas. His experience also includes the management and execution of successful Geographic Information Systems projects.

PROJECT EXPERIENCE

Subdivision Drainage Projects in Harris Co. Drainage Projects Geographically Eligible for CBDG-DR Funding, Houston, TX – Served as Project Manager. Developed drainage improvement recommendations, prepared and attended community outreach meetings, conducted detailed hydrologic and hydraulic analyses, and prepared cost estimates to assist Harris County to support partnership agreement negotiations and facilitate grant applications for CBDG-DR Funding and other grant programs. Hydrologic analyses utilized Atlas 14 100-year rainfall for 2D HEC-RAS modeling of overland flow paths. Channel improvements to FEMA studied streams used the Effective Flood Insurance Study HEC-RAS model for the 500-year event. Oversaw the development of GIS exhibits integrating multi-jurisdictional data from Harris County, HCFCD, FEMA, City of Houston, TxDOT, and HUD.

Addicks Reservoir Watershed Mapping, Houston, TX – Served as Project Manager. In support of a Physical Map Revision for 14 Flood Insurance Rate Panels across 89,000 acres of the Addicks Reservoir Watershed, LJA prepared Mapping Activity Statements as part of a FEMA grant application, Conducted Public Outreach, reviewed the adequacy of LiDAR in the development of hydrology and hydraulic models, prepared the GIS basemap of roads, parks, corporate limits, railroads, and streams, performed QA/QC of the hydrologic models including the impervious cover and land use mapping, performed QA/QC of the hydraulic models, prepared the Special Flood Hazard Area Mapping to FEMA GIS Specifications, prepared RiskMAP Inundation and “Changes Since Last Map” products, prepared the Summary of Mapping Activities, Flood Profiles, Floodway data Tables, Summary of Discharges Tables, and updated the Flood Insurance Study text.

JESSICA KOUTNY, PE, CFM, CPESC

DRAINAGE DESIGN LEAD



EDUCATION

MS, Agricultural Engineering, Texas A&M University
BS, Agricultural Engineering, Texas A&M University

PROFESSIONAL LICENSE

2003, Professional Engineer, Texas #91867
2004, Certified Floodplain Manager #0569-04N
2009, Certified Professional in Erosion and Sediment Control #5317

TXDOT PRECERTIFICATIONS

Employee Sequence No. 15370 // Categories: 10.1.1, 10.2.1, 10.3.1, 10.5.1

SUMMARY OF QUALIFICATIONS

Jessica is an environmental engineer with over 19 years of environmental and civil engineering project experience including hydrologic and hydraulic modeling; the preparation of plans, specifications, and estimates (PS&E); development of stormwater pollution prevention plans (SWPPPs); implementation of best management practices (BMPs) drainage design; evaluation and design of detention structures and outlet works; site development; site assessment; constructed wetland design and analysis; floodplain management; and environmental remediation. Her responsibilities include engineering design and analysis, and computer modeling. Her projects have included the utilization of UNET, RMA2, SED2D, HEC-1, HEC-2, HEC-HMS, HEC-RAS, and Texas Secondary Evaluation and Analysis for Scour (TSEAS).

PROJECT EXPERIENCE

Storm Water Management Program for Phase II MS4s, Jacinto City, Galena Park, Deer Park, Kemah, and La Marque, TX – Project Manager for development and implementation of the Storm Water Management Programs (SWMPs) for Phase II Municipal Separate Storm Sewer (MS4) for urbanized areas of cities of Jacinto City, Galena Park, Deer Park, Kemah and La Marque. SWMPs consisted of development of storm water management plans unique to the specific municipal activities of each city. All outfalls and drainage systems were inventoried as well as identifying BMPs to use over the five-year permit cycles as part of their Phase II MS4 permits. Coordinating with city personnel during the SWMP development and implementation process was key to providing the appropriate minimum control measures for each of the cities. Additional planning for capital improvements and aligning those projects with the water quality goals of the MS4 program were instrumental in successful compliance.

US 70 Drainage Analysis, TxDOT Wichita Falls District, TX – Comprehensive drainage analysis to investigate the cause of flooding along the Pease River Tributary #1 and US 70 within the City of Vernon. The analysis required a SWMM 2D model to correctly model the existing concrete lined channel down the median of US 70 and represent areas of overflow. The analysis evaluated seven alternatives for mitigating the flooding along US 70 in the 10-, 25-, and 100-year storm events.

Harris County Flood Control District (HCFCD), L500-09-00 Schiel Stormwater Detention Basin Preliminary Engineering Report and Final Design, Harris County, TX – Project Manager for the preliminary engineering report (PER) and final design of the Schiel Stormwater Detention Basin (L500-09-00) and natural channel design improvements for Little Cypress Creek (L100-00-00). The proposed detention basin is a regional multi-cell basin that includes more than 580 acres with a target storage volume of 7,000 acre-feet of excess stormwater.



ISAAC MUÑIZ, PE

DRAINAGE DESIGN SUPPORT



EDUCATION

BS, Civil Engineering, University of Texas at Austin

PROFESSIONAL LICENSE

2017, Professional Engineer, Texas #125839

SUMMARY OF QUALIFICATIONS

Isaac has over 14 years of civil engineering experience in the public and private sectors for planning and design projects. His engineering experience consists of drainage, paving, water distribution systems and facilities, wastewater systems and facilities, storm sewer systems, and site development. During planning, Isaac has performed alternative route analysis which includes identifying required real estate acquisition needs, life cycle cost analysis, hydrologic and hydraulic modeling, and rehabilitation/replacement alternative analysis for wastewater and water facilities. In design, Isaac has prepared plans, specifications, and estimates (PS&E) for bidding and code enforcement permitting, developed stormwater pollution prevention plans (SWPPPs), and commercial/residential site development.

PROJECT EXPERIENCE

L500-09-00 Schiel Stormwater Detention Basin Improvements, Harris County, TX – Assistant Project Manager for preliminary engineering report (PER) and PS&E phase of the Schiel Stormwater Detention Basin (L500-09-00-E001) and natural stable channel design improvements for Little Cypress Creek (L100-00-00). Proposed detention basin is a regional multi-cell basin that will include more than 580 acres with a target storage volume of 6,000 acre-feet of excess stormwater. In addition to the detention basin, the L100-00-00 channel will be lowered using natural stable channel design techniques to meander through the Schiel Stormwater Detention Basin and meet USACE stream mitigation requirements. Channel improvements will affect approximately 5 miles of L100-00-00. Recommendations of the approved PER will be the basis for the final PS&E design of the conveyance improvements with a preliminary estimated construction cost of approximately \$105M.

M124-00-00 Channel Conveyance Improvements, Harris County, TX – Assistant Project Manager for Phase 2 of the M124 watershed improvements from SH 249 to Willow Creek. Phase 1 ran from SH 249 to FM 2920. Phase 2 starts upstream as SH 249 and expands the Phase 1 channel and detention basin including sizing of the culvert crossing from FM 2920 which was coordinated with TxDOT for FM 2920 improvements. Downstream of FM 2920 new channel alignment for M124-00-00 until Treichel Road then improves existing M124-00-00 channel until confluence to Willow Creek (M100-00-00). Multiple detention basins sized south of FM 2920 to mitigate channel improvements so no impact to Willow Creek. Additional detention sized for the Precinct 4 Willow Creek Campus to offset development within the Harris County facility. Coordinated with sub-consultants to provide all the required information needed to complete their submittal on schedule.

City of Kemah Master Drainage Plan, Kemah, TX – Project Manager for the development of a Master Drainage Plan for the City of Kemah. Created an inventory of existing drainage infrastructure owned and maintained by the City using ArcGIS. Prepared and oversaw the hydrologic and hydraulic modeling for the existing and proposed conditions using XP-SWMM and WinStorm. Analyzed multiple alternatives which included storm sewer upsizing, ditch widening and deepening, and regional detention. Conducted quantity take-offs and opinion of probable cost estimates to provide client data to budget their Capital Improvement Program.

KYLE VINCENT, PE

PAVING DESIGN LEAD



EDUCATION

BS, Civil Engineering, Texas A&M University

PROFESSIONAL LICENSE

2021, Professional Engineering, Texas #143122

SUMMARY OF QUALIFICATIONS

Kyle has worked with various municipalities including City of Kemah, Jacinto City, Galena Park, Galveston County WCID 12, Harris County WCID 1, Harris County FWSD 6, and more throughout the greater Houston area. He has nine years of experience in the civil engineering field. Kyle has worked with the Texas General Land Office, Texas Community Development Block Grant Program, Texas Commission on Environmental Quality, and Texas Water Development Board. This work has been for multiple projects in the Greater Houston Area including design/build projects in water distribution, sanitary sewer collection, drainage and roadway systems, paving, wastewater treatment plant permits, drought contingency plans, water monitoring plans, and costs/budgeting analysis.

PROJECT EXPERIENCE

Bel Road Extension and Linear Detention Ditch, Kemah, TX – Developed the Contract Documents and quantities for the construction of the road. Coordinated between the various pipelines in the area to acquire the proper safety requirements and received the Letters of No Objection required for construction. Analyzed the change in land type with the proposed road to determine the new the detention ditch's capacity that would be needed for the area. The estimated construction amount is \$1.27M and was completed in 2020.

Cien Road and Meadow Lane, City of Kemah, TX – Developed the Contract Documents, quantities, and specifications for the construction of Cien Road and Meadow Lane consisting of 2,350 LF of roadway including drainage, pedestrian beautification, bike lane, drainage and all appurtenances associated with rehabilitating an existing asphalt residential roadway and constructing a new concrete roadway. The construction amount was \$687.6k and was built from January 2017 to May 2017.

23rd Street Rehabilitation, Galveston County Galveston, TX – Developed the Contract Documents, quantities, and specifications for the reconstruction of 23rd Street consisting of 3,880 LF of roadway including drainage, pedestrian beautification, drainage, sanitary sewer, and waterlines, and all appurtenances associated with rehabilitating an existing asphalt residential roadway and constructing a new concrete roadway. The construction amount was \$10.267M and was completed in 2024.

TGLO Sanitary Sewer Rehabilitation 2018, City of La Marque, TX – Developed the Contract Documents, quantities, and specifications for the rehabilitation of the cities sanitary sewer system. Project consisted of rehabilitating approximately 15,000 LF of pipe including manholes. The construction amount was \$485k and was built in 2018.

Sanitary Sewer Rehabilitation, City of Galena Park, TX – Developed the Contract Documents, quantities, and specifications for the rehabilitation of the cities sanitary sewer system. Project consists of rehabilitating 67,400 LF of pipe and manholes, and all appurtenances associated with installing new pipe and manholes. The construction amount is approximately \$3.5M and is to be constructed in October 2022.

PETE RODRIQUEZ

PAVING DESIGN SUPPORT



EDUCATION

Engineering Design Graphics Certificate, San Jacinto College
AAS, Drafting Technology, San Jacinto College

SUMMARY OF QUALIFICATIONS

Pete has 13 years of experience in civil design. He provided design and engineering support across multiple divisions of public infrastructure, water planning and development, water distribution and wastewater collection system design, municipal water and wastewater treatment facilities, transportation/roadway design, and storm drainage/flood control design.

PROJECT EXPERIENCE

Westside Paving and Drainage, Hedwig Village, TX – Provided preliminary report, exhibits, public meetings and workshops, and recommendations to City Staff and representatives based on a City-wide drainage study. The Westside Paving and Drainage project will consist of over 14,000 LF of roadway including drainage, waterlines, sewer lines, and all appurtenances associated with replacing an existing narrow asphalt open ditch residential roadway, relocating its location within the right of way, trail replacement, lowering the street, and correcting its cross section. Special coordination with the City, Harris County, Flood Control District, Memorial Village Water Authority, and private utilities was needed to plan and budget for the project. Special construction concerns and methods were taken into consideration in such a way to impact residents as little as possible when the project is constructed. The main purpose of the replacement was to increase the drainage capabilities of the existing storm water system in order to sheet flow water across town more effectively and efficiently to the City's ultimate outfall in order to help prevent the structural flooding throughout the City that has been experienced more frequently in years as of late. Also, the proposed project was value engineered to minimize the required money spent while focusing on drainage in order to still accomplish its goal.

23rd Street County Road Bond, Galveston County, TX – Designed and provided plans and specifications for the construction of 23rd Street consisting of 3,880 LF of roadway including drainage/storm sewer, sanitary sewer, waterlines, and all appurtenances associated with rehabilitating an existing asphalt residential roadway and constructing a new concrete roadway as well as all the utilities under the road.

Woodland and Lake Street, La Marque, TX – Designed and provided plans and specifications for the construction of Woodland Street and Lake Street consisting of 3,500 LF of roadway and all appurtenances associated with rehabilitating an existing asphalt residential roadway and constructing a new concrete roadway. Special care was taken to impact the residents as little as possible during construction. Coordination with the County was also performed since the roadway crossed existing hurricane protection and levee gate used to protect residents from flooding in the City.

Scotch Moss Lane, La Porte TX – Designed and provided plans and specifications for the construction of Scotch Moss Lane consisting of 2,050 LF of roadway including drainage, sidewalk, waterlines, and all appurtenances associated with rehabilitating an existing failing concrete residential roadway and constructing a new concrete roadway. Special coordination with the City was needed to design the road in such a way to extend the money spent and fix the concrete roadway while salvaging as much of the existing concrete as possible.

GAVIN SHUKANES, PE

WATER AND SEWER DESIGN SUPPORT



EDUCATION

BS, Civil Engineering, University of Texas at San Antonio

PROFESSIONAL LICENSE

2024, Professional Engineer, Texas #153460

SUMMARY OF QUALIFICATIONS

Gavin has approximately four years of civil engineering experience, specifically focusing on public works projects. He has provided engineering assistance for water and sanitary sewer infrastructures, estimating, designing, acquiring approvals from necessary entities, and cost/budgeting analysis. He has experience in the KYPipe software by completing a 16-hour basic and advanced modeling training course as well as in ACAD from a college course and past projects. Gavin has assisted the Project Manager with multiple projects and is currently helping with multiple municipalities in providing them with engineering and construction services.

PROJECT EXPERIENCE

New Caney MUD and Harris County WCID No. 1, TCEQ Bond Applications, New Caney, TX – Assisted in the preparation and submittal of multiple bond applications, including an application with a total bond issue requirement of \$19M for New Caney MUD and an application with a total bond issue requirement of \$8.15k for Harris County WCID No. 1. Currently assisting in the preparation of a \$1.285k bond issue for the Hendricks Defined area within New Caney MUD.

New Caney MUD, Waterline Extensions along Keith Drive/Laura Lane and FM 1485 East, New Caney, TX – Provided engineering and design service assistance to provide plans and specifications for the construction of approximately 6,500 LF of 12-inch waterline and 3,000 LF of 8-inch waterline including valves, fire hydrants, service connections, and all appurtenances within the district. Estimated construction cost is \$1.9M.

New Caney MUD, Waterline Extensions, Phase "A" along SH 59, Lawsuit Lane, Kidd Cemetery Road, and Gabriel Road, New Caney, TX – Provided engineering and design service assistance to provide plans and specifications for the construction of approximately 4,200 LF of 12-inch waterline including valves, fire hydrants, service connections and all appurtenances within the district. Estimated construction cost is \$630,000.

New Caney MUD, Waterline Extensions, Phase "B" along SH 59 and Antique Lane, New Caney, TX – Provided engineering and design service assistance to provide plans and specifications for the construction of approximately 4,900 LF of 12-inch waterline including valves, fire hydrants, service connections and all appurtenances within the district. Estimated construction cost is \$550,000.

City of Alvin, Waterline Improvements, Phase 3, Alvin, TX – Helped provide engineering and design service assistance to provide plans and specifications for the construction of approximately 25,100 LF of 6-inch and 8-inch waterlines including valves, fire hydrants, service connections, and all appurtenances. Estimated construction cost is \$3.3M.

Galveston County WCID No. 12, Master Water Plan, Kemah, TX – Helped provide engineering and design service support to layout the master water plan in this district, including water distribution lines, fire hydrant, and water supply plants within Galveston County Water Control and Improvement No. 12 for future development.



MISSAEL GALVAN

WATER AND SEWER DESIGN SUPPORT



EDUCATION

AAS, Mechanical Drafting

SUMMARY OF QUALIFICATIONS

Missael has over six years of working experience in civil engineering design. His experience includes design support for water and wastewater systems, including infrastructures such as water distribution lines, elevated storage tanks, water wells, wastewater collection systems, and lift stations.

PROJECT EXPERIENCE

North Harris County Regional Water Authority, Project 6C-2, Proposed 16-Inch Water Transmission

Line, Tomball, TX – As a CAD drafter, currently providing engineering and design support services to provide plans and specifications for the construction of approximately 5,000 LF of a 16-inch water transmission line and appurtenances along proposed easements and rights of way of Hereford Road, Spring Cypress Road, and Texas Willow Drive within the North Harris County Regional Water Authority transmission network.

City of Jacinto City, Water System Improvements, CDBG Phases 2 and 3, Jacinto City, TX

– As a CAD drafter, provided engineering and design support services to provide plans and specifications for the construction of approximately 65 LF of 14-inch waterline, 180 LF of 12-inch waterline including an 1-inch steel encased crossing of a County roadway and UPRR tracks, 1,885 LF of 10-inch waterline, 16,855 LF of 8-inch waterline, 100 LF of 6-inch waterline, and 50 LF of 2-inch waterline including valves, fire hydrants, and all appurtenances within the City of Jacinto City.

City of Alvin, Water Improvements Phase 1, Alvin, TX – As a CAD drafter, provided engineering and design support services to provide plans and specifications for the construction of approximately 17,845 LF of waterlines, ranging in size from 6-inch to 10-inch, including valves, fire hydrants, the reconnections of more than 230 service connections, and all appurtenances. This waterline work is within both residential and commercial areas along the rights of way of S. Gordon/SH 35, W. Adoue, W. Cleveland, S. Hardie, W. Coombs, W. Dumble, W. Foley, S. Booth, W. Blackstone, Coke, Hillje, Duncan, Matteson, S. Lee, W. Jordan, Woodward, and Cedar within the City of Alvin.

City of Conroe, Waterline Rehabilitation, Conroe, TX – As a CAD drafter, provided engineering and design support services to provide plans and specifications for the construction of approximately 36,725 LF of waterlines, ranging in size from 4-inch to 8-inch, including valves, fire hydrants, the reconnections of more than 180 service connections, and all appurtenances. This waterline work is within both residential and commercial areas along the rights-of-way of Palestine, Roberson, Waco, Lewis, Dallas, San Jacinto, Thompson, Austin, Conroe, Adkins, Turner/Airport, Shady Oaks, Memory Lane, Shady Oaks, Pacific, N. 7th, N. 8th, N. 5th, Edgar, E. Phillips, S. 11th, S. 12th, N. 3rd, Sherman, Avenue A, Academy, and Criminal Justice within the City of Conroe.

SUSAN ALFORD, REM, ENV SP

ENVIRONMENTAL LEAD



EDUCATION

MA, Range Ecology & Management, Texas A&M University
BS, Range Ecology & Management, Texas A&M University

PROFESSIONAL LICENSE

Registered Environmental Manager (REM) #10036
National Environmental Policy Act (NEPA) Training and Certification
Certified Wetland Delineator, TEEX 1994
Institute for Sustainable Infrastructure Certified Professional #30247

TXDOT PRECERTIFICATIONS

Employee Sequence No. 6546 // Work Categories 1.6.1, 2.3.1, 2.4.1, 2.4.2, 2.4.3, 2.6.2, 2.13.1, and 2.14.1

SUMMARY OF QUALIFICATIONS

Susan brings over 31 years of experience in land management and natural resource assessments, specializing in environmental compliance and permitting. Her technical experience includes performing environmental studies and writing Environmental Assessments (EAs) and Categorical Exclusions compliant with the National Environmental Policy Act (NEPA). Susan has prepared NEPA-compliant environmental documentation for review and approval by various federal agencies such as Federal Emergency Management Agency (FEMA), US Army Corps of Engineers (USACE), and US Environmental Protection Agency (EPA), as well as state agencies such as the Texas Department of Transportation (TxDOT) and Texas Water Development Board (TWDB). Her experience in environmental compliance and regulatory permitting includes a long list of approved projects with the EPA, including Region 6, Texas Commission on Environmental Quality (TCEQ), and the USACE in the southwest region. Susan has conducted over 1,500 approved actions, including National Environmental Policy Act (NEPA) documents for multiple federal and state agencies.

PROJECT EXPERIENCE

Mitigation Program for Capital Improvement Projects, Watershed Analysis, Houston, TX – Limited wetlands due diligence, environmental property transaction screen, and full Phase I environmental site assessments on the various regional storm water detention basins located around the City of Houston (Buffalo, Sims, Hunting, Greens, and Keegan). The purpose of the studies was to evaluate existing and future conditions of the watersheds and neighboring subdivisions, which experienced flooding issues in the past.

Buffalo Bayou Slope Repair and Stabilization, Houston, TX – Permit application of USACE Nationwide Permit 45 for the repair of Buffalo Bayou resulting from Hurricane Harvey. Other duties performed included a wetland delineation of the ordinary high-water mark and threatened and endangered species survey.

West Harris County Regional Water Authority (WHCRWA), Five Second Source Transmission Line Projects, Houston, TX – Transmission line projects which was partially funded by the Texas Water Development Board (TWDB). Prepared the environmental data forms in accordance with the TWDB's requirements, including performing a wetland delineation, threatened and endangered species assessment, land use and socio-economic analysis, limited Phase I ESA, historical, cultural, and archeology surveys, and agency coordination.

SCOT LOWE, RPLS

SURVEY LEAD



EDUCATION

AAS, Land Surveying, San Jacinto College

PROFESSIONAL LICENSE

Registered Professional Land Surveyor, Texas #5007

SUMMARY OF QUALIFICATIONS

Scot has 33 years of experience as a Registered Professional Land Surveyor in Texas. He has over 10 years of experience as a Survey Manager with LJA Surveying, overseeing various surveying projects, including land title boundary surveys, topographic surveys for design/development, and route surveys delineating right of way. Responsibilities include managing the Pearland survey group with multiple crews, techs, and draftspersons. Quality assurance is a top priority when providing surveying services to LJA clients.

PROJECT EXPERIENCE

Topography of City of Conroe Waterline Rehabilitation Project, Conroe, TX – Approximately five-mile reach; Full right of way to right of way topography, Easement(s) location with deed information, one-call pipelines and utilities, improvements, storm, sanitary, water, and pavement-full detail. Performed cross-sectional analysis to capture existing conditions. Established horizontal and vertical control, modern tunneling machines (TBM), and baselines for future construction.

City of New Caney, Waterline Rehabilitation Project, New Caney, TX – Approximately 10,500 LF reach; Full right of way to right of way topography, Easement(s) location with deed information, one-call pipelines and utilities, improvements, storm, sanitary, water, pavement-full detail. Performed cross-sectional analysis to capture existing conditions. Established horizontal and vertical control, modern tunneling machines (TBM), and baselines for future construction.

Eastman Chemical Plant in Texas City, Galveston County, TX – Provided a standard Land Title Boundary survey, Category 1B-Condition II, with accompanying metes and bounds descriptions for all Eastman Chemical-owned property in Texas City. Recovered existing plant control monuments, NGS monuments, boundary monumentation, data collection, and property corners on each tract. Improvements were shown as a background ortho image obtained via Precision Aerial.

Galveston County Drainage District No. 1 Willow Bayou/Avenue L Drainage Project, Galveston County, TX – Obtained elevations of existing pipelines that cross project. Showed confluence flowlines, widths, high banks, street right of way, etc.

Harris County Flood Control District, Houston, TX – Current on-call contract to provide surveying support for levee settlement surveys, cross sections for de-silts, as well as rights of way and topography for construction on various HCFCD units.

City of La Marque Topography Galveston County, TX – Approximately 5,750 LF reach; Wisteria Street, Honeysuckle Street, and Azalea Street from Cedar Drive to Ross Street-Full right of way plus 15-foot right of way location, easement(s) location with deed information, one call pipelines and utilities, storm, sanitary, water, pavement – full detail. Cross-sections 100-foot intervals plus any breaks.

MOHAN BALLAGERE, PE

GEOTECHNICAL LEAD



EDUCATION

MS, Civil Engineering, South Dakota School of Mines & Technology
BS, Civil Engineering, University of Mysore

PROFESSIONAL LICENSE

2000, Professional Engineer, Texas #87622

SUMMARY OF QUALIFICATIONS

Mohan has over 31 years of experience and has worked on various projects involving areas of expertise in open cut/trenchless construction for sanitary sewer installation, open cut/retained excavation for pump station and intake structure, excavation stability, ground water control during and after construction, coffer dams (temporary and permanent), bearing pressures, bedding and backfill, thrust restraint, earth pressure diagrams, slope stabilization, uplift pressure resistance, shallow and deep foundations and construction considerations for wastewater projects. His responsibilities include preparation of geotechnical proposals, project coordination, performing engineering analyses, developing geotechnical recommendations for sanitary sewer, lift stations, transfer pump station, manholes, valves and buildings design and construction, preparation of geotechnical and trench safety reports, project cost control, geotechnical consulting during construction, and overseeing staff engineers.

PROJECT EXPERIENCE

- » Fort Bend County Water Control and Improvement District No. 2, Surface Water Transmission Line Phase IV, Stafford, TX
- » City of Sugar Land, Surface Water Treatment Plant (SWTP) Expansion, Sugar Land, TX
- » City of Houston, Lift Station Rehabilitation and Reconstruction Design Consent Decree CMAR, WBS No. R-000267-0175-3, Houston, TX
- » City of Houston, Southeast Transmission Water Line, Contract A, Extension Extend 54-inch Water Line to SEWPP Header, WBS No. S-000900-0149-4, Houston, TX
- » City of Houston, Wastewater Force Main Rehabilitation and Reconstruction Design Consent Decree, Gessner #1 Lift Station, WBS No. R-000035-0028-3, Houston, TX
- » James and N. Main Lift Stations Rehabilitations, Baytown, TX
- » Galveston County WCID #1, West Water Plant Improvements, Galveston County, TX
- » City of Manvel, Maverick Water Plant Improvements, Manvel, TX
- » City of Pasadena, Cascade Water Plant Improvements, Pasadena, TX
- » City of Baytown, Baker Road Lift Station, Baytown, TX
- » Willow Meadow Lift Station Rehabilitation, WBS No. R-000536-022A-4, Houston, TX
- » City of Pearland, Surface Water Plant Package 3, Proposed Ground Storage Tank, Pearland, TX
- » Intercontinental Airport Wastewater Treatment Plant Improvements, WBS No. R-000265-0117-3, Houston, TX
- » Disaster Mitigation for WW Facilities induced by Hurricane Harvey, Package 1; Kingwood Area; WBS No. R-000536-0037-3, Kingwood, TX
- » Sanitary Sewer Ext. along US 59 and Hartwick Road, East Aldine Management District, Harris County, TX
- » City of Houston, NEWPP-Component 1, Houston, TX
- » City of Houston, Force Main Flow Division - Sagemont Lift Station to Southeast WWTP, Houston, TX



TAB D

SUBMISSION REQUIREMENTS



TAB D SUBMISSION REQUIREMENTS



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
7/17/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must have **ADDITIONAL INSURED** provisions or be endorsed. If **SUBROGATION** IS **WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Greyling Insurance Brokerage 3780 Mansell Road, Suite 370 Alpharetta, GA 30022	CONTACT NAME: Jerry Noyola PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS: jerry.noyola@greyling.com INSURER(S) AFFORDING COVERAGE INSURER A: National Union Fire Ins Co Pittsburgh PA INSURER B: Allied World Assurance Company (U.S.) INSURER C: New Hampshire Insurance Company INSURER D: INSURER E: Evanston Insurance Company INSURER F:
INSURED LJA Engineering, Inc. 3600 W Sam Houston Parkway S Suite 600 Houston TX 77042	NAIC # 19445 19489 23841 35378

COVERAGES

CERTIFICATE NUMBER: 80980928

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☒ PROJECT ☒ LOC OTHER:			GL 6360582	8/1/2024	8/1/2025	EACH OCCURRENCE \$2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$500,000 MED EXP (Any one person) \$25,000 PERSONAL & ADV INJURY \$2,000,000 GENERAL AGGREGATE \$4,000,000 PRODUCTS - COMP/OP AGG \$4,000,000 \$
A	☒ AUTOMOBILE LIABILITY ☒ ANY AUTO ☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY			CA 5774680	8/1/2024	8/1/2025	COMBINED SINGLE LIMIT (Ea accident) \$2,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
B	☒ UMBRELLA LIAB ☒ OCCUR ☐ EXCESS LIAB ☐ CLAIMS-MADE DED ☒ RETENTION \$10,000			ENVUMB20000300	8/1/2024	8/1/2025	EACH OCCURRENCE \$10,000,000 AGGREGATE \$10,000,000 \$
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N	N/A	WC 013265763 (AOS) WC 013265764 (CA)	8/1/2024 8/1/2024	8/1/2025 8/1/2025	☒ PER STATUTE ☐ OTHER E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE - EA EMPLOYEE \$1,000,000 E.L. DISEASE - POLICY LIMIT \$1,000,000
E	Professional Liability			B0146LDUSA2405147	8/1/2024	8/1/2025	Per Claim \$5,000,000 Aggregate \$5,000,000
F	Pollution Liability			CPLMOL112871	8/1/2024	8/1/2025	Per Occurrence \$5,000,000 Aggregate \$5,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

CANCELLATION

LJA Engineering, Inc. 3600 W Sam Houston Parkway S Suite 600 Houston TX 77042	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE Matias Ormaza
---	--

© 1988-2015 ACORD CORPORATION. All rights reserved.

ACORD 25 (2016/03)

The ACORD name and logo are registered marks of ACORD

80980928 | 24/25 Master Certificate | Jerry Noyola | 7/17/2024 1:29:19 PM (EDT) | Page 1 of 20

AGENCY CUSTOMER ID: _____
LOC #: _____



ADDITIONAL REMARKS SCHEDULE

Page ____ of ____

AGENCY Greyling Insurance Brokerage		NAMED INSURED LJA Engineering, Inc. 3600 W Sam Houston Parkway S Suite 600 Houston TX 77042
POLICY NUMBER		
CARRIER	NAIC CODE	EFFECTIVE DATE:

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 **FORM TITLE:** Certificate of Liability (03/16)

HOLDER: LJA Engineering, Inc.

ADDRESS: 3600 W Sam Houston Parkway S Suite 600 Houston TX 77042

****Additional Named Insureds**:**

Berg-Oliver Associates; 14701 St. Mary's Lane, Suite 400; Houston, TX 77079
Horizon Environmental Services; 1507 South IH 35; Austin, TX 78741
LJA Infrastructure, Inc.; 3600 W Sam Houston Pkwy S, Suite 150; Houston, TX 77042
LJA Rail, LLC; 3600 W Sam Houston Pkwy S, Suite 150; Houston, TX 77042
LJA Surveying, Inc.; 3600 W Sam Houston Pkwy S, Suite 175; Houston, TX 77042
LJA Builds, Inc.; 3600 W Sam Houston Pkwy S, Suite 150; Houston, TX 77042
LJA Environmental Services, LLC; 14701 St. Mary's Lane, Suite 400; Houston, TX 77042
LJA Program Management, LLC (fka Ramos Consulting, LLC); 6720 Vaught Ranch Road, Suite 140, Austin, TX 78730
LJA Energy, Inc 3600 W Sam Houston Pkwy S, Suite 600; Houston, TX 77042
LJA Telecom, Inc. (fka GXT, Inc. or GXT, Ltd.) 2700 La Frontera Boulevard Suite 150 Round Rock, TX 78681
Paragon Consulting Group, Inc. 350 Airport Rd, Griffin, GA 30224
Alliance Engineering & Planning LLC; Alliance Surveying LLC; DBA Alliance Engineering, Planning, Landscape Architecture; 299 S Main Street, Suite A, Alpharetta, GA 30009
Carter Associates, Inc. 1708 21st Street Vero Beach, FL 32950
LJA Telecom Construction, Inc., LJA Engineering, Inc., 3600 W Sam Houston Pkwy. S, Suite 600, Houston, TX 77042
Donald W. McIntosh Associates, Inc., 2200 Park Avenue North, Winter Park, Florida 32789
Afendras Archaeology, 746 E. Center Road, Goldsby, OK 73093

General Liability Maximum Annual Aggregate limit \$10,000,000

All policies listed (except for Work Comp and Professional Liability) include an automatic Additional

Insured that provides Additional Insured status to the Certificate Holder only when there is a written contract that requires such status, and only regarding work performed on behalf of the named insured per policy forms CG2010 12/19 (includes ongoing operations) & CG2037 12/19 (GL); CA 2048 12/13 (Auto).

Coverage provided on the General and Auto Liability is primary and non-contributory if required by a written contract executed prior to a loss.

All policies listed provide a Blanket Waiver of Subrogation when required by written contract executed

prior to a loss per policy forms CG 2404 12/19 (GL); CA 20 48 (10/13) (Auto); and WC 00 03 13 (4/84) (WC). The Umbrella Liability policy follows form to the underlying General, Automobile and Employers Liability policies.

All policies listed include an endorsement providing that 30 days notice of cancellation for reasons other than nonpayment of premium and 10 days notice of cancellation for non-payment of premium will be given to the Certificate Holder by the Insurance Carrier, if required by written contract.

ACORD 101 (2008/01)

© 2008 ACORD CORPORATION. All rights reserved.

The ACORD name and logo are registered marks of ACORD

ATTACHMENT

80980928 | 24/25 Master Certificate | Jerry Noyola | 7/17/2024 1:29:19 PM (EDT) | Page 2 of 20

STATEMENT OF CONFLICTS OF INTEREST

LJA Engineering, Inc. and all key employees have no conflicts regarding the services requested.

No LJA employee has any working relationship that could be perceived by disinterested parties as a conflict. LJA has no potential conflicts of interest.

**LJA ENGINEERING INC**

Unique Entity ID NFSNJ6H9MLP5	CAGE / NCAGE 5SZM5	Purpose of Registration All Awards
Registration Status Active Registration	Expiration Date Nov 15, 2025	
Physical Address 3600 W Sam Houston PKWY S STE 600 Houston, Texas 77042-5096 United States	Mailing Address 3600 W Sam Houston PKWY S Suite 600 Houston, Texas 77042-5096 United States	

Business Information

Doing Business as LJA ENGINEERING & SURVEYING INC	Division Name Lja Engineering	Division Number (blank)
Congressional District Texas 07	State / Country of Incorporation Texas / United States	URL www.lja.com

Registration Dates

Activation Date Nov 20, 2024	Submission Date Nov 15, 2024	Initial Registration Date Nov 19, 2009
--	--	--

Entity Dates

Entity Start Date Jun 1, 1997	Fiscal Year End Close Date Dec 31
---	---

Immediate Owner

CAGE (blank)	Legal Business Name (blank)
------------------------	---------------------------------------

Highest Level Owner

CAGE (blank)	Legal Business Name (blank)
------------------------	---------------------------------------

Executive Compensation

In your business or organization's preceding completed fiscal year, did your business or organization (the legal entity to which this specific SAM record, represented by a Unique Entity ID, belongs) receive both of the following: 1. 80 percent or more of your annual gross revenues in U.S. federal contracts, subcontracts, loans, grants, subgrants, and/or cooperative agreements and 2. \$25,000,000 or more in annual gross revenues from U.S. federal contracts, subcontracts, loans, grants, subgrants, and/or cooperative agreements?

No

Does the public have access to information about the compensation of the senior executives in your business or organization (the legal entity to which this specific SAM record, represented by a Unique Entity ID, belongs) through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986?

Not Selected

Proceedings Questions

Is your business or organization, as represented by the Unique Entity ID on this entity registration, responding to a Federal procurement opportunity that contains the provision at FAR 52.209-7, subject to the clause in FAR 52.209-9 in a current Federal contract, or applying for a Federal grant opportunity which contains the award term and condition described in 2 C.F.R. 200 Appendix XII?

Yes

Does your business or organization, as represented by the Unique Entity ID on this specific SAM record, have current active Federal contracts and/or grants with total value (including any exercised/unexercised options) greater than \$10,000,000?

No

Within the last five years, had the business or organization (represented by the Unique Entity ID on this specific SAM record) and/or any of its principals, in connection with the award to or performance by the business or organization of a Federal contract or grant, been the subject of a Federal or State (1) criminal proceeding resulting in a conviction or other acknowledgment of fault; (2) civil proceeding resulting in a finding of fault with a monetary fine, penalty, reimbursement, restitution, and/or damages greater than \$5,000, or other acknowledgment of fault; and/or (3) administrative proceeding resulting in a finding of fault with either a monetary fine or penalty greater than \$5,000 or reimbursement, restitution, or damages greater than \$100,000, or other acknowledgment of fault?

Not Selected

Exclusion Summary

Active Exclusions Records?

No**SAM Search Authorization**

I authorize my entity's non-sensitive information to be displayed in SAM public search results:

Yes**Entity Types****Business Types**

Entity Structure

Corporate Entity (Not Tax Exempt)

Entity Type

Business or Organization

Organization Factors

(blank)

Profit Structure

For Profit Organization**Socio-Economic Types**

Check the registrant's Reps & Certs, if present, under FAR 52.212-3 or FAR 52.219-1 to determine if the entity is an SBA-certified HUBZone small business concern. Additional small business information may be found in the SBA's Dynamic Small Business Search if the entity completed the SBA supplemental pages during registration.

Financial Information

Accepts Credit Card Payments

No

Debt Subject To Offset

No

EFT Indicator

0000

CAGE Code

5SZM5**Electronic Funds Transfer**

Account Type

Checking

Routing Number

*******58**

Lock Box Number

(blank)

Financial Institution

ZIONS BANCORPORATION, NA DBA AMEGY B

Account Number

*******41****Automated Clearing House**

Phone (U.S.)

7139535242

Email

ar@ljaengineering.com

Phone (non-U.S.)

(blank)

Fax

7139535026**Remittance Address****JOHN PENEWITT****3600 W Sam Houston PKWY S****Suite 600****Houston, Texas 77042****United States****Taxpayer Information**

EIN

*******0328**

Type of Tax

Applicable Federal Tax

Taxpayer Name

LJA ENGINEERING INC

Tax Year (Most Recent Tax Year)

2015

Name/Title of Individual Executing Consent

Assistant Marketing Director

TIN Consent Date

Nov 15, 2024

Address

3600 W Sam Houston PKWY S, Suite 600**Houston, Texas 77042**

Signature

MARIA LUCIO**Points of Contact****Accounts Receivable POC**

✎

JOHN PENEWITT**jpenewitt@lja.com**

Nov 20, 2024 03:24:37 PM GMT

<https://sam.gov/entity/NFSNJ6H9MLP5/coreData?status=null>

Page 2 of 4



Exclusion Search Results 0 Total Results

Filter by:

- Status
- Excluded Individual
- Active
- James D Ross



No matches found

We couldn't find a match for your search criteria.

Please try another search or go back to previous results.

Go Back

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

FORM CIQ

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of vendor who has a business relationship with local governmental entity.

No LJA employee or officer has a business relationship with any local governmental entity as defined by Section 176.001(1-a).

2 ☐ Check this box if you are filing an update to a previously filed questionnaire. (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 Name of local government officer about whom the information is being disclosed.

N/A

Name of Officer

4 Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.

N/A

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes

☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

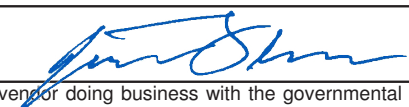
☐ Yes

☐ No

5 Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.

N/A

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7 
Signature of vendor doing business with the governmental entity

07/07/2025

Date

Certification Regarding Lobbying

(To be submitted with each bid or offer exceeding \$100,000)

The undersigned certifies, to the best of his or her knowledge and belief, that:

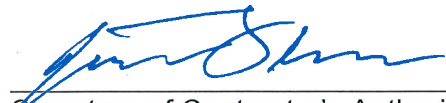
(a) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(b) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(c) The undersigned shall require that the language paragraph 1 and 2 of this anti-lobbying certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995).

The Contractor, LJA Engineering, Inc., certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801 et seq., apply to this certification and disclosure, if any.



Signature of Contractor's Authorized Official

Jimmy Flowers, PE, Vice President

Printed Name and Title of Contractor's Authorized Official

07/07/2025

Date

Not Applicable

Disclosure of Lobbying Activities

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
(See reverse for public burden disclosure)

Type of Federal Action: _____ a. contract b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance	Status of Federal Action: _____ a. bid/offer/application b. initial award c. post-award	Report Type: _____ a. initial filing b. material change
Name and Address of Reporting Entity: ____ Prime _____ Subawardee Tier _____, if Known: Congressional District, if known:		If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime: Congressional District, if known:
Federal Department/Agency:		7. Federal Program Name/Description: CFDA Number, if applicable: _____
Federal Action Number, if known:		9. Award Amount, if known: \$
10. a. Name and Address of Lobbying Registrant (if individual, last name, first name, MI):		b. Individuals Performing Services (including address if different from No. 10a) (last name, first name, MI):
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.		Signature: _____ Print Name: Jimmy Flowers, PE Title: Vice President Telephone No.: 713.657.6013 Date: 07/07/2025
Federal Use Only		Authorized for Local Reproduction Standard Form - LLL (Rev. 7-97)



FORM 1295

If awarded this project, LJA will complete and submit the Form 1295, "Certificate of Interested Parties".

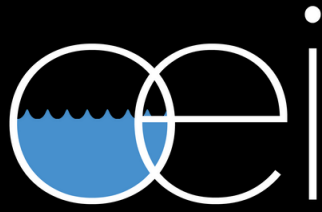
REQUIRED CONTRACT PROVISIONS

Any and all applicable provisions enclosed in the RFQ will be included in all contracts executed as a result of this RFQ.





EMPLOYEE-OWNED. CLIENT FOCUSED.



STATEMENT OF QUALIFICATIONS

CITY OF LA MARQUE

RFQ FOR PROFESSIONAL ENGINEERING/ARCHITECTURAL/SURVEYING SERVICES

OLLER ENGINEERING, INC.

Wendy Ruiz, Vice President, wendy.ruiz@oei-eng.com, 806-928-3923



beyond engineering

LETTER OF INTEREST – RFQ for Engineering/Architecture/Surveying Services

June 18, 2025

City of La Marque
Attn: City Clerk
1111 Bayou Road
La Marque, TX 77568

Dear City Clerk,

Oller Engineering, Inc. (OEI) is pleased to submit this Letter of Interest in response to the City of La Marque's Request for Qualifications for Engineering/Architecture/Surveying Services. We understand this RFQ is being issued in connection with the City's application for funding under the 2025 Texas Community Development Fund Program and potential support of Citywide Infrastructure Projects through the Drinking Water and/or Clean Water State Revolving Fund (SRF) Programs administered by the Texas Water Development Board (TWDB).

OEI is a Texas-based civil engineering firm with over 36 years of experience serving municipalities throughout the state. Our team has a long history of supporting projects funded through federal and state programs, including TWDB, CDBG, GLO, and FEMA. We are well-positioned to assist the City of La Marque with both pre-award and post-award services, including infrastructure design, project planning, permitting, bidding assistance, construction oversight, and final closeout.

OEI has successfully partnered with communities across Southeast and West Texas to implement critical improvements in water, wastewater, and street infrastructure—many involving SRF funding. Our firm maintains a comprehensive understanding of federal procurement and compliance requirements, and we are committed to delivering efficient, responsive service that ensures full program adherence and successful project execution.

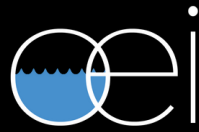
Our proposed scope of services includes:

- **Preliminary and Final Design** – Including plans, specifications, and cost estimates
- **Bidding and Procurement Support** – Bid packet development, contractor eligibility review, and advertisement assistance
- **Construction Phase Services** – Field testing, site inspection, pay application review, and quality assurance
- **Project Closeout** – As-built documentation, final inspection, and compliance reporting

As a registered engineering firm in the State of Texas (Firm No. F-2145), OEI is fully qualified and insured to support the City's upcoming infrastructure initiatives. We appreciate the opportunity to be considered and look forward to the possibility of continuing our strong track record of delivering impactful public infrastructure projects.

Sincerely,

Wendy Ruiz, P.E.
Partner
Oller Engineering, Inc.



FIRM PROFILE

FIRM PROFILE

Legal Name & Contact:

Oller Engineering, Inc. (OEI)
2811 S. Loop 289, Suite 17
Lubbock, Texas 79423
Phone: 806-993-6226
Primary Contact: Wendy Ruiz, P.E., Partner
Email: wendy.ruiz@oei-eng.com

DBE Certification:

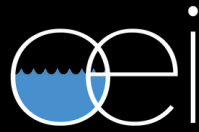
OEI is not currently certified as a Disadvantaged Business Enterprise (DBE); however, we fully support and comply with all applicable DBE outreach, reporting, and participation requirements as outlined by the EPA and the Texas Water Development Board (TWDB).

Firm History & Expertise:

Founded in 1989, OEI is a privately held civil and environmental engineering firm with over three decades of experience delivering comprehensive infrastructure solutions to communities across Texas. The firm is registered with the Texas Board of Professional Engineers (Firm No. F-2145) and led by Principals Rich Oller, P.E., CPM, REP and Wendy Ruiz, P.E. Our team specializes in water and wastewater engineering, site civil design, drainage and utility infrastructure, construction phase services, and funding compliance support.

TWDB-Funded Project Experience:

OEI has successfully executed numerous infrastructure projects funded by the Texas Water Development Board (TWDB), including those administered under the Drinking Water State Revolving Fund (DWSRF), Clean Water State Revolving Fund (CWSRF), and Community Development Block Grant (TxCDBG) programs. Our services span the full project lifecycle—from application preparation and Preliminary Engineering Reports to final design, permitting, bidding, construction oversight, and project closeout. We are highly experienced in navigating the regulatory and reporting standards associated with federally funded projects and bring a proven ability to meet both technical goals and compliance benchmarks.



PROJECT UNDERSTANDING AND APPROACH

UNDERSTANDING OF TWDB REQUIREMENTS

Oller Engineering, Inc. (OEI) has a thorough understanding of the Texas Water Development Board (TWDB) requirements and the associated compliance measures necessary for federally funded infrastructure projects. Our team has successfully delivered projects under both the Drinking Water State Revolving Fund (DWSRF) and Clean Water State Revolving Fund (CWSRF) programs, adhering to all applicable TWDB guidelines, including environmental review procedures, Davis-Bacon wage compliance, DBE solicitation protocols, and timely project reporting through TWDB systems.

FAMILIARITY WITH SRF PROGRAMS

Our firm brings extensive experience working with communities across Texas to implement water and wastewater improvements funded through the DWSRF and CWSRF. We understand the nuances of these programs—from project nomination and prioritization to funding application, engineering feasibility documentation, and project closeout—and have consistently supported municipal clients in navigating the requirements for eligible scope, cost-effectiveness, and public health impacts.

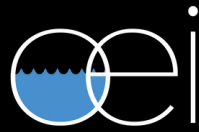
ENGINEERING DESIGN AND CONSTRUCTION OVERSIGHT

OEI takes a proactive, phased approach to project delivery—beginning with a thorough assessment of existing conditions and service needs, followed by preliminary engineering studies to evaluate alternatives and align scope and budget with the City and funding partners. Our team prepares detailed, compliant design documents and coordinates early with TCEQ and other agencies to streamline permitting. During construction, we provide on-site observation, lead progress meetings, conduct QA/QC reviews, and manage documentation to ensure issue resolution, audit readiness, and timely reimbursement.

COORDINATION WITH FUNDING AGENCIES

Strong communication with funding agencies is integral to our project management philosophy. OEI maintains active coordination with TWDB staff throughout each project phase—from funding approval to environmental clearances and draw request documentation. Our project managers ensure compliance with reporting requirements and maintain complete and organized documentation for all required deliverables.

By combining technical expertise with hands-on experience managing SRF-funded projects, OEI is well-positioned to deliver efficient, compliant, and community-focused infrastructure improvements for the City of La Marque.



SCOPE OF SERVICES

PROJECT PHASES AND SERVICES

Oller Engineering, Inc. (OEI) will provide full-scope engineering services as outlined in the RFQ, with technical and administrative support spanning all project phases. Our team has extensive experience with TWDB- and federally funded infrastructure projects, and we are well-versed in the compliance, documentation, and reporting requirements associated with these programs.

1. Preliminary Engineering

- Conduct site visits, field investigations, and topographic surveys
- Coordinate with City staff and grant administrators to define project goals, scope, and priorities
- Prepare a Preliminary Engineering Report (PER) to evaluate alternatives, establish design parameters, and support funding justification

2. Design Phase Services

- Develop detailed design plans and technical specifications
- Coordinate with regulatory agencies for review and approval
- Prepare Engineers' Opinion of Probable Construction Cost and update project budget

3. Bidding and Negotiation

- Prepare bid documents, advertisements, and contractor qualification criteria
- Conduct pre-bid conference and respond to RFIs
- Assist with bid tabulation, evaluation, and contractor selection
- Confirm contractor eligibility through SAM.gov verification

4. Construction Administration and Observation

- Conduct regular site visits and interim inspections to monitor construction progress and quality
- Review contractor submittals, pay applications, and change orders
- Facilitate construction meetings, prepare reports, and issue Notices to Proceed and Completion

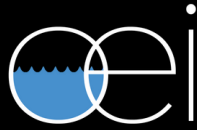
5. Project Closeout

- Perform final inspection and confirm punch list completion
- Prepare Record Drawings ("As-Built") and final compliance documentation
- Submit closeout reports in accordance with TWDB and City requirements

DELIVERABLES BY PHASE

OEI will provide the following deliverables throughout the project lifecycle, in accordance with TWDB and TxCDBG standards:

- **Preliminary Engineering Phase**
 - Preliminary Engineering Report (PER)
 - Topographic survey and supporting field documentation
- **Design Phase**
 - Final Plans and Specifications
 - Engineer's Opinion of Probable Construction Cost
- **Bidding Phase**
 - Bid Documents and Advertisements
 - Bid Tabulation and Contractor Recommendation Letter
- **Construction Phase**
 - Interim and Final Inspection Reports
 - Meeting minutes and contractor pay application reviews
- **Closeout Phase**
 - Record Drawings ("As-Builts")
 - Final Completion Certificate and Clean Lien Certificate
 - Project Closeout Package, including digital files in City-specified formats



EXPERIENCE AND QUALIFICATIONS

CDBG FUNDED PROJECTS

RELEVANT CDBG FUNDED PROJECTS

Securing CDBG funding is a competitive and often multi-year process. OEI is familiar with the persistence required for success, with some applications being submitted across multiple cycles before award. Despite this challenge, OEI has successfully completed several CDBG-funded projects, including:

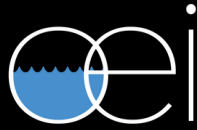
- City of Littlefield, TX
- City of Hereford, TX
- City of Tahoka, TX
- City of Tulia, TX
- City of Friona, TX
- City of Fritch, TX
- City of Bovina, TX
- City of Idalou, TX
- Cochran County - Bledsoe, TX

These projects utilized of CDBG funding through the same application process proposed for the City of La Marque. Each project secured funding for water system or wastewater collection projects. Roadway and drainage projects were also included in various communities.

RELEVANT CDBG FUNDED PROJECTS CONTINUED

CDBG/TCDP Grant Projects Awarded:

- **Abernathy** - Wastewater & Water Improvements - Lift Station replacement, New Standpipe Addition to regulate pressure in the distribution system
- **Benjamin** - Wastewater Treatment System - Advanced Water Treatment Reverse Osmosis Treatment Unit
- **Bovina** - Well and distribution system Improvements Clarendon - Water distribution system improvements
- **Cochran County** - Bledsoe - Water supply/storage and distribution system improvements
- **Deaf Smith County** - Roadway Improvements paving and drainage
- **Friona** - Wastewater improvements - Water supply wells, water storage and booster pumps, distribution system improvements
- **Fritch** - Well supply improvements with storage tank addition
- **Hearn** - Sewer System Improvements
- **Hereford** - Water Supply Wells, GST's and Elevated Storage tanks, booster pump station addition
- **Idalou** - Water & Sewer System Improvements
- **Kress** - Water Supply Wells, Elevated Storage Tank (EST) Improvements
- **Littlefield** - Water storage improvements and upsizing of main booster pump station
- **Lorenzo** - Water & Sewer System Improvements
- **Muleshoe** - Water System Improvements, Wells and GST's
- **New Deal** - Sewer System Improvements, Gravity Sanitary Sewer and Lift Station



EXPERIENCE AND QUALIFICATIONS

WATER

COMMODORE COVE IMPROVEMENT DISTRICT GROUND STORAGE TANK REPLACEMENT - TWDB GRANT FUNDED

PROJECT DESCRIPTION

Currently CCID is in the bidding phase of replacing their 30-year-old GST and associated piping. The plan is to construct a new 40,000-gallon bolted steel GST and completely plumb the new tank into operation and then remove the existing GST and replace it with the same size GST providing CCID 2 GST's of 40,000 gallons each. The project was fully funded by TWDB with grant money, \$300,000.00.

PROJECT DETAILS

Client Liaison: Floyd Winkler, Secretary, 979-233-8782

Location: Commodore Cove Improvement District

Project Construction Cost: \$300,000



CITY OF ANDREWS

20" FUSIBLE PVC TRANSMISSION LINE

PROJECT DESCRIPTION

The City of Andrews primary well field is the Florey well field located 10 miles northeast of the city. The existing transmission line was a 14-inch concrete steel cylinder line that deteriorated over the years and continued to have numerous leaks. A condition assessment of the 14-inch was done and planning for a replacement line was completed in 2019. The new replacement line was upsized to allow for additional volume anticipating growth. The placement of the new line would follow in an easement alongside of the existing 14-inch line so that the city could maintain the existing supply while the new line was under construction. Additional easement was acquired to allow adequate construction space. This project was unique in that the city opted to pre-purchase all the fusible pipe and contract with an experienced contractor to install the fusible PVC. The project was completed in early May 2024.

PROJECT DETAILS

Client Liaison: Mike Aguero, Public Works Director, 432-523-4820

Location: City of Andrews

Project Construction Cost: \$4.3M



CITY OF TOMBALL

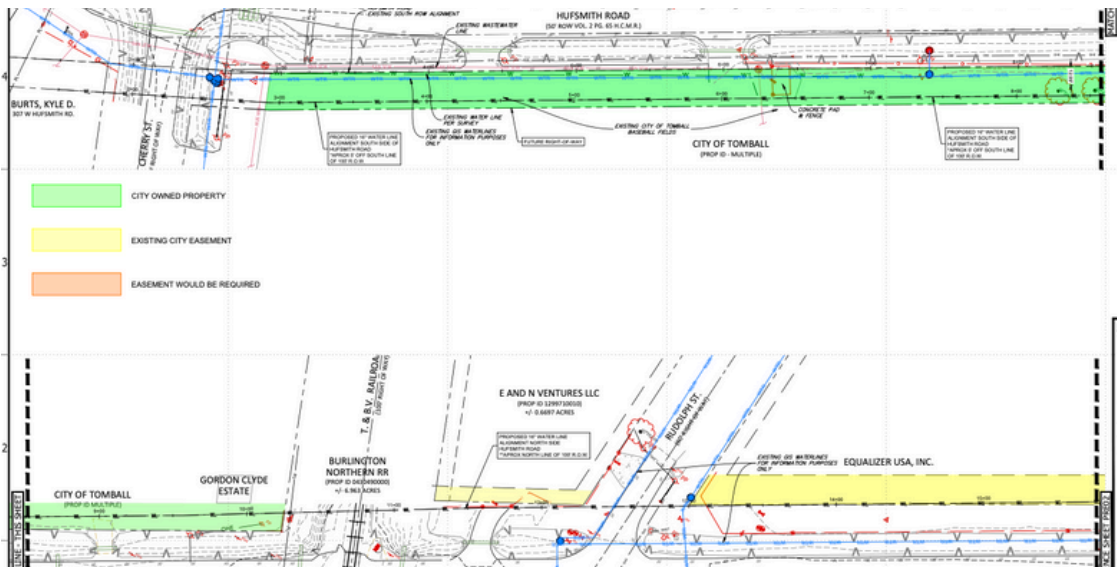
HUFSMITH ROAD 16" WATERLINE REPLACEMENT

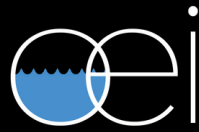
PROJECT DESCRIPTION

OEI was contracted by the City of Tomball to complete design and specifications for the replacement of approximately 3,700 feet of water line, completing a looped system as identified in the city's Water Master Plan. Increasing the size of the existing water line provided the needed volume and balanced the pressures in the distribution system to reduce operational costs and improve the overall delivery of water in the designated area of the city. The design specified C900 PVC with a bid alternate of fusible PVC (FPVC). The design of the waterline placement was crucial to this project due to the existing utilities within the right-of-way as well as the requirement to bore beneath the BNSF railroad.

PROJECT DETAILS

Client Liaison: Drew Huffman, Director of Public Works, 281-351-5484
Location: City of Tomball
Project Construction Cost: \$3.4M





EXPERIENCE AND QUALIFICATIONS

SEWER

CITY OF TOMBALL

18" SANITARY SEWER REHABILITATION (BURST-IN-PLACE)

PROJECT DESCRIPTION

OEI was contracted by the City of Tomball to perform an analysis and design the rehabilitation of an existing sanitary sewer line by utilizing the burst-in-place and cured-in-place method. Located at Tomball Parkway and Hicks Road, design and specifications were provided for the procedure of increasing the existing sanitary sewer size from 12-inch Truss Pipe to 12-inch fusible HDPE, and an existing 15-inch Truss Pipe sewer line to an 18-inch fusible HDPE line.

PROJECT DETAILS

Client Liaison: Will Goff, Utilities Superintendent, 281-290-1400

Location: City of Tomball

Budgeted Project Construction Cost: \$688,700



CITY OF LEAGUE CITY **STATE HIGHWAY 3 LIFT STATION AND FORCE MAIN REPLACEMENT**

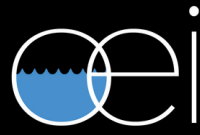
PROJECT DESCRIPTION

OEI provided design and construction oversight services for the rehabilitation of an existing wet-well/dry-well lift station, aligning with the City's updated standard for above-grade discharge piping. The project involved demolition of all existing discharge piping and installation of a new above-grade discharge configuration. OEI coordinated the replacement of submersible pumps with larger-capacity Flygt pumps and specified protective rehabilitation of the wet-well interior using Warren Environmental 301-14 epoxy coating. By-pass pumping was implemented to maintain service during construction. Additionally, the existing asbestos cement force main was abandoned in place and filled with grout, while a new 10-inch SDR 26 PVC force main was installed parallel to the original alignment.

PROJECT DETAILS

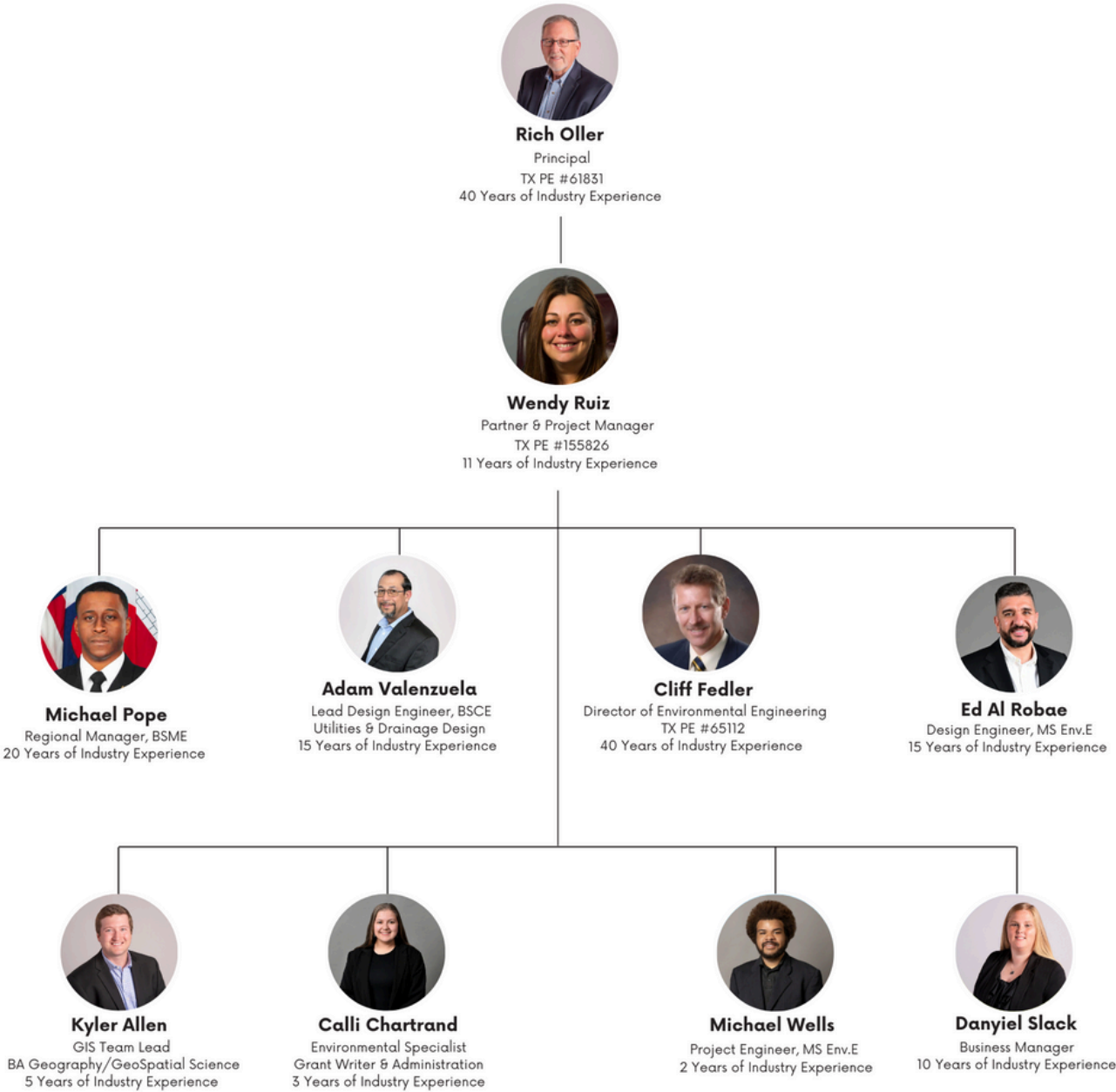
Client Liaison: Jody Hooks, Director of Public Works, 281-554-1321
Location: City of League City State Highway 3
Project Construction Cost: \$766,825





PROJECT TEAM

TEAM ORGANIZATION



RICH OLLER, PE, REP, CPM

PRINCIPAL-IN-CHARGE



BIO

Rich is the Founder and Principal of OEI. Rich has over 40-years of engineering and construction experience. He also has public sector experience, having held the positions of Director of Public Works, Assistant City Manager, and City Manager. Rich currently serves on the Region 7 Upper Brazos Regional Flood Planning Group and is active in the Texas Municipal League, the Texas Water Utility Operators Association, the American Water Works Association, the Water Environment Federation, and the Texas Public Works Association.

Rich has a broad understanding of Texas’ infrastructure including municipal water distribution and wastewater collection improvements, drainage improvements, municipal water supply and purchases, wastewater treatment plants, municipal solid waste landfills, and all forms of regulatory requirements.

Rich acts as an Advisory Council for our Client’s and as a Principal-In-Charge for OEI providing QA/QC checks for engineering design, business development, and acts as an engineering mentor for junior engineers.

RELEVANT PROJECT EXPERIENCE

City Manager, Director of Public Works, League City | Well Inclusion Project and Master Plan, City of League City, TX | 3.0 MG Ground Storage Tank & Booster Station Beamer Road, League City, TX | 20" Fusible PVC Transmission Line - 10 Miles, Andrews, TX | Hufsmith Road 16" Waterline Replacement, Tomball, TX | 18" Sanitary Sewer Rehabilitation (Burst-In-Place), Tomball, TX | Innovative/Green Technology Advanced Water Treatment, Commodore Cove, TX | GST and Hydropneumatic Tank Replacement, Commodore Cove, TX | Water Rights Negotiation, Coryell Water Supply District, Gatesville, TX | Utility Relocate Design and TxDOT Negotiation, Bayview, TX | Wellfield Development, City of Andrews | Water Master Planning & Booster Station with 500k GST, City of Abernathy, TX

EDUCATION

Education: MS Civil Engineering, Texas Tech University
Licensure: Professional Engineer, Texas, #6183; Registered Environmental Professional # 5570; Water Operator #WG0018468; Certified Public Manager (CPM)
Professional Affiliations: AWWA; WEF; TML; TSPE; TWUA; TPWA

WENDY RUIZ, PE

PARTNER



BIO

Wendy is a highly skilled Civil Engineer with extensive expertise in Water Resources, specializing in water and wastewater system design, system modeling, and regulatory compliance. She contributes a wealth of knowledge and technical proficiency to OEI, concentrating on delivering innovative engineering solutions that ensure project success. Wendy's leadership style is defined by her commitment to quality, strategic oversight, meticulous attention to detail, and her ability to collaborate seamlessly with both clients and team members to advance OEI's mission.

Wendy has served as District Water Engineer for Mountain Water Supply Corporation, Elm Creek Water Supply Corporation, and Coryell Water Supply District. Over the past decade, she has managed numerous projects, contributed to business development efforts, and played a key role in the growth of OEI.

RELEVANT PROJECT EXPERIENCE

Wellfield Expansion, City of Andrews, TX | Florey Booster Station Rehabilitation, Andrews, TX | Negotiation with property owners for easements and utility expansion Andrews, TX | Water Distribution Pump Station Design, Coryell Water Supply District, Gatesville, TX | Stormwater Permit Renewal/Wastewater Treatment Plant Rehab, City of Missouri City, TX | Wastewater Treatment Plant TCEQ Compliance, City of Andrews, TX | Mustang Station Alternative Water System (Reverse Osmosis), Denver City, TX | 10-Mile 20" FPVC Water Transmission Line, Andrews, TX | Residential Subdivision and Utility Design, City of Robinson, TX | Industrial Wastewater System Design (Membrane Filtration), Texas Quality Beverage (CBG)/Synagro | Lift Station Rehabilitation and Replacement, Bayview MUD

EDUCATION

Education: BS Civil Engineering, Texas Tech University
Licensure: Texas PE #155826, TCEQ Reverse Osmosis Certified Operator,
Texas Commission on Environmental Quality Class 'D' Water Operator
Professional Affiliations: AWWA, TWUA, WEF, SHPE, SWE, TSPE

MICHAEL POPE

REGIONAL MANAGER



BIO

Senior Program and Project Manager with 20+ years of experience delivering transformative results across engineering, construction, IT, and operational initiatives. As Deputy Commander for USACE in South Korea, Michael led multibillion-dollar programs, turned around critical projects, and enhanced financial performance. Named the 2024 Black Engineer of the Year, he is known for his strategic leadership, team-building acumen, and ability to drive cross-functional collaboration. From disaster recovery operations to international negotiations, Michael brings a results-driven approach and a passion for excellence to every project.

RELEVANT PROJECT EXPERIENCE

Michael Pope brings over 20 years of experience managing large-scale engineering, construction, and infrastructure programs, including multibillion-dollar initiatives with the U.S. Army Corps of Engineers. At OEI, he leads regional efforts for federally funded projects, leveraging deep expertise in stakeholder coordination, construction management, and grant compliance. His background ensures strategic oversight and efficient delivery of CDBG and public works projects.

EDUCATION

- Stanford University Graduate School of Business - Emerging COO Program Candidate, Business Administration and Management
- Western Governors University - Master of Science (M.S.), Management & Leadership
- South Carolina State University - Bachelor of Science (B.S.), Mechanical Engineering

CLIFF FEDLER, PHD, PE, BCEE

DIRECTOR OF ENVIRONMENTAL ENGINEERING



BIO

Dr. Fedler is a recognized expert on water resource assessment, water and wastewater issues, and planning and development. He has 40 years of experience in research and teaching Civil Engineering at Texas Tech University. In addition to his accomplished research in water and wastewater Dr. Fedler has provided expert oversight on numerous environmental projects. Dr. Fedler is OEI's Director of Environmental Compliance and Design and will assist in providing oversight from an environmental perspective for all projects undertaken for the City of Deer Park by OEI.

RELEVANT PROJECT EXPERIENCE

City of Tomball - 18" Sanitary Sewer Rehabilitation | City of Andrews - 15" Gravity Sewer Main CIPP 1 City of League City - Jarbo Bayou 10" Force Main Replacement | Rowena Packing LLC. Wastewater Permit | Webinars discussing Texas' water supply.

EDUCATION

Education: PhD Agricultural Engineering, University of Illinois Urbana-Champaign
Education Continued: BS and MS Agricultural Engineering, Iowa State University
Licensure: Professional Engineer, Texas, # 65112

ED AL ROBAAE

DESIGN ENGINEER



BIO

Ed Al Robae is an Environmental Engineer with over 10 years of experience supporting public infrastructure, water resources, and environmental compliance projects across California and the Southwest. He has worked extensively on federally funded initiatives, including CEQA/NEPA compliance, stormwater pollution prevention, and wetland and estuary restoration. Ed brings deep regulatory knowledge, QA/QC oversight, and engineering design expertise to complex transportation, water, and environmental projects.

RELEVANT PROJECT EXPERIENCE

Ed Al Robae has over a decade of experience delivering environmental and civil engineering services for large-scale infrastructure and restoration projects across California and the Southwest. His portfolio includes CEQA/NEPA compliance, SWPPP oversight, and construction inspection for high-profile initiatives such as the BART Silicon Valley Phase II Extension, Upper Llagas Creek Flood Protection Project, and multiple U.S. 101 interchange improvements. Ed has also played key roles in wetland restoration efforts, wastewater treatment planning, and tribal infrastructure assessments, bringing technical depth and regulatory fluency to each engagement.

EDUCATION

- M.S., Environmental Engineering, Johns Hopkins University, 2016
- B.S., Civil and Sanitary Engineering, University of Technology, Baghdad, 2005

ADAM VALENZUELA, CFM
LEAD DESIGN ENGINEER
UTILITIES AND DRAINAGE DESIGN



BIO

Adam Valenzuela’s design experience includes drainage basin delineation for several projects, stormwater runoff calculations, culvert sizing, and stormwater runoff design tasks. He has experience with many types of piping systems and with the application of these systems and has provided design work with piping systems in various treatment plants. Design of site work and grading of varied types of projects has been accomplished using site design, drafting, and GIS software.

RELEVANT PROJECT EXPERIENCE

City of Abernathy Well Field 500K GST and Booster Station – Served as CA lead responsible for all drafting tasks, and responsible for site modeling and grading needed for profiles, grading plan, and mass balancing for pump and distribution line design calculations | City of Andrews Florey Booster – Prepared detailed piping layouts and profiles of the suction and discharge headers. Prepared details for Florey Booster Station Rehabilitation | City of League City Hwy. 3 Lift Station – Prepared detailed drawings and designs for force main replacement, all renovations to the existing wet-well, and detailed drawings of the site improvements | Young Life MBR WWTF - Served as CAD lead responsible for site modeling and grading needed for profiles, alignments, and mass balancing for volumetric calculations | Other past experience has included CAD drafting of commercial civil development, cut and fill plans, water line replacements, drainage reports, and PWS submittal packages.

EDUCATION

Education: BS Civil Engineering, Texas Tech University
Certifications: Certified Floodplain Manager (CFM)

KYLER ALLEN

GIS AND HYDRAULIC MODELING LEAD



BIO

Kyler Allen manages our ArcGIS group and has placed numerous applications with client cities to provide GIS capability to these cities with updated mapping and asset management online. Data is updated as new data is provided and is immediately available to the client in the office and field eliminating paper maps. From infrastructure mapping to precinct districting GIS is the tool that provides instant information graphically.

RELEVANT PROJECT EXPERIENCE

City of Abernathy 500K GST & Booster Station | City of Abernathy Water distribution Master Planning | Coryell City Water Supply District Water supply & Distribution System Mapping & Asset management | Cross Country Water Supply Corporation - Supply & Distribution Mapping | City of Andrews Well Field Development (2 new water wells) | City of Andrews 1 mile 20-inch Well Transmission Supply Pipeline Fusible PVC | City of Andrews 500K GST & Booster Station Rehab | Bayview MUD Lift Station Replacement & Sanitary Sewer Reverse Grade Installation | League City Lift Station Rehab and Force Main Replacement | Elm Creek Water Supply Corporation Supply and Distribution Mapping.

EDUCATION

Education: BA Geography with a minor in GIS, Texas Tech University

CALLI CHARTRAND

ENVIRONMENTAL SPECIALIST



BIO

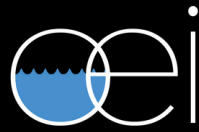
Calli joined OEI's team as an Environmental Specialist in 2024. Calli graduated from Southern New Hampshire University with a degree in Environmental Science. She worked with GIS and code enforcement in Maryland prior to moving to Lubbock, Texas. Originally from Minnesota, she is excited to bring her experience and passion for the environment to OEI.

RELEVANT PROJECT EXPERIENCE

Rowena Packing LLC., TLAP Wastewater Permit, C and D Waste Ltd. Landfill Permit, 1259 Cattle Feeders CAFO Permit, FEMA/ TDEM Emergency Grant, Data Collection for lead and copper inventory for TCEQ using ESRI-ARCH GIS

EDUCATION

Education: Undergraduate in Environmental Science, Southern New Hampshire University



PROJECT MANAGEMENT APPROACH

PROJECT MANAGEMENT APPROACH

Oller Engineering, Inc. (OEI) takes a disciplined, client-focused approach to project delivery—balancing technical excellence with schedule accountability, budget discipline, and ongoing communication. Our approach is grounded in decades of experience managing TWDB- and federally funded infrastructure projects from planning through closeout.

Internal QA/QC Procedures

OEI follows a formal internal Quality Assurance/Quality Control (QA/QC) protocol for all deliverables. Plans, specifications, reports, and cost estimates undergo structured peer review by senior engineers not directly assigned to the project. This ensures technical accuracy, regulatory compliance, and clarity before client submission. Our QA/QC process includes milestone reviews at concept design, 60% design, and final deliverable stages.

Budget Control Measures

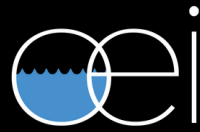
Budget oversight begins with accurate cost estimating during the preliminary engineering phase. We continuously update the Engineer's Opinion of Probable Cost at each major milestone to ensure alignment with available funding. During construction, OEI reviews all contractor pay applications, monitors quantities, and assesses change order requests to confirm scope compliance and budget impact. When applicable, deductive alternates are included in bid packages to ensure flexibility during award.

Timeline and Schedule Management

OEI uses milestone-based scheduling to track progress and maintain accountability. Key deliverables are mapped out in collaboration with the client, with internal deadlines set to allow time for review and coordination. Construction timelines are closely monitored through regular site visits, contractor coordination, and progress reporting. Schedule impacts due to weather, material delays, or scope changes are assessed immediately and communicated with proposed adjustments.

Client Communication and Coordination

OEI prioritizes responsive, transparent communication throughout every phase of the project. A dedicated Project Manager will serve as the City's primary point of contact, ensuring consistent coordination with City staff, grant administrators, and funding agencies. Regular progress updates, formal meeting summaries, and proactive outreach regarding milestones or issues are central to our process. We also maintain detailed documentation of all correspondence and decisions to support funding compliance and audit-readiness.



FIRM REFERENCES

FIRM REFERENCES

CITY OF LEAGUE CITY

- Contact - Jody Hooks, Director of Public Works
- Telephone - 281-906-4370

CITY OF TOMBALL

- Contact - David Esquivel, City Manager
- Telephone - 281-290-1415

CITY OF CLEBURNE

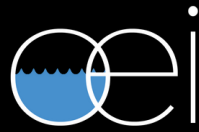
- Contact - Laura Melton, Assistant Director of Public Works
- Telephone - 817-556-8869

CITY OF ANDREWS

- Contact - Mike Aguero, Director of Public Works
- Telephone - 432-209-8595

CCORYELL CITY WATER SUPPLY DISTRICT

- Contact - Joe Jones, General Manager
- Telephone - 254-865-6089



REQUESTED FORMS



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

12/1/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Risk Strategies 12801 North Central Expy. Suite 1725 Dallas, TX 75243	CONTACT NAME: Stephanie Nero PHONE (A/C, No, Ext): E-MAIL ADDRESS: RSCcertrequest@risk-strategies.com INSURER(S) AFFORDING COVERAGE INSURER A : Travelers Casualty and Surety Company INSURER B : INSURER C : INSURER D : INSURER E : INSURER F :	FAX (A/C, No): NAIC # 19038
--	---	---

COVERAGES **CERTIFICATE NUMBER:** 77436640 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☐ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☐ PRO-JECT ☐ LOC ☐ OTHER:						EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OP AGG \$ \$
	AUTOMOBILE LIABILITY ☐ ANY AUTO ☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY						COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
	UMBRELLA LIAB ☐ OCCUR EXCESS LIAB ☐ CLAIMS-MADE DED ☐ RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$ \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ Y / N ☐ N / A (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below						PER STATUTE ☐ OTH-ER ☐ E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$
A	Professional Liability		✓	107169888	10/20/2022	10/20/2024	Per Claim/ Annual Aggregate \$2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

The claims made professional liability coverage is the total aggregate limit for all claims presented within the annual policy period and is subject to a deductible. Thirty (30) day notice of cancellation in favor of certificate holder on all policies.

CERTIFICATE HOLDER

Master Certificate

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

RSC Insurance Brokerage

© 1988-2015 ACORD CORPORATION. All rights reserved.

ACORD 25 (2016/03)

The ACORD name and logo are registered marks of ACORD

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of vendor who has a business relationship with local governmental entity.

Oller Engineering, Inc.

2 ☐ Check this box if you are filing an update to a previously filed questionnaire. (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 Name of local government officer about whom the information is being disclosed.

Wendy Ruiz

Name of Officer

4 Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☒ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☒ No

5 Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.

N/A

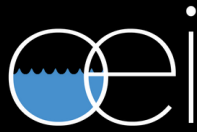
6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

Wendy Ruiz
Signature of vendor doing business with the governmental entity

6/15/25

Date



**THANK YOU FOR YOUR
TIME AND CONSIDERATION**

806-928-3923
wendy.ruiz@oei-eng.com

info@oei-eng.com
www.oei-eng.com



STATEMENT OF QUALIFICATIONS



CITY OF LA MARQUE

RFQ 2025-03

ENGINEERING / ARCHITECTURE / SURVEYING SERVICES



SUBMITTED BY:

OTHON



COVER LETTER

40+PROFESSIONAL
ENGINEERS**75+**DESIGN
PROFESSIONALS**1,000+**ROADWAY
MILES DESIGNED**70+**BRIDGES
DESIGNED**2,800+**MILES OF
CORRIDOR STUDIES**\$3B+**D-B CONSTRUCTION
ENGINEERED**CITY OF LA MARQUE****ATTN: CITY CLERK**1111 Bayou Road
La Marque, TX 77568

JULY 7, 2025

RE: RFQ 2025-03 FOR ENGINEERING/ARCHITECTURAL/SURVEYING SERVICES FOR THE CITY OF LA MARQUE

Dear Members of the Selection Committee,

OTHON, INC. (OTHON) is pleased to submit our qualifications to the City to provide **ENGINEERING SERVICES FOR THE CITY OF LA MARQUE.**

OTHON is a multidisciplinary civil engineering firm with offices in Houston (HQ), Dallas, and Austin TX. OTHON has more than 29 years of experience in the transportation design and engineering sector working extensively on Municipal, County, and State Department of Transportation roadway, bridge, drainage/hydrologic and hydraulic (H&H) analysis, as well as water, wastewater, sanitary sewer, and other public works projects.

OTHON has performed work for dozens of local agencies over the past three decades, including the City of Houston, City of Conroe, City of Pearland, League City, City of West University, City of Sugar Land, Gulf Coast Water Authority, (GCWA) the Coastal Water Authority (CWA), the Metropolitan Transit Authority (Houston METRO); the Houston Airport System (HAS), Harris County, Brazoria County, Fort Bend County, Montgomery County, HCTRA, Fort Bend County Toll Road Authority (FBCTRA), Brazoria County Toll Road Authority (BCTRA), Harris County Flood Control District (HCFCD), and many more surrounding municipalities, counties, transit authorities and other agencies, as well as extensive work with Texas Department of Transportation (TxDOT) on numerous design-bid-build and alternative delivery projects.

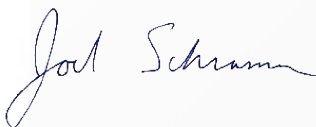
OTHON team members are experienced engineers and designers with substantial expertise and knowledge in a diverse array of city and neighborhood streets projects, drainage studies, lift stations, pump stations, waterline, sanitary sewer, and on- and off-system bridge projects in all manner of complexities and sizes in urban, rural, and suburban settings. We have successfully completed more than 60 similar projects in the Houston region, and 70 projects within the State of Texas. As a firm with over 100 personnel, including 76 design professionals (40 PEs, 18 EITs, 18 designers/CAD), OTHON has the depth of qualified staff, resources, and relevant design engineering experience required to serve as an extension of the City of La Marque's staff.

OTHON is a Historically Underutilized Business (HUB), Minority Business Enterprise (MBE)-certified firm, a Disadvantaged Business Enterprise (DBE), as well as a Small Business Enterprise (SBE).

OTHON is registered with the State of Texas (licensed by the Texas Board of Professional Engineers [TBPE], Registration No. #F-1471) to practice engineering. We are also a Historically Underutilized Business (HUB), Minority Business Enterprise (MBE)-certified firm, Disadvantaged Business Enterprise (DBE), and a Small Business Enterprise (SBE).

We would appreciate the opportunity to personally meet with the City staff in person to further discuss our qualifications and our approach to the work.

Sincerely,



Joel Schramm, PE | OTHON, INC.
Principal-in-Charge | Sr. Vice President, Director of Engineering
713.898.2049 | jschramm@othon.com

WORK PERFORMANCE ON RECENT, SIMILAR PROJECTS

PROJECT NAME	CLIENT	FUNDING SOURCE	COST CONTROL	CONFORMANCE TO CONTRACT REQUIREMENTS	QUALITY	SCHEDULE COMPLIANCE	KEY STAFF ON PROJECT
WATER PROJECTS							
Surface Water Transmission Program	City of Houston	Water & Sewer System Consolidated Construction Fund (Fund 8500)					Maureen Gonzalez
Austin Parkway Water Plant	City of Sugar Land	Utility Fund, Revenue Bonds					Joel Schramm
Neighborhood Sewer System Improvements (NSSI)(AS069)	City of Houston	Water & Sewer System Consolidated Construction Fund (Fund 8500)					Joel Schramm, David Ibague, Brian Hwang, Maureen Gonzalez, Cesar Mendez
Luce Bayou Interbasin Transfer	Coastal Water Authority	TWDB's (State Water Implementation Fund for Texas) SWIFT Fund					Joel Schramm
Ledge Street Waterline	City of Houston	DDSRF Capital Fund – Drainage Charge (Fund 4042)					Joel Schramm, Jeff Love, David Ibague, Brian Hwang, Maureen Gonzalez, Mike Liang, Cesar Mendez
Richmond Ave Waterline	City of Houston	Water & Sewer System Consolidated Construction Fund (Fund 8500) Revenue Bonds					David Ibague, Maureen Gonzalez



MET EXPECTATIONS



EXCEEDED EXPECTATIONS

WORK PERFORMANCE ON RECENT, SIMILAR PROJECTS

PROJECT NAME	CLIENT	FUNDING SOURCE	COST CONTROL	CONFORMANCE TO CONTRACT REQUIREMENTS	QUALITY	SCHEDULE COMPLIANCE	KEY STAFF ON PROJECT
WASTEWATER PROJECTS							
Hurricane Harvey Disaster Cost Recovery Lift Stations	City of Houston	FEMA Public Assistance Fund (FEDERAL), Disaster Cost Recovery Fund					Maureen Gonzalez, David Ibague
Bering & San Felipe Deep Sanitary Microtunneling	City of Houston	Water & Sewer System Consolidated Construction Fund (Fund 8500), City of Houston CIP Cost Recovery Fund					Joel Schramm, David Ibague, Maureen Gonzalez
Holmes Road Sanitary Sewer	City of Houston	Water & Sewer System Consolidated Construction Fund (Fund 8500)					David Ibague, Maureen Gonzalez
6 Lift Station Renewal & Replacement	City of Houston	Water & Sewer System Consolidated Construction Fund (Fund 8500), Under EPA Consent Decree					Ramon Salazar, Jr., Joel Schramm, David Ibague, Maureen Gonzalez
Magnolia Point Unserved Area Sanitary Sewer	City of Houston	Water & Sewer System Consolidated Construction Fund (Fund 8500)					Joel Schramm, Maureen Gonzalez
GHWP Sims Area Lift Station & Force Main	City of Houston	Water & Sewer System Consolidated Construction Fund (Fund 8500)					Joel Schramm



MET EXPECTATIONS



EXCEEDED EXPECTATIONS

WORK PERFORMANCE ON RECENT, SIMILAR PROJECTS

PROJECT NAME	CLIENT	FUNDING SOURCE	COST CONTROL	CONFORMANCE TO CONTRACT REQUIREMENTS	QUALITY	SCHEDULE COMPLIANCE	KEY STAFF ON PROJECT
STREETS/PAVEMENT PROJECTS							
SH 99 The Grand Parkway, Segments H & I	TxDOT	Federal Highway Administration (FHWA) (FEDERAL)					Danny Davila, Ivan Salinas, David Ibague
Madden Road Paving and Drainage	Fort Bend County	Fort Bend County Mobility Bond, MUD/ Developer-Funded Overages					Danny Davila, Ivan Salinas, David Ibague
Katy Hockley Cut-Off Road	Harris County	Harris County Mobility Bond,					Joel Schramm, Danny Davila, Ivan Salinas, David Ibague
Cypress North Houston Road & Greenhouse Road	Harris County Precinct 3	Harris County Precinct 3 Capital Funds					Danny Davila, Ivan Salinas, David Ibague
Hughes Road Rehabilitation	City of Houston	Fund 4040 – METRO Projects Construction, Street & Traffic Control & Storm Drainage (Fund 4042 – DDSRF), Water & Sewer System Consolidated Construction Fund (Fund 8500)					Joel Schramm, Danny Davila, Ivan Salinas, David Ibague
Williams Way Blvd (Formerly Ransom Road) Widening	Fort Bend County	Fort Bend County Road Bond Referendum					Danny Davila, Ivan Salinas, David Ibague



MET EXPECTATIONS



EXCEEDED EXPECTATIONS

WORK PERFORMANCE ON RECENT, SIMILAR PROJECTS

PROJECT NAME	CLIENT	FUNDING SOURCE	COST CONTROL	CONFORMANCE TO CONTRACT REQUIREMENTS	QUALITY	SCHEDULE COMPLIANCE	KEY STAFF ON PROJECT
H&H/DRAINAGE PROJECTS							
Morningside Subdivision Place Drainage	HCFCF	Harris County Flood Bond	★	★	★	★	Joel Schramm, Brian Hwang, Mike Liang
Ledge Street Area Drainage and Paving Improvements	City of Houston	DDSRF Capital Fund – Drainage Charge (Fund 4042)	★	★	★	★	Joel Schramm, Jeff Love, David Ibague, Brian Hwang, Maureen Gonzalez, Mike Liang, Cesar Mendez
Lower White Oak Bayou Bridge, Mitigation, and Regional Detention Analysis	HCFCF	Harris County Flood Bond Program, USACE Federal Flood Reduction Funding (FEDERAL)	✓	★	★	★	Joel Schramm, Danny Davila, Ivan Salinas, David Ibague
Davis Lane Drainage Improvements	City of Austin	Drainage Utility Fee Fund, Bond Funding	★	★	★	★	Joel Schramm
Dulles Avenue Drainage Study	City of Sugar Land	General Obligation (GO) Bond	✓	★	★	✓	Brian Hwang, Mike Liang

Furthermore, each of our project team members has proven experience and technical capabilities to assume task leadership responsibilities for any project should additional support be required to respond to any unforeseen project demands. OTHON has consistently delivered services and deliverables in accordance with a variety of client contractual terms and conditions and meeting expectations for quality, approved budgets and schedule goals.

- PAST PROJECTS COMPLETED ON SCHEDULE**
The tables above summarize types of projects and schedule conformance results.
- MANAGE PROJECTS WITHIN BUDGETARY CONSTRAINTS**
The tables above summarize types of projects and budget conformance results.
- WORK PRODUCT IS OF HIGH QUALITY**
The tables above summarize types of projects and quality conformance results.

MUNICIPAL & FEDERALLY-FUNDED PROJECT EXPERIENCE

The OTHON Team brings extensive knowledge and proven experience in delivering Municipal and Federally-Funded Projects. Our multidisciplinary team has successfully managed and executed similar projects across the region for various cities and public agencies.

MUNICIPAL PROJECT EXPERIENCE

OTHON has provided engineering services for water, wastewater, streets, drainage, and general infrastructure for municipal projects. In addition to these services, OTHON was founded with specialization in transportation systems and provides a full range of engineering, design and project, construction management and inspection services for water and wastewater pipelines, pumping and treatment, streets, highways, bridges, traffic and stormwater management.

FEDERALLY-FUNDED PROJECT EXPERIENCE

OTHON has a long-standing history of working with a diverse range of federal funding, regulatory and stakeholder agencies that frequently play a role in municipal infrastructure projects like those anticipated in the city. We understand the unique processes, review timelines, and technical standards of each entity, enabling us to anticipate potential challenges and proactively manage approvals and permitting. Our proven track record of interagency collaboration ensures streamlined communication, regulatory compliance, and timely delivery, key factors in executing successful public infrastructure projects that align with the city's growth and long-term planning goals. Examples of this project experience are shown on the following pages and include the agencies: U.S. Department of Housing and Urban Development (HUD) and the Federal Emergency Management Agency (FEMA).

OTHON has extensive experience performing engineering services for projects with a wide variety of funding sources, as evidenced by the list of recent, similar project experience on the previous four pages.

OTHON also has experience performing engineering services for Federally-Funded projects, as detailed over the next 3 pages.



EXPERIENCE WITH FEDERALLY CONSTRUCTED PROJECTS

HURRICANE HARVEY DISASTER COST RECOVERY LIFT STATIONS 2020-21 | CITY OF HOUSTON | HOUSTON, TX

OTHON provided the following support tasks as they relate to the pumping and structural components of 8 lift stations and provided review support for an additional 31:

TASK 1 ASSET INVENTORY AND ASSESSMENT Mobilized technical personnel for an on-site asset inventory and assessment of the entire designated facility damaged by Hurricane Harvey. Gathered asset information for all assets at their assigned facility such as, but not limited to, asset name, manufacturer, model, serial numbers, commission date, asset size, asset capacity, asset type, and asset material. Reviewed and analyzed existing documentation such as, work orders generated by EAM, work orders generated by IMS, SCADA information, information from HachWMS, information from CIPMS, City Service Contract service request details, historical and current draw-down test results, and 311 service requests to assess all designated facility assets and reconcile draw-down tests at lift stations.

TASK 2 TECHNICAL ANALYSIS: Determined the assets pre- and post-Hurricane Harvey conditions, noting any additional or latent damages identified. Determined the optimal operating condition for the facility at the current permitted flow and loadings and associated discharge limits. Determined if assets met all current applicable codes and advise on recovery efforts that would bring asset into compliance with applicable codes. Determined the repair/replacement alternatives for assets damaged by Hurricane Harvey and conducted a detailed cost estimate using RS means to determine costs. Vendor quotes were obtained for equipment valued over \$10,000 and only cost estimates from Vendor quotes superseded RS Means. Determined the hardening/mitigation required to protect assets during future flood events and the costs associated with implementing the hardening/mitigation. Determined the cost differences for repairs/replacements to bring assets damaged by Hurricane Harvey to pre-Hurricane Harvey condition, optimal condition, and optimal condition with hardening/mitigation. Assumed current facility permitted flows, loadings, and discharge limits for optimal conditions. Created a hydraulic system curve for all lift stations.

TASK 3 COST RECOVERY DOCUMENTATION SUPPORT, QA/QC: Assisted City personnel in preparing forms necessary for filing FEMA claims to ensure all technical aspects are sufficiently addressed and all work and costs included as necessary to properly restore all facilities consistent with applicable codes, specifications, and standards. Assisted City personnel in researching and determining codes, guidelines, and specifications required as back-up documentation for FEMA claims.



OWNER CONTACT: STEPHEN COSTELLO, PE - CHIEF RECOVERY OFFICER, CITY OF HOUSTON | 832.393-0811
STEPHEN.COSTELLO@HOUSTONTX.GOV | **SIZE:** 30,00 LF | **CONSTRUCTION COST:** \$400K | **COMPLETED:** 2021

EXPERIENCE WITH FEDERALLY CONSTRUCTED PROJECTS

HOUSTON AIRPORT SYSTEM ON-CALL DESIGN SERVICES FOR FEDERALLY-FUNDED PROJECTS

OTHON performed front-end assessment, detail design, bid phase, and construction administration services for various federally-funded airport projects including:

- 1 EXPANDED JOINTS DESIGN & CONSTRUCTION ADMINISTRATION:** Replacement of failed expansion joints in the upper U-Ramp of Hobby Airport
- 2 IAH SAFETY AND DRAINAGE IMPROVEMENTS:** Sinkhole issues have been identified along the drainage ditches at IAH Airport. These issues are attributed to: 1) poor soil conditions, 2) an ineffective backslope swale sheet flow collection system, and/or 3) the absence of backslope swales and interceptors. OTHON is providing ongoing project management oversight. As part of the initial assessment studies, OTHON conducted a site visit to evaluate several significant sinkhole locations. This project aims to deliver a design plan for improving the existing backslope swale system, develop repair methods for sinkholes and slope failures, create a concrete slope repair plan, issue technical specifications, perform quantity takeoff and construction cost estimates, and produce a Construction Safety and Phasing Plan in compliance with AC 150/5370-2G.
- 3 MARRIOTT HOTEL SIGNAL AND CROSSOVER:** Designed pavement modifications, pavement markings, and traffic signal installation to alleviate heavy traffic mainly caused by multiple construction sites on North and South Terminal Roads.
- 4 CENTRAL CARGO G BUILDING:** Prepared construction drawings for the removal of the existing vehicular access ramp and associated railing, fencing and design drawings for new pavement for Central Cargo G-Building at George Bush Intercontinental Airport in an unsecured area. Removal and design drawings were completed in an expedited schedule due to building turnover.
- 5 HOUSTON CANOPY:** Prepared feasibility study for connecting the red garage & main terminal building at Hobby Airport with a covered canopy. The feasibility study included:
 - Structural analysis of the canopy and verification of the existing column capacities
 - Material selections (structural framing & architectural finishes)
 - Canopy Drainage
 - Cost estimate based on material takeoffs
 - Proposed canopy renderings
- 6 ECO PARK CANOPY:** Inspection and modifications of the EcoPark Canopy located at Hobby airport. The scope included:
 - Installation of glass panel installed between the northernmost canopy columns for rain protection. Glass met HAS requirements for impact rating.
 - Inspection of canopy roof and flashing, identified areas requiring repair, design repairs and inspect installation.
 - Specified water test of canopy roof and flashing following any identified repairs being completed.
 - Replaced existing lighting under canopy with LED fixtures with photocells.
 - Specified cleaning of tile wall surface to remove staining.
 - Submitted for permit.
 - Provided administrative services (RFI, Shop Drawing Review, Submittal Review, etc.) 1 site inspection.
- 7 TERMINAL A PAVEMENT MODIFICATIONS:** Prepared technical report detailing findings from review of the IAH Terminal A departures pavement cracking issues. The technical report included the review of pavement design drawings, pavement mix design, concrete mix design test results, concrete core samples, additional HAS design and construction documents which comprised specifications, HAS inspection daily reports, and construction notes, minutes of meetings, and photos. Recommendations were provided.

OWNER CONTACT: HUGH KIM, PE - PROJECT MANAGER, HOUSTON AIRPORT SYSTEM (HAS) | 281.233.1959
HUGH.KIM@HOUSTONTX.GOV | **CONSTRUCTION COST:** VARIES | **COMPLETED:** 2025

LOCAL & REGIONAL PROJECTS IN TEXAS

All OTHON team members are experienced engineers and designers who have most recently developed similar transportation engineering projects for various public agencies as a prime including the following: City of Conroe, City of Friendswood, City of Houston, City of League City, Missouri City, City of Pearland, City of Sugar Land, City of West University, Coastal Water Authority (CWA), Harris County, Harris County Flood Control District (HCFCD), Harris County Toll Road Authority (HCTRA), Fort Bend County, Brazoria County, Brazoria County Toll Road Authority (BCTRA), Montgomery County, Gulf Coast Water Authority (GCWA), Houston Airport System (HAS), Houston-Galveston Area Council (H-GAC), Metropolitan Transit Authority (Houston METRO), TxDOT Houston District, as well as several other cities, counties, and transit authorities within the immediate Houston area.

HARRIS COUNTY FLOOD CONTROL DISTRICT (HCFCD) PROJECT EXPERIENCE

- **MORNINGSIDE PLACE SUBDIVISION DRAINAGE IMPROVEMENTS (A135-01-00-E001)**
- **LOWER WHITE OAK BAYOU BRIDGE, MITIGATION & REGIONAL DETENTION ANALYSIS**
- **BEAR CREEK LETTER OF MAP REVISION (LOMR)**
- **ARDMORE STREET BRIDGE REPLACEMENT**
- **CHANNEL IMPROVEMENTS FROM UNIT (106-08-02 TO UPSTREAM OF SHAVER ROAD)**
- **GARNER'S BAYOU (P130) REGIONAL DETENTION POND**
- **HUNTING BAYOU (H100) REGIONAL DETENTION POND**
- **KLUGE STORMWATER DETENTION BASIN (LS00-02-00)**
- **BRIDGE REPLACEMENT ON MAIN ST. OVER (106-03-00)**
- **BRIDGE REPLACEMENT ON TEXAS ST. OVER BERRY BAYOU**

HARRIS COUNTY PROJECT EXPERIENCE

- **RICHEY ROAD STORM DRAINAGE IMPROVEMENTS**
- **HALLMARK, WESTBRIAR & SAGE RD IMPROVEMENTS | PRECINCT 1**
- **POST OAK BLVD RECONSTRUCTION PROJECT | PRECINCT 1**
- **TELGE ROAD, SEGMENT 2 | HARRIS COUNTY PUBLIC INFRASTRUCTURE**
- **POST OAK BLVD SANITARY SEWER UPGRADES | PRECINCT 1**
- **KATY HOCKLEY CUT-OFF ROAD, SEGMENTS 1 & 2 | PRECINCT 3**
- **DRAINAGE STUDY AT MILL RIDGE DR AND SAATHOFF DR**
- **BOURGEOIS ROAD IMPROVEMENTS | PRECINCT 4**
- **SHAW ROAD WIDENING TRAFFIC ENGINEERING SUPPORT**
- **EL DORADO BLVD WIDENING**
- **CYPRESS NORTH HOUSTON ROAD**

HARRIS COUNTY TOLL ROAD AUTHORITY (HCTRA) PROJECT EXPERIENCE

- SH 225 CEI
- TRUCK ROUTE STUDY/FREIGHT CORRIDOR PLAN
- TRAFFIC MODELING FOR SAM HOUSTON TOLLWAY
- HIGH MAST LIGHTING
- HCTRA ON-CALL MAINTENANCE: PAVEMENT MARKINGS
- LORRAINE STREET PUMP STATION
- CM MAINTENANCE & INSPECTION ON-CALL - 426 PROJECT

CITY OF HOUSTON PROJECT EXPERIENCE:

- WASTEWATER SUBSTITUTE SERVICES WORK ORDER NO. 1
- 6 LIFT STATION REHABILITATION PROJECT
- BERING & SAN FELIPE DEEP SANITARY MICROTUNNELING, ABANDONMENT OF LIFT STATIONS
- WATER AND WASTEWATER CONSTRUCTION MANAGEMENT PROJECTS
- HOLMES ROAD SANITARY SEWER
- MAGNOLIA POINT SANITARY SERVICES PACKAGE 3
- HUGHES ROAD REHABILITATION
- COH PUMP AND WARNING DEVICES
- NEIGHBORHOOD SANITARY SEWER/INFRASTRUCTURE IMPROVEMENTS (NSSI)
- LEDGE STREET AREA DRAINAGE AND PAVEMENT IMPROVEMENTS
- EASTHAVEN DRAINAGE IMPROVEMENTS
- NORTHSIDE SEWER RELIEF
- REHAB OF WASTEWATER LIFT STATIONS
- FULTON STREET RECONSTRUCTION
- PARK GLEN PUMP STATION CONSTRUCTION ADMINISTRATION SERVICES
- SIMS BAYOU - CONSTRUCTION ADMINISTRATION SERVICES
- SIMS BAYOU - FINAL DESIGN
- HAS ON-CALL CONTRACT 925C I HOUSTON AIRPORT SYSTEM
- ANTOINE DR FROM WEST MOUNT HOUSTON DRIVE TO US 290 - STRUCTURAL/BRIDGES
- NORTHSIDE SEWER RELIEF
- REHAB OF WASTEWATER LIFT STATIONS
- TRAFFIC SIGNAL & INTERSECTION IMPROVEMENTS - MIDDLEBROOK & TIDWELL
- CITY OF HOUSTON INTELLIGENT TRANSPORTATION SYSTEMS (CITS) MASTER PLAN
- HARRIS COUNTY & CITY OF HOUSTON -ATTORNEY'S OFFICE - TECH. SUPPORT FOR EXPERT SERVICES RELATED TO NHHIP DESIGN & POTENTIAL MITIGATION MEASURES I COH & HC

CAPACITY TO PERFORM THE WORK:

NAME	ROLE	YOY		OTHER WORK		AVAILABILITY
Ramon Salazar, Jr., PE	Project Manager*	40				70% Available
David Ibague, PE	Deputy PM, Wastewater TL*	12				60% Available
Joel Schramm, PE	Principal-in-Charge (PIC)*	35				40% Available
Danny Davila, PE	Roadway Design TL*	17				50% Available
Ivan Salinas, PE	Roadway Design	13				70% Available
Brian Hwang, PE, RAS	Drainage/H&H TL, ADA Design*	14				60% Available
Mike Liang, PE	Drainage/H&H	20				60% Available
Maureen Gonzalez	Water TL*	7				60% Available
Beth Shelton, PE, PTOE	Traffic Operations TL	20				50% Available
Shane Cossey, PE	Construction Services TL*	19				60% Available
Amir Mosaffa	Construction Superintendent	35				40% Available
Tommy McKnight	Chief Inspector*	37				40% Available
Roland Joubert	Waterline Inspection	30				70% Available
Juan Rivas	Roadway Inspection	16				60% Available
Cesar Mendez	Lead Scheduler*	11				50% Available
Karen Othon	Public Outreach/Meetings*	37				40% Available
Ben Anderson, PE	Chief Structural Engineer	34				40% Available
Kelly Fan, PE	Bridge Design	24				40% Available
Jeff Love, PE	QA/QC Manager*	29				50% Available

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

* Denotes KEY PERSONNEL

REGISTERED AND IN GOOD STANDING:

OTHON maintains firm and individual PE registration with the Texas Board of Professional Engineers and Land Surveyors (TBPELS).

OUR FIRM NUMBER IS F-1471.

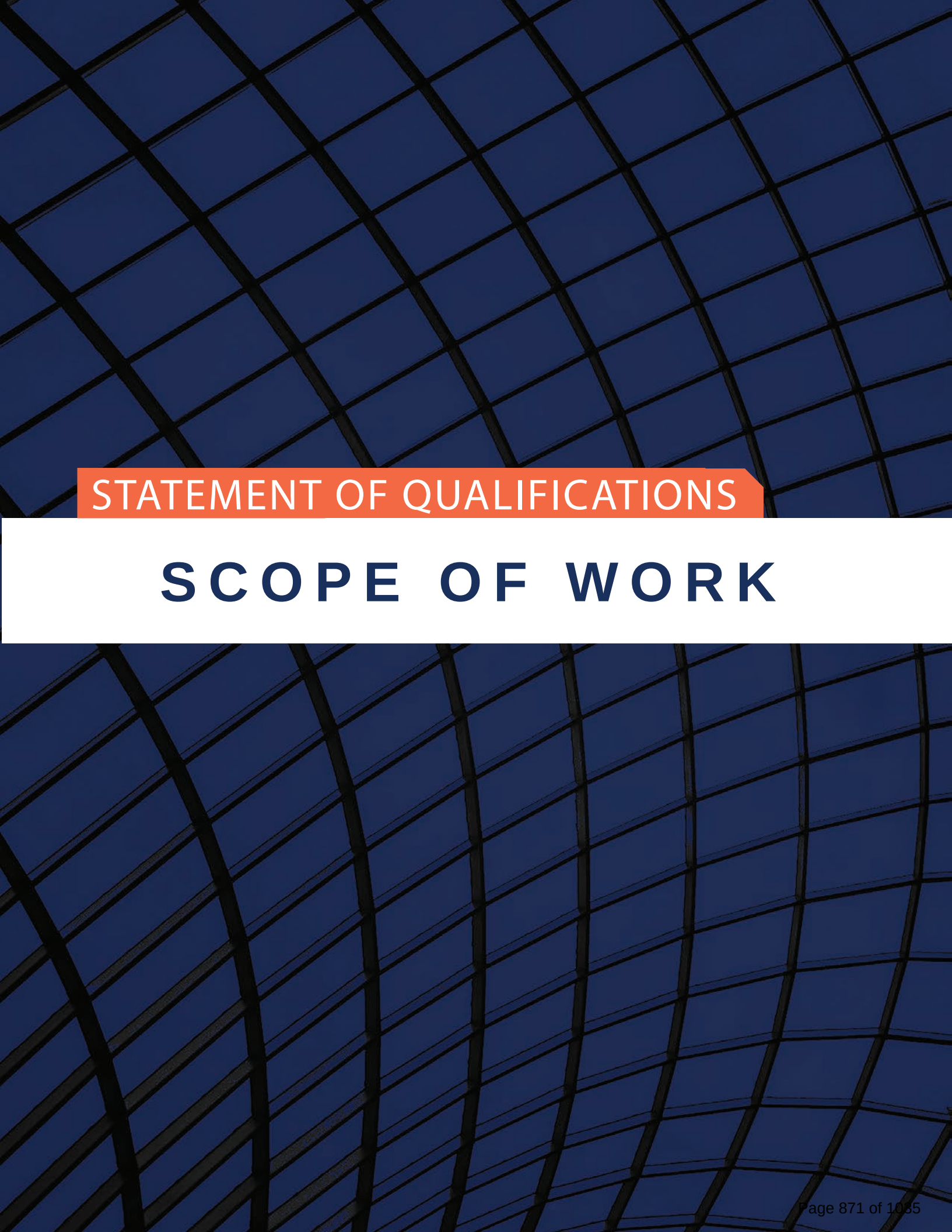
SYSTEM FOR AWARD MANAGEMENT (SAM):

OTHON is not debarred or suspended from participating in federal or federally assisted projects in the System for Award Management (SAM).

OUR SAM/UE ID IS DGMKTMLG1LB3.

TABLE OF CONTENTS

LETTER	TRANSMITTAL/COVER LETTER.....	01
SEC 01	SCOPE OF WORK.....	13
01.A	INITIAL PROJECT ASSESSMENT.....	13
01.B	PROJECT PHASING.....	13
SEC 02	TASKS TO BE PERFORMED.....	16
02.A	TASKS TO BE PERFORMED: WASTEWATER.....	16
02.B	TASKS TO BE PERFORMED: WATER.....	23
02.C	TASKS TO BE PERFORMED: STREETS/PAVEMENT.....	27
02.D	TASKS TO BE PERFORMED: DRAINAGE.....	33
SEC 03	PROJECT EXPERIENCE.....	40
03.A	PROJECT EXPERIENCE: WASTEWATER.....	40
03.B	PROJECT EXPERIENCE: WATER.....	48
03.C	PROJECT EXPERIENCE: STREETS/PAVEMENT.....	53
03.D	PROJECT EXPERIENCE: DRAINAGE.....	57
SEC 04	PROJECT PERSONNEL.....	61
04.A	PROJECT PERSONNEL: ORGANIZATIONAL CHART.....	61
04.B	KEY PERSONNEL RESUMES.....	62



STATEMENT OF QUALIFICATIONS

SCOPE OF WORK

SCOPE OF WORK

INITIAL PROJECT ASSESSMENT

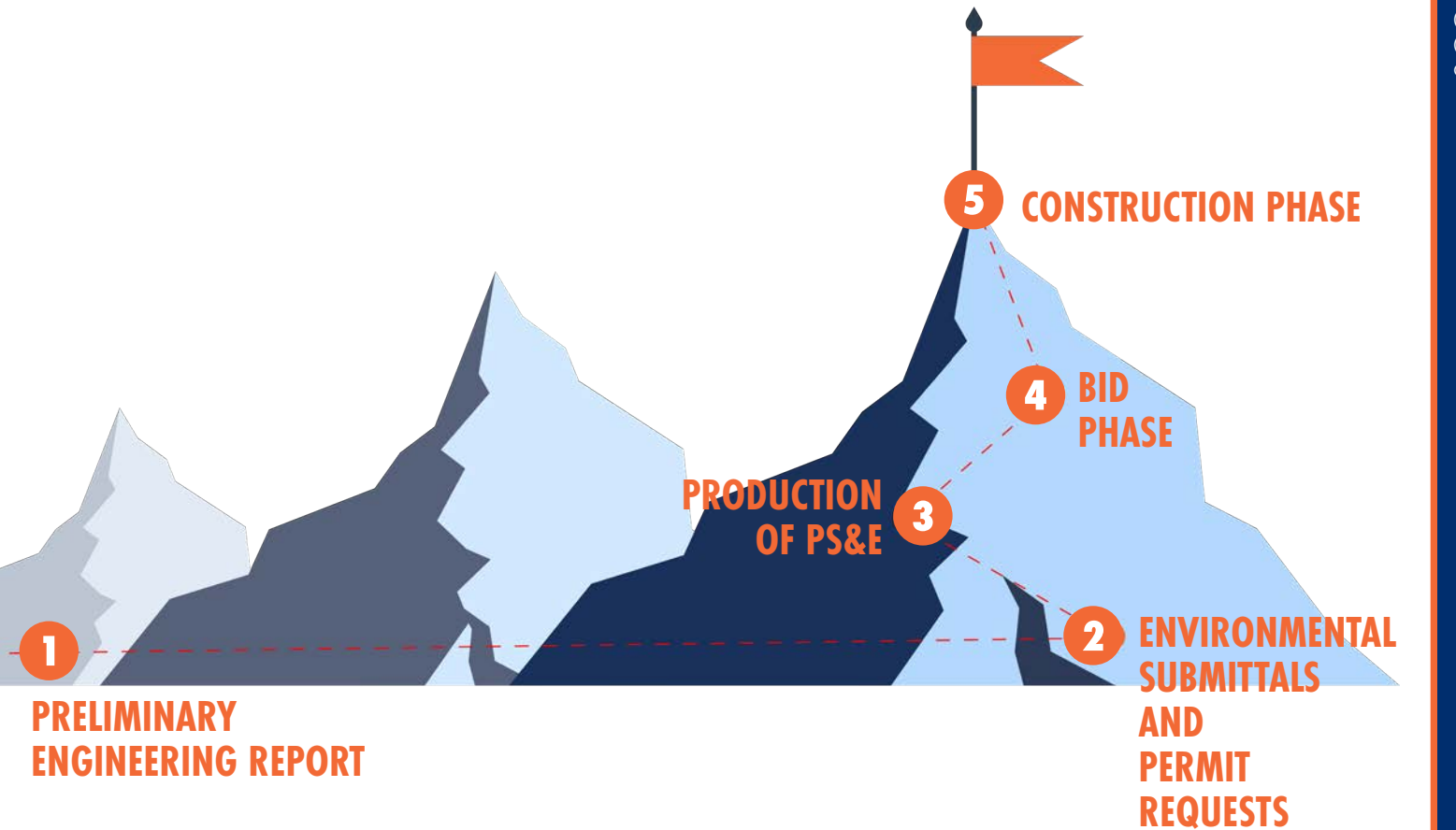
In the first step of developing a comprehensive and effective project execution plan for a project (as detailed below), Our PM and Team Design Lead(s) (DL) will develop a full and thorough understanding of the project and potential solutions.

Site visits by our key personnel will assist in developing a full understanding of project alternatives and issues. All these items will be the subject of extensive discussions between the PM and the City. To ensure these discussions are productive, our PM will have all project information in hand before beginning discussions with the City to ensure development of a properly detailed scope of services and comprehensive list of deliverables.

A large portion of these projects will receive funding from various sources, such as the 2023-2024 Drinking Water State Revolving Fund (DWSRF), Clean Water State Revolving Fund (CWSRF), and other programs from the Texas Water Development Board (TWDB). All methodology and documentation will conform to the requirements of all funding and regulatory agencies. Project construction cost estimates for all studied alternatives will be used in conjunction with a current asset inventory to prepare a Benefit Cost Analysis (BCA).

This initial project assessment will be completed within less than a week, and if completed prior to contract and scope discussions between PM and the City, which will expedite the initiation of the project.

PROJECT PHASING



SCOPE OF WORK

PROJECT PHASING

The project will be divided into distinct phases, with the total project duration determined as the sum of the critical time for each phase as follows:

1

PRELIMINARY ENGINEERING REPORT (REFINE):

A Preliminary Engineering Report (PER) will be prepared and refined by the team to fully describe and illustrate the design assumptions, methods used, alternatives analyzed, and regulatory and permitting issues to be addressed. Any possibilities of participation by other entities will be fully described. Our focus on preparing a PER is that the PER, as a stand-alone document, will contain all the information required to allow the City to make fully informed decisions related to the appropriate choice of alternatives presented, including the alternative of moving the project ahead, or abandoning the project and moving funds elsewhere.

AT A MINIMUM, OUR PER WILL INCLUDE THE FOLLOWING ITEMS:

- ✓ Topographic and right-of-way survey data in plan format showing existing right-of-way and right-of-way to be acquired (critical path).
- ✓ A comprehensive list of all permitting requirements.
- ✓ List of all affected regulatory jurisdictions and contact information for each along with submittal/coordination requirements for each.
- ✓ A list/discussion of all potential involvement, including potential financial participation, with other jurisdictions and entities.
- ✓ Environmental assessment of the project area. In addition to other environmental issues to be evaluated, only presence of industrial/commercial sites and development will raise the possibility that environmental contamination may be present. Past experience accumulated by the PM with similar projects has shown that excavations may expose undocumented landfill or disposal sites that will require remediation. All Team Members will be required to be alert for signs of such landfill or dumping activity, and our Geotechnical Engineers will be required to check for such possibilities during any drilling and sampling operations.
- ✓ Results of our Geotechnical investigations and recommendations.
- ✓ Locations of possible utility conflicts and easements.
- ✓ List of recommendations.
- ✓ Results of our studies confirm proposed design elements and show benefits to be expected.
- ✓ Schematic drawings and details showing the proposed improvements to be constructed, typical sections, utility relocations, revisions/upgrades, and all information needed to describe the proposed project completely.
- ✓ A Benefit Cost Analysis (BCA) using a current asset inventory will be included for each alternative analyzed.

2 ENVIRONMENTAL SUBMITTALS & PERMIT REQUESTS:

The time and effort required for this task will depend entirely on the results of the initial Environmental Assessment and on-site investigations. Typically, projects like this require compliance with the Clean Water Act (CWA), the Antiquities Code of Texas (Code), and various state and federal statutes that help protect threatened and endangered species and their habitats. Federal funding for improvement projects will follow National Environmental Policy Act (NEPA) requirements, including Environmental Reviews. If federal funding is involved and Environmental Reviews are required, agency coordination for helping make these determinations regarding natural and cultural resource issues is handled by the Texas General Land Office (GLO), in coordination with the Texas Historical Commission (THC) and the Texas Parks and Wildlife Department (TPWD), with oversight or clearance often facilitated through the U.S. Army Corps of Engineers (USACE) and the Federal Emergency Management Agency (FEMA), depending on the funding source. If there are no considerable issues, this task may prove insignificant in the project schedule; otherwise, it may substantially influence project duration.

ENVIRONMENTAL CONSTRAINTS ANALYSES

We will consult available online resources and databases to identify known or foreseeable issues that may challenge project schedules. For archaeology, we will use online Atlas & TxDOT PALM GIS maps. The example has no properties listed in the National Register of Historic Places or designated as State Archaeological Landmarks. There is a very low probability that cultural resource issues will threaten this project's schedule.

WETLANDS

The National Wetlands Inventory (NWI) atlas, maintained by the U.S. Fish and Wildlife Service, will show recorded wetland features in the project area. This means that our field survey to define and delineate possibly jurisdictional features can proceed under the assumption that this may itself be the only jurisdictional feature present. Part of our due diligence involves verifying that these areas haven't already been classified concerning their jurisdictional status.

3 PRODUCTION OF PLANS, SPECIFICATIONS, & ESTIMATES:

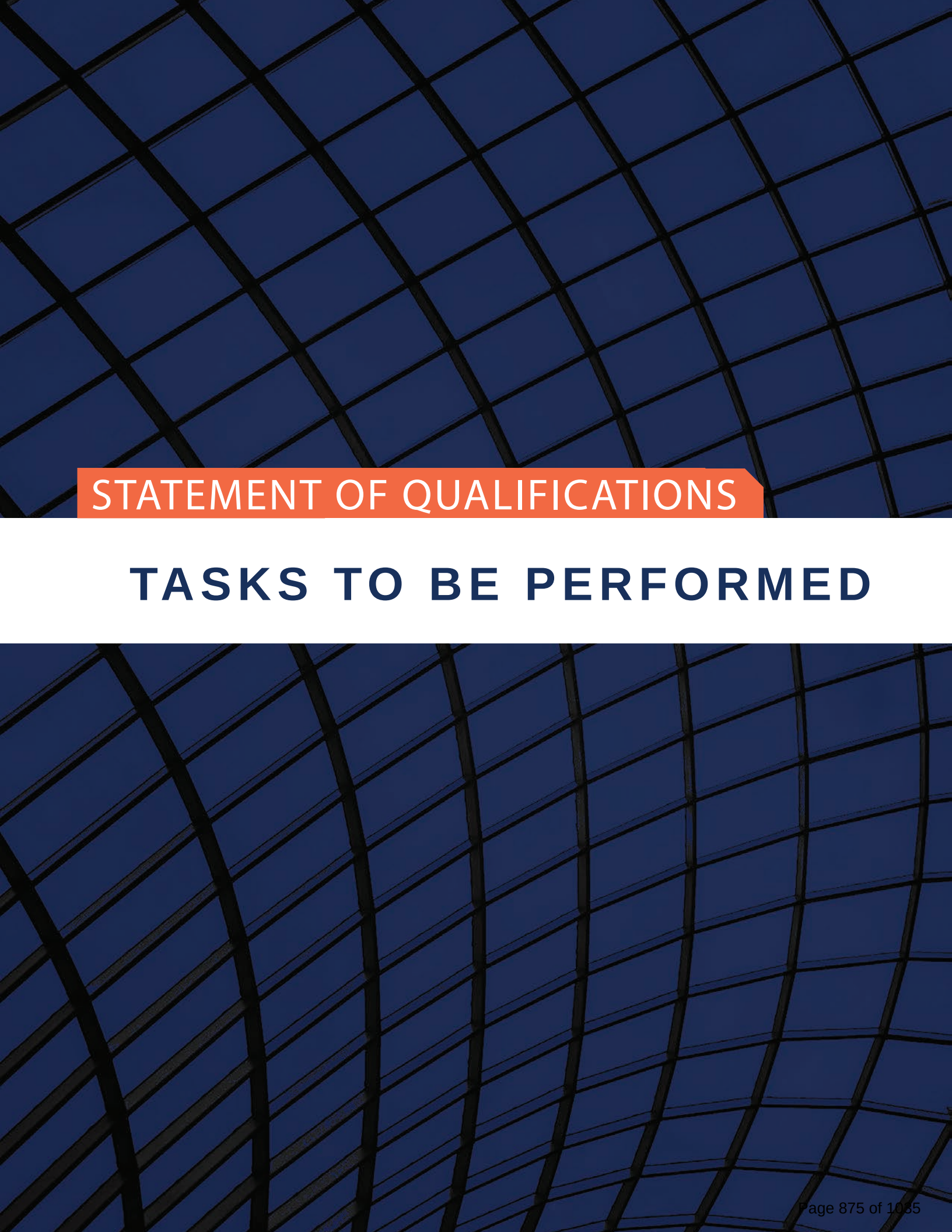
In this phase, all plans, profiles, details, and Storm Water Pollution Prevention Plan details will be prepared and assembled into a comprehensive plan, enabling potential bidders to completely understand what items are to be installed or furnished. A complete set of detailed specifications will be prepared to provide additional specific requirements and methods of payment for each item.

4 BID PHASE:

We will assist the City in advertising for bids, attend pre-bid meetings, and provide support with clarifications and requests for information from prospective bidders. We will assist the City in receiving and tabulating/checking bids and make recommendations regarding acceptance/rejection of bids.

5 CONSTRUCTION PHASE:

During construction, we provide contract services including, but not limited to, plan revisions, submittal reviews, periodic site visits, attending periodic progress meetings, and review of proposed change orders. Following completion of the project, as-built drawings (record drawings) are prepared from drawings maintained during construction by the contractor and the City. Warranty inspection is recommended to be performed no later than 10 months after acceptance of the work.



STATEMENT OF QUALIFICATIONS

TASKS TO BE PERFORMED



TASKS TO BE PERFORMED:

WASTEWATER

THE DESIGN PROCESS - WASTEWATER

A. GENERAL

KICK-OFF MEETING

Initially, OTHON coordinates with the city project manager to schedule a kick-off meeting with the city project manager, interested staff, and may include representatives from TxDOT, utility companies, and other consultants performing work on adjacent projects. The purpose of the kickoff is for all the stakeholders involved on the project to meet face-to-face to discuss the project schedule, establish project goals, objectives and design preferences; identify the key project personnel for each of the companies and agencies involved; discuss levels of communication; and establish a schedule for biweekly coordination meetings and monthly utility meetings. OTHON's project manager publishes meeting minutes and distributes them for comments or acceptance no later than two business days after the end of the meeting.

QA/QC PLAN

The Quality Control Plan (QCP) provides a technical review mechanism for ensuring that quality products are developed for the project. The QCP will be implemented by our Project Manager to ensure that all design documents developed for the city are subject to a consistent and systematic review at established milestones. The QCP results in a fully documented "trail" of the design process. The documented design process supports our project team by substantiating our project recommendations should any legal, social or procedural matter arise regarding the project. This QCP is also an important tool for the project team to use to avoid rework or redesign efforts and assures accountability for the quality of the finished product provided to the city. The QCP provides an authorized, documented basis to guide, direct, and consistently instruct the execution of work. The QCP will identify the staff and internal review milestones and schedules for required responses to the City.

SUBMITTALS

We provide submittals at the established design milestones to provide City staff with sufficient opportunity to critique, review, and offer suggestions regarding preferred improvement features. The bid set submittal completes the design stage. The required street, paving and utility improvements require close cooperation between OTHON, the City, TxDOT, and other stakeholders such as franchise utility owners, and adjacent property owners. OTHON will coordinate with the City to develop a plan to provide expedited submittal reviews and prevent unnecessary delays.

B. PRELIMINARY DESIGN PHASE

This section describes our approach to major tasks performed during the preliminary design phase for the project. During preliminary design, the design team meets with the City to confirm required wastewater system improvements and coordinate implementing planned improvements. We also obtain and review utility maps/drawings from private utility companies (electrical, gas, telephone, cable TV, and fiber optic companies).

Tasks involved with sewer utility collection system installation, renewal or replacement follow.

OBTAIN & REVIEW RECORD DOCUMENTS AND INFORMATION FOR CITY OWNED UTILITIES

We provide submittals at the established design milestones to provide City staff with sufficient opportunity to critique, review, and offer suggestions regarding preferred improvement features. The bid set submittal completes the design stage. The required improvements require close cooperation between OTHON,

the City, and other stakeholders such as franchise utility owners, and adjacent property owners. OTHON will coordinate with the City to develop a plan to provide expedited submittal reviews and prevent unnecessary delays.

REVIEW SYSTEM HYDRAULICS

Water and wastewater mains in the project area are reviewed, if required, to confirm new and replacement line sizes are adequate based on future flow and demand projections. This review is performed to ensure that the proposed utility improvements will not require further adjustments during their design life. This review is used to also determine where connections to the existing water and sanitary sewer lines are best located for operational and maintenance purposes. Population and development/land-use estimates are re-examined to ensure that proposed improvements are sized appropriately for both near-term and future services.

ENSURE ADHERENCE TO CITY DESIGN STANDARDS AND OTHER APPLICABLE STANDARDS

The proposed wastewater mains will be designed in conformance with City and TCEQ requirements and industry recognized standards for maximum manhole spacing, minimum vertical gradients, and minimum water and wastewater separation distances. Additionally, manholes will be installed at all grade breaks and changes in direction. Manholes will be installed at end-of-line locations and other locations that would allow improved accessibility for maintenance and line cleaning. Manholes will be located on each end of sections constructed by trenchless methods. Pipe material selections will be consistent with City of La Marque and other local standards.

SEWER MAIN OPERATION AND MAINTENANCE EVALUATION

Manholes will be located on opposite sides of each gravity wastewater main crossing of busy arterials or other critical crossings. Our design staff will evaluate the location of trenchless construction access and receiving pits relative to manhole spacing requirements for purposes of converting the access and receiving pits into access points for future pipe rehabilitation and maintenance.

GRAVITY WASTEWATER MAIN VERTICAL AND HORIZONTAL ALIGNMENT EVALUATION

During our horizontal alignment evaluation process, trenchless construction across heavily trafficked arterials or TXDOT maintained roadways will consider locating the sanitary sewer improvement appurtenances in accordance with Texas Department of Transportation (TxDOT) policy and the "Utility Accommodation Rules". Our evaluation will also include confirmation of the existing ROW width and availability for construction and maintenance purposes. The width of proposed easements, where required, will also be evaluated in relation to temporary and permanent space requirements for construction and maintenance purposes. Alignments across waterways will consider requirements of appropriate construction methods. The horizontal alignment will also consider the condition of existing street pavement and, where practical, avoid disturbing newer pavement structures. Horizontal and vertical alignment alternatives will consider opportunities to minimize construction cost by reducing ROW acquisition, cut-and-cover depth, and environmental disturbance.

EVALUATION OF MECHANICAL EQUIPMENT

We will review the condition and sizes of existing lift station equipment with City staff to determine if upgrades or replacements are warranted. Viable pumping capacity expansion alternatives will consider:

- Equipment Sizing and Configuration. The lift station is reviewed to verify adequacy of structure dimensions to house the required quantity of additional or replacement pumps, valves, piping, specialty equipment, etc. The existing pumps are reviewed to determine if the required pumping capacity can be achieved with available impeller upgrades. We review the existing wet well volume to verify adequacy of available storage for the required pumping capacity and to determine if a new wet-well will be required.
- Equipment Selection. Pumps and valves will be selected to meet project objectives and City

policies and criteria. The team will coordinate with manufacturers and vendors throughout the design, installation, construction, start-up, and warranty phases to ensure equipment operability and reliability.

SURVEY EXISTING CONCRETE STRUCTURES

A limited above-ground visual inspection of the physical condition and operational status of existing wet wells and equipment will be documented for review by the City. The wet well interior concrete surface will be reviewed for presence of a hydrogen sulfide corrosion protection coating or liner.

Evidence of groundwater leakage into the pump station through cracks or unsealed joints will be documented. Plans to rehabilitate the existing well's concrete surface will specify required application of concrete protection coating and joint and crack sealing, should the protective liner appear compromised and groundwater detected.

EVALUATION OF POWER SUPPLY, ELECTRICAL, INSTRUMENTATION AND CONTROLS, AND ENERGY COST

A lift station's capacity expansion will consider power supply sources, cost and energy requirements during the anticipated life of the facility, and the availability and reliability of energy sources to determine the lowest operating life cycle cost.

- Hurricane and Other Power Loss Resiliency. This evaluation will identify the vulnerabilities to service interruptions and the level of alternate power source demands. We will review the existing temporary power provisions with City staff and consider incorporating a permanent backup power generator and automatic transfer switches. A manual transfer switch for connecting portable power generators may also be a viable backup power option.
- Evaluation of Electrical, Instrumentation, and Controls System. The existing and/or new control panels will be reviewed to verify they're located above the 100-year flood elevation. New control panels will conform to City standards and National Fire Protection Association 70 National Electrical Code® explosion prevention requirements. The condition and capacity of existing electrical and instrumentation systems will be reviewed for applicability to the capacity expansion.

EVALUATION OF SITE ACCESS, MAINTENANCE, SAFETY, AND SECURITY

Lift station sites will be reviewed to verify prevention of unauthorized entry or vandalism of above-ground equipment. We will coordinate with City staff and evaluate the existing or proposed lift station sites to ensure compliance with TCEQ security requirements and preferences for access drive.

- A 6' fence, including three strands of barb wire, is required per TCEQ (Chapter 217.59(b)).
- Capacity expansion or rehabilitation improvements will be designed for low-maintenance and safe operations. Fall protection provisions will be reviewed with City staff. Jib cranes or other lifting devices will be considered for safe removal or installation of pumps, motors, and other equipment.

FACILITY CLOSURE AND DECOMMISSIONING

Should the best value option for expanding a lift station's capacity result in the construction of a new lift station, we will develop a plan to close and decommission the entire existing lift station or select components. The plan will illustrate the suggested temporary piping and pumping requirements and sequence of construction to maintain uninterrupted service to the service area.

A proposed sewer bypass and construction sequencing plan will be developed to minimize service disruptions during switchover between the existing and replacement or new system. All temporary bypass operations will require around-the-clock monitoring to prevent inadvertent wastewater spills.

PERFORM A LIFE-CYCLE COST ANALYSIS

The life-cycle cost analysis will compare operational costs and capital expenditures for considered pipeline alignments, selected pipe materials and planning period, including the acquisition of required ROW.

DEVELOP CONSTRUCTION SEQUENCING PLAN

A sequencing plan is developed to minimize service disruptions during switchover from the existing system to the replacement or new wastewater system. In a case-by-case basis, we evaluate remove-and-replace with parallel line construction (where the existing line is abandoned or removed following installation and testing of new line). Careful consideration will be afforded to implementing trenchless renewal and replacement methods to wastewater utilities.

ENVIRONMENTAL STUDIES

OTHON will proactively review applicable environmental and regulatory requirements to ensure permitting oversights do not occur. We'll prepare the applicable permit applications and notices as may be required. Our team will coordinate with the city's staff to ensure full compliance with all city codes and environmental criteria and to ensure the appropriate mitigation plans are prepared and implemented. We'll review the project area and the associated funding sources to verify required compliance with the National Environmental Policy Act and/or the Endangered Species Act, TCEQ requirements, TWPD requirements, the Antiquities Code of Texas, and Clean Water Act requirements. We'll perform a constraints level analysis of natural and cultural resources subject to regulation and management overview by federal and state resource agencies for potential pipeline routes. This analysis will include identification of jurisdictional waters (including wetlands) subject to federal regulation under Section 404 of the Clean Water Act, investigation of the potential occurrence of threatened and endangered species, identification of sensitive environmental features, and an investigation of the potential occurrence of cultural resources.

GEOTECHNICAL EVALUATIONS AND CONSTRUCTABILITY

Geological conditions and surface features are investigated and the geotechnical data to be provided by the city will primarily support the selection of the preferred pipeline alignments and applicable construction and replacement methods to be applied.

PREPARE PRELIMINARY ENGINEERING REPORT

The preliminary engineering report includes probable cost estimates for each alternative evaluated and provides a comprehensive project recommendation to be advanced to the final design phase. The preliminary engineering report clearly defines recommendations, project schedule, and design issues to be immediately addressed during the intermediate and final design phases. Drawings showing the preliminary horizontal and vertical alignments of the proposed improvements, notes, and cross sections will also be included (30% submittal). The need for any additional subsurface geotechnical or SUE investigations will be evaluated at this time and any additional requirements will be brought to the attention of the City.

C. INTERMEDIATE DESIGN AND FINAL DESIGN STAGE

The recommendations established during the preliminary engineering design phase will be advanced to intermediate and final designs. If required, a detailed ROW survey is performed to establish control, topographical, and surface feature data that will form the background for the plan and profile drawings. The final design will comply with applicable standards and regulations. Our team approach, in combination with a strong QA/QC program, ensures a thorough design package that is coordinated across project disciplines. We consider the intermediate and final design phases to be somewhat fluid in their execution. The following summarizes the general activities that will be included in the intermediate and final design of the project.

CONDUCT ROW SURVEY

Conduct ROW Survey. If required, as soon as the final sanitary sewer line improvements are agreed upon by the city and the required ROW is determined, the ROW survey and subsurface utility search begins. This work may be initiated during the preliminary engineering study phase to expedite the schedule.

OBTAIN EASEMENTS OR ROW

Where revised sanitary sewer line alignments result in additional ROW requirements, property parcels and required ROW areas will be identified for acquisition. Permanent water and/or sanitary sewer main easements and temporary construction easements will be obtained as required. Locations of needed utility main easements are identified during the 60% design stage so that the acquisition process does not interfere with the project schedule.

CONDUCT TREE SURVEY AND TREE PROTECTION PLAN

A tree survey will be performed, and a tree protection plan will be developed and integrated into the drawings according to the city standards and policies.

CONDUCT GEOTECHNICAL INVESTIGATION

Geotechnical investigations will be conducted to verify existing soil conditions, water table depth, and to support recommendations for trench backfill and pipe bedding requirements. Geotechnical bore holes will be located along the proposed sanitary sewer alignment at approximately 500 ft intervals at depths of at least 5 feet deeper than proposed sanitary sewer line inverts.

PERFORM SUBSURFACE UTILITY IDENTIFICATION AND SUBMIT FOR UTILITY COMPANY REVIEW

As required, a detailed subsurface utility search will be conducted during the survey activity to verify the horizontal and vertical alignment of existing utilities and to identify conflicts and obstacles that may impact design.

PREPARE DRAWINGS AND SPECIFICATIONS

Prepare Drawings and Specifications. Plan and profile drawings are developed with accurate horizontal and vertical alignment of existing utilities and facilities and surface features (trees, curb lines, roadside ditches, power poles, overhead utilities, driveways, and sidewalks) within ROW and construction zones. The wastewater mains are presented in plan and profile. Entry/exit pit locations are clearly identified for all proposed pipe installations and rehabilitations using trenchless construction methods; portions of the improvements to be installed by trenchless renewal or replacement methods are clearly specified. Specification sections are prepared using the City's standard specifications and special provisions are prepared where amendments to the standard specifications are required. Drawings and specifications will be submitted for the City's review at the end of the established design milestones.

SUBMIT FOR PUBLIC AGENCY REVIEW

Submit for public agency review. Drawings are issued at appropriate times to other public agencies for review.

AGENCY COORDINATION

Proposed work is coordinated and cross-checked with other current or planned city and other government agency projects. The team will meet with appropriate city departments and government agencies to identify the location of planned improvements, including street improvements and drainage improvements.

DEVELOP TRAFFIC CONTROL PLAN

OTHON has considerable experience in roadway design and will provide insight and review on traffic control plans, as necessary. Traffic control plans will be developed to always ensure two-way traffic during construction to minimize economic and social disruption for important traffic corridors.

CONSTRUCTABILITY AND SEQUENCING

Detailed constructability reviews are conducted during our QA/QC process. These reviews are necessary to avoid surprises that result in contractor change orders. Our constructability focus also means we develop alignments with construction access, consideration of local utilities, and sensitive to landscape and other field conditions.

PREPARE CONSTRUCTION COST ESTIMATE

The construction cost estimate will be updated at the established design stage milestones.

SUBMIT FINAL DRAWINGS

Final drawings are submitted to the City for signatures after incorporating the final comments.

GEOTECHNICAL DATA REPORT (GDR)

The findings from the geological and geotechnical investigations are prepared and presented in our innovative and comprehensive Geotechnical Data Report (GDR). The GDR includes descriptions of the site exploration programs; all boring logs and results from other site investigations; descriptions of field and laboratory testing methods; and the results of all field and laboratory testing. All the findings in the GDR are incorporated into the construction drawings and specifications.

SCHEDULING

A final construction sequence and schedule are prepared for the purpose of determining construction duration allowance in the contract documents.

PROJECT COORDINATION AND PUBLIC INFORMATION

OTHON recognizes that keeping all stakeholders informed of project progress and impacts minimizes anxiety. OTHON is fully committed to supporting the City through proactive public information processes and programs. OTHON provides the required support in the following elements of the information program.

- ❑ Conduct public meetings to disseminate project information
- ❑ Provide field activity notices related to data collection
- ❑ Develop construction sequencing to minimize public inconvenience
- ❑ Develop traffic control plans and inform the public
- ❑ Develop and update project schedules on a bi-weekly basis to ensure stakeholder awareness of project status



D. CONSTRUCTION PHASE

The recommendations established during the preliminary engineering design phase will be advanced to intermediate and final designs. If required, a detailed ROW survey is performed to establish control, topographical, and surface feature data that will form the background for the plan and profile drawings. The final design will comply with applicable standards and regulations. Our team approach, combined with a robust QA/QC program, ensures a comprehensive design package that is well-coordinated across project disciplines.

We consider the intermediate and final design phases to be somewhat fluid in their execution. The following summarizes the general activities that will be included in the intermediate and final design of the project.

BID PHASE SERVICES

Projects are packaged as directed by the City. Bid phase assistance is provided, including the preparation of addenda, as necessary; participation in pre-bid meeting; and site walk-through visits, as necessary. Bid phase services include preparing bid tabulations, evaluating bids, and identifying the apparent low bidder. The team provides assistance as necessary to the City during the project award period. Conformed for construction drawings are prepared to reflect design modifications.

CONSTRUCTION PHASE SERVICES

During construction, we provide contract services, including, but not limited to, plan revisions, submittal reviews, periodic site visits, attendance at progress meetings, and review of proposed change orders.

Following completion of the project, as-built drawings (record drawings) are prepared from drawings maintained during construction by the contractor and the City.

Warranty inspection is recommended to be performed no later than 10 months after acceptance of the work.



An aerial photograph of a wastewater treatment plant. In the foreground, a large circular aeration tank is visible, with water being aerated, creating white foam. To the left, there is a white building with a brown roof. In the background, there are green trees and a road. A semi-transparent white box with an orange border is centered over the image, containing the text.

TASKS TO BE PERFORMED:

WATER

THE DESIGN PROCESS - WATER

A. GENERAL

KICK-OFF MEETING

Initially, OTHON coordinates with the city project manager to schedule a kick-off meeting with the City project manager, interested staff, utility companies, and other consultants performing work on adjacent projects. The purpose of the kickoff is for all the stakeholders involved on the project to meet face-to-face to discuss the project schedule, establish project goals, objectives and design preferences; identify the key project personnel for each of the companies and agencies involved; discuss levels of communication; and establish a schedule for biweekly coordination meetings and monthly utility meetings. OTHON's project manager publishes meeting minutes and distributes them for comments or acceptance no later than two business days after the end of the meeting.

QA/QC PLAN

The Quality Control Plan (QCP) provides a technical review mechanism for ensuring that quality products are developed for the project. The QCP will be implemented by our Project Manager to ensure that all design documents developed for the city are subject to a consistent and systematic review at established milestones. The QCP results in a fully documented "trail" of the design process. The documented design process supports our project team by substantiating our project recommendations should any legal, social or procedural matter arise regarding the project. This QCP is also an important tool for the project team to use to avoid rework or redesign efforts and assures accountability for the quality of the finished product provided to the City. The QCP provides an authorized, documented basis to guide, direct, and instruct the execution of work in a consistent manner. The QCP will identify the staff and internal review milestones and schedules for required responses to the City.

SUBMITTALS

We provide submittals at the established design milestones to provide City staff with sufficient opportunity to critique, review, and offer suggestions regarding preferred improvement features. The bid set submittal completes the design stage. The required street, paving and utility improvements require close cooperation between OTHON, the city, TxDOT, and other stakeholders such as franchise utility owners, and adjacent property owners. OTHON will coordinate with the City to develop a plan to provide expedited submittal reviews and prevent unnecessary delays.

B. PRELIMINARY DESIGN PHASE

This section describes our approach to major tasks performed during the preliminary design phase for the project. During preliminary design, the design team meets with the city to confirm required water system improvements and coordinate implementing planned street and/or paving improvements. The required street pavement sections will be verified. We also obtain and review utility maps/drawings from private utility companies (electrical, gas, telephone, cable TV, and fiber optic companies).

Tasks involved with water distribution utility installation, renewal or replacement follow

OBTAIN & REVIEW RECORD DOCUMENTS AND INFORMATION FOR CITY OWNED UTILITIES

Existing survey data and existing water, sewer, and other utility maps are reviewed as well as available record drawings (as-built drawings). Critical features along the alignment and within the ROW that may affect the design of the project are noted, such as major street intersections; highway crossings; trees and other environmental features that could be impacted.

REVIEW SYSTEM HYDRAULICS

Water and wastewater mains in the project area are reviewed, if required, to confirm that new and replacement line sizes are adequate based on future flow and demand projections. This review is performed to ensure that the proposed utility improvements will not require further adjustments during their design life. This review is used to also determine where connections to the existing water and sanitary sewer lines are best located for operational and maintenance purposes.

ENSURE ADHERENCE TO CITY DESIGN STANDARDS AND OTHER APPLICABLE STANDARDS

Water valves and fire hydrants will be located in accordance with the City's design standards. Air release valves will be located at appropriate locations to minimize air buildup and downstream of all in-line valves. Additionally, our team reviews the feasibility of installing additional water shutoff valves at existing critical service connections (e.g., schools) to ensure continuous water service in the event that a portion of the existing water main needs to be shut down in the future for repair or construction purposes.

DEVELOP CONSTRUCTION SEQUENCING PLAN

A sequencing plan is developed to minimize service disruptions during switchover from the existing system to the replacement or new water system. In a case-by-case basis, we evaluate remove-and-replace with parallel line construction (where the existing line is abandoned or removed following installation and testing of new line). Careful consideration will be afforded to implementing trenchless renewal and replacement methods to both the water and wastewater utilities.

TEST EXISTING SHUTOFF VALVES & IDENTIFY WATER MAINS THAT CANNOT BE COMPLETELY ISOLATED

To facilitate construction activity, existing shutoff valves that will be used to isolate portions of the existing water system are tested, with city staff assistance, to verify operability. A plan is developed to replace inoperable valves, if any, which may be critical to isolation of the water system during construction of the new water main. We will also evaluate the suitability of wet taps versus dry taps as they relate to costs and minimizing service disruptions. Efforts will be made to minimize the number of fittings and thereby reduce the risk of water leaks at these joints.

DEVELOP TESTING AND DISINFECTION PLANS

A detailed plan for testing and line disinfection is prepared that minimizes water service disruptions.

ENVIRONMENTAL STUDIES

OTHON will proactively review applicable environmental and regulatory requirements to ensure permitting oversights do not occur. We'll prepare the applicable permit applications and notices as may be required. Our team will coordinate with the city's staff to ensure full compliance with all City codes and environmental criteria and to ensure the appropriate mitigation plans are prepared and implemented. We'll review the project area and the associated funding sources to verify required compliance with the National Environmental Policy Act and/or the Endangered Species Act, TCEQ requirements, TWPD requirements, the Antiquities Code of Texas, and Clean Water Act requirements. We'll perform a constraints level analysis of natural and cultural resources subject to regulation and management overview by federal and state resource agencies for potential pipeline routes. This analysis will include identification of jurisdictional waters (including wetlands) subject to federal regulation under Section 404 of the Clean Water Act, investigation of the potential occurrence of threatened and endangered species, identification of sensitive environmental features, and an investigation of the potential occurrence of cultural resources.

GEOTECHNICAL EVALUATIONS AND CONSTRUCTABILITY

Geological conditions and surface features are investigated and the geotechnical data to be provided by the City will primarily support the selection of the preferred pipeline alignments and applicable construction and replacement methods to be applied.

PREPARE PRELIMINARY ENGINEERING REPORT

The preliminary engineering report includes probable cost estimates for each alternative evaluated and provides a comprehensive project recommendation to be advanced to the final design phase. The preliminary engineering report clearly defines recommendations, project schedule, and design issues to be immediately addressed during the intermediate and final design phases. Drawings showing the preliminary horizontal and vertical alignments of the proposed improvements, notes, and cross sections will also be included (30% submittal). The need for any additional subsurface geotechnical or SUE investigations will be evaluated at this time and any additional requirements will be brought to the attention of the city.

C. INTERMEDIATE DESIGN AND FINAL DESIGN PHASE

The recommendations established during the preliminary engineering design phase will be advanced to intermediate and final designs. If required, a detailed ROW survey is performed to establish control, topographical, and surface feature data that will form the background for the plan and profile drawings. The final design will comply with applicable standards and regulations. Our team approach, in combination with a strong QA/QC program, ensures a thorough design package that is coordinated across project disciplines. We consider the intermediate and final design phases to be somewhat fluid in their execution. The following summarizes the general activities that will be included in the intermediate and final design of the project.

DEVELOP TESTING AND DISINFECTION PLANS

A detailed plan for testing and line disinfection is prepared that minimizes water service disruptions.

CONDUCT ROW SURVEY

If required, as soon as the final pipeline improvements are agreed upon by the city and the required ROW is determined, the ROW survey and subsurface utility search begins. This work may be initiated during the preliminary engineering study phase to expedite the schedule.

OBTAIN EASEMENTS OR ROW

Where revised pipeline alignments result in additional ROW requirements, property parcels and required ROW areas will be identified for acquisition. Permanent water main easements and temporary construction easements will be obtained as required. Locations of needed utility main easements are identified during the 60% design stage so that the acquisition process does not interfere with the project schedule.

CONDUCT TREE SURVEY AND TREE PROTECTION PLAN

A tree survey will be performed, and a tree protection plan will be developed and integrated into the drawings according to the city standards and policies.

CONDUCT GEOTECHNICAL INVESTIGATION

Geotechnical investigations will be conducted to verify existing soil conditions, water table depth, and to support recommendations for trench backfill and pipe bedding requirements. Geotechnical bore holes will be located along the proposed pipeline alignment at approximately 500 ft intervals at depths of at least 5 feet deeper than proposed pipeline inverts.

PERFORM SUBSURFACE UTILITY IDENTIFICATION & SUBMIT FOR UTILITY COMPANY REVIEW

As required, a detailed subsurface utility search will be conducted during the survey activity to verify the horizontal and vertical alignment of existing utilities and to identify conflicts and obstacles that may impact design.

PREPARE DRAWINGS AND SPECIFICATIONS

Plan and profile drawings are developed with accurate horizontal and vertical alignment of existing utilities and facilities and surface features (trees, curb lines, roadside ditches, power poles, overhead utilities, driveways, and sidewalks) within ROW and construction zones. The water and wastewater mains are presented in plan and profile (including all valves/vaults, fire hydrants, pipe restraints, and other system appurtenances). Entry/exit pit locations are clearly located for all proposed pipe installation/rehabilitation by trenchless construction methods; portions of the improvements that are to be installed by trenchless renewal or replacement methods are clearly called out.

Specification sections are prepared using the City's standard specifications and special provisions prepared where amendments to the standard specifications are required. Drawings and specifications will be submitted for the city's review at the end of the established design milestones.

SUBMIT FOR PUBLIC AGENCY REVIEW

Drawings are issued at appropriate times to other public agencies for review.

AGENCY COORDINATION

Proposed work is coordinated and cross-checked with other current or planned City and other government agency projects. The team will meet with relevant city departments and government agencies to identify the locations of planned improvements, including street and drainage enhancements.

DEVELOP TRAFFIC CONTROL PLAN

OTHON has considerable experience in roadway design and will provide insight and review on traffic control plans, as necessary. Traffic control plans will be developed to ensure two-way traffic during construction to minimize economic and social disruption for important traffic corridors.

CONSTRUCTABILITY AND SEQUENCING

Detailed constructability reviews are conducted during our QA/QC process. These reviews are necessary to avoid surprises that result in contractor change orders. Our constructability focus also means we develop alignments with construction access, consideration of local utilities, and sensitive to landscape and other field conditions.

PREPARE CONSTRUCTION COST ESTIMATE

The construction cost estimate will be updated at the established design stage milestones.

SUBMIT FINAL DRAWINGS

Final drawings are submitted to the city for signatures following incorporation of final comments.

GEOTECHNICAL DATA REPORT (GDR)

The findings from the geological and geotechnical investigations are prepared and presented in our innovative and comprehensive Geotechnical Data Report (GDR). The GDR includes descriptions of the site exploration programs; all boring logs and results from other site investigations; descriptions of field and laboratory testing methods; and the results of all field and laboratory testing. All the findings in the GDR are incorporated into the construction drawings and specifications.

SCHEDULING

A final construction sequence and schedule is prepared for purposes of determining construction duration allowance in the contract documents.

PROJECT COORDINATION AND PUBLIC INFORMATION

OTHON recognizes that keeping all stakeholders informed of project progress and impacts minimizes anxiety. OTHON is fully committed to supporting the city through proactive public information processes and programs. OTHON provides the required support in the following elements of the information program.

- ◻ Conduct public meetings to disseminate project information
- ◻ Provide field activity notices related to data collection
- ◻ Develop construction sequencing to minimize public inconvenience
- ◻ Develop traffic control plans and inform the public
- ◻ Develop and update project schedules on a bi-weekly basis to ensure stakeholder awareness of project status

D. CONSTRUCTION PHASE

BID PHASE SERVICES

Projects are packaged as directed by the city. Bid phase assistance is provided, including the preparation of addenda as necessary, participation in pre-bid meetings, and site walk-through visits as needed. Bid phase services include preparing bid tabulations, evaluating bids, and identifying the apparent low bidder. The team provides assistance as necessary to the city during the project award period. Conformed for construction drawings are prepared to reflect design modifications.

CONSTRUCTION PHASE SERVICES

During construction, we provide contract services including, but not limited to, plan revisions, submittal reviews, periodic site visits, attending periodic progress meetings, and review of proposed change orders. Following completion of the project, as-built drawings (record drawings) are prepared from drawings maintained during construction by the contractor and the City.

Warranty inspection is recommended to be performed no later than 10 months after acceptance of the work.



An aerial photograph of a suburban neighborhood. In the foreground, a paved road curves through a green landscape with trees. A small red tractor is visible on the grass. In the middle ground, there are several houses with blue roofs and white walls, surrounded by lush green trees. In the background, more houses and a larger building are visible. A white car is driving on a road in the lower right. The overall scene is bright and sunny.

TASKS TO BE PERFORMED:

STREETS/ PAVEMENT

PRELIMINARY ENGINEERING

1

KICK-OFF

Our PM **Ramon** will lead the meeting to expedite an agreement on project details and scope. This meeting will identify design requirements/details including the proposed typical sections. Details are as follows:

1

Typical
Section

2

Functional
Classification

3

Estimated
Construction Cost

2

GATHER DATA

Existing ROW, crash data (locations and types (CRIS records), studies, reports, existing and future land use plans/patterns and concerns of local officials. Information on current / future projects on corridor and adjacent thoroughfares.

FACILITY INFORMATION:

as-builts

survey

trip generators

thoroughfare maps

utilities

soils

Perform LiDAR Topographic Surveys and aerial photogrammetry.

3

ENVIRONMENTAL DOCUMENTATION

NEPA

Document Selection: We will prepare the Scope Development Tool with the City to ensure appropriate NEPA documents and technical reports are prepared. We will prepare an Environmental Document Classification Memo. We will initiate all required technical studies and reports as early as possible to fully evaluate all potential Environmental impacts, minimize them where possible, and clearly identify and plan any necessary mitigation and/or permitting requirements. Develop a schedule based on potential funding sources and letting date including ROW acquisition timeline.

STUDY AREA

Define appropriate study area for development/analysis of alternatives. Develop a wide constraints map of proposed alignment options depicting ROW needs of the proposed typical section footprint.

ENVIRONMENTAL CONSTRAINTS MAP

Identify environmental considerations in the Study Area.

PUBLIC INVOLVEMENT

The team will use stakeholder, landowner, & public outreach to describe the alternative analysis and get input on alternatives. Our innovative public outreach will ensure stakeholders and the public understand how the innovative alternative solutions will function using 3-D visualization from our VISSIM model.

4

UTILITIES

Initial identification of utilities includes involves Texas One-Call, field observation, and contacting the relevant utilities. QL-B SUE will locate underground facilities within the proposed ROW. SUE Level C/D will be used for overhead facilities. SUE Level A will be used for critical locations of major utilities. Utilizing the SUE work, an existing 3D utility file will be created in MicroStation. We will coordinate with owners, perform Subsurface Utility Design and Analysis (SUDA), avoid conflicts when feasible and minimize impacts. We will prepare utility relocation estimates and schedules to determine the best proposed ROW corridor. We will follow the UAR when developing utility adjustment agreements that require relocations. Preliminary construction phasing will include adjustments of major utilities.

5

ROUTE STUDIES

TRAFFIC FORECASTING

TRAFFIC PROJECTIONS:

Obtain MPO travel demand model. Review MTP for planned/programmed improvements. Perform O-D and compare with MTP model.

DEVELOP ALTERNATIVES/CONSTRAINTS ANALYSIS

Successful environmental clearance and schematic development begin with early identification of issues and development of strategies to avoid, minimize, or mitigate environmental, cultural, and community impacts. We will use the Constraints Analysis (and public input) to evaluate potential schematic adjustments during the selection of a preferred alternative. This method may also reveal opportunities to reduce the level of environmental documentation and permitting required. Develop an alternative diagram using “stock” aerial backgrounds that clearly show impacts to ROW. We will determine the ROW costs for each alternative, including estimates of probable damage resulting from loss of access. We will analyze the potential need for design exceptions during concept development and evaluate the costs to minimize their impact.

TRAFFIC SAFETY OPERATIONS ANALYSIS

Identify improvements that increase safety based on performance measures. Using peak period design year volumes, perform future network Synchro & HCS LOS analysis for alternatives, including multiple options for intersections to increase safety. Summarize measures of effectiveness (MOEs) for each alternative and include in the evaluation matrix.

COST/BENEFIT ANALYSIS

Our innovative proprietary cost-benefit analysis determines the planning relevance of features or improvements introduced to the project through Public Involvement/Comments and stakeholder interaction, assisting in addressing comments or challenges.

PREFERRED ALTERNATIVE

Using the evaluation matrix and public comment, develop a preferred alternative by refining, optimizing, and combining the preferred features of the three alternatives. Perform VE Study.

6

SCHEMATIC DESIGN**REFINE PREFERRED ALTERNATIVE**

Refine the preferred alternative for safety, including QA/QC of horizontal and vertical curves to meet City design criteria. Develop a schematic using our innovative 3D Modeling and aerial LiDAR topo to assist in avoiding utilities and identifying conflicts.

ACCESS MANAGEMENT

We will inventory median openings, speed limits, access to adjacent land uses, driveways, ROW, and traffic control devices. Peak turning movements will be performed at intersections and driveways. We will gather accident data from the past five years, including identification numbers, and assess the corridor to identify needs and issues—such as opportunities for consolidating intersections, driveways, and median openings. A Technical Memorandum outlining the study and proposed improvements will be submitted to the City.

CRASH ANALYSIS

An accident/safety analysis will recommend corrective measures for areas of high accident frequency, as shown on heat maps (ISATe & HSM), using our innovative Crash Modification Factors.

7

DRAINAGE

We will work with the City to identify areas prone to historical flooding and the need for additional crossing locations. We will collect any FIS and FIRM panels and obtain effective models. We will determine proposed bridge lengths to avoid increases in upstream WSELs and minimize downstream changes. Hydrologic and hydraulics modeling will be developed. We will determine mitigation for floodplain fill. We will determine the existing and post-project impervious cover within the ROW and calculate the peak flows at each outfall. The proposed drainage outfalls will be sized for both the planned and the ultimate facility. Our modeled WSELs will establish minimum roadway profile elevations that meet drainage criteria. Our team will identify locations with increases in peak flow or water surface elevations and develop a mitigation plan to minimize the impacts. The plan will utilize available volume within the proposed ROW and determine the most effective locations for offsite detention using dynamic modeling. A comprehensive drainage report will document all culvert and hydraulic bridge designs, including all hydrologic and hydraulic modeling assumptions. Culverts will be designed to match upstream and downstream conditions, while providing continuity of hydraulic functions during TCP. Broken-back culverts will be utilized to control grade differentials across the ROW, and to control outlet velocities.

8

CONCEPTUAL TCP

We will detail safe work zone measures and maintain existing capacity. Traffic Control Plans (TCP) will be in conformance with MUTCD and will consider major utilities and prop ROW.

9

ROW

- ✓ DEVELOP A DETAILED TIMELINE OF ROW ACQUISITION BASED ON LETTING DATE
- ✓ PREPARE PRELIMINARY ROW MAP SHOWING EXISTING AND PROPOSED ROW
- ✓ PERFORM APPRAISALS OF PARCELS
- ✓ ESTABLISH LIST OF PARCEL OWNERS AND INITIATE OFFERS

FINAL DESIGN

10

DATA COLLECTION

After NTP, field visits and aerial mapping software will be used to discover potential design issues, safety improvements, and constructability issues. We will coordinate with the City for preliminary design information including traffic data, proposed ROW, and road geometry established by the City. Existing data provided by the City will be cross-checked and verified for thoroughness. We will coordinate with METRO to obtain transit schedules, transit criteria, vehicle types, and existing and proposed station locations.

11

SCHEMATIC REFINEMENT

After data collection, we will refine and update the schematics in accordance with the City's General Design and Construction Standards. The schematic refinement will be in coordination with the construction sequencing and will focus on the profiles, sight distance, ROW, and clearance requirements for roadways. Using our innovative 3D modeling template, OTHON will review and set the alignment, based on City criteria, by optimizing horizontal and vertical geometry to fit the ROW better, avoid utilities, and accommodate drainage features. We will refine the bridge and retaining walls to achieve the optimal design in regard to construction cost. We will use Autoturn to check turning radii for Trucks and Transit Vehicles. Channelization will be refined based on Item 807: Median Design.

12

STREET DESIGN

Upon acceptance of the refined schematic, final design for the roadway facility will commence. The roadway geometry developed as part of the refined schematic will be further evaluated to determine potential cost-savings during construction. We will prepare a DSR to identify project elements and perform all work in accordance with the City's Design and Construction Standards and AASHTO guidelines. Our innovative Design Concept Conference will be held to finalize the project criteria. The horizontal alignments and vertical profiles will be established using MicroStation and GEOPAK as the primary design and drafting software. We will develop GEOPAK criteria files to accurately define roadway cross-section elements. We will prepare estimates based on the City's latest available bid prices. Separate quantity sheet estimate tables will be developed for local pay items.

PAVEMENT REHAB

In response to risk assessment results, appropriate resiliency strategies consisting of adaptive and/or mitigating measures will be developed and applied to the roadway repair improvements design. We'll review mitigation measures such as construction materials with varying permeability rates and resistance to high levels of saturation. Pavement design will be reviewed to ensure that the saturation time is higher than the expected flooding durations. We'll evaluate increasing saturation durations by increasing thicknesses of the asphalt surface and base layers and applying asphalt mixes with lower deterioration rates of tensile strength over time. We'll also review the application of corrective maintenance to enhance flood resilience. Corrective maintenance may consist of simply (a) improving road drainage by repairing drains, clearing underground drains and culverts, (b) repairing surface cracks, (c) adding geotextile seals and a drainage layer at the subgrade level, and (d) reducing shoulder erosion by increasing drainage capacity of waterways .

13

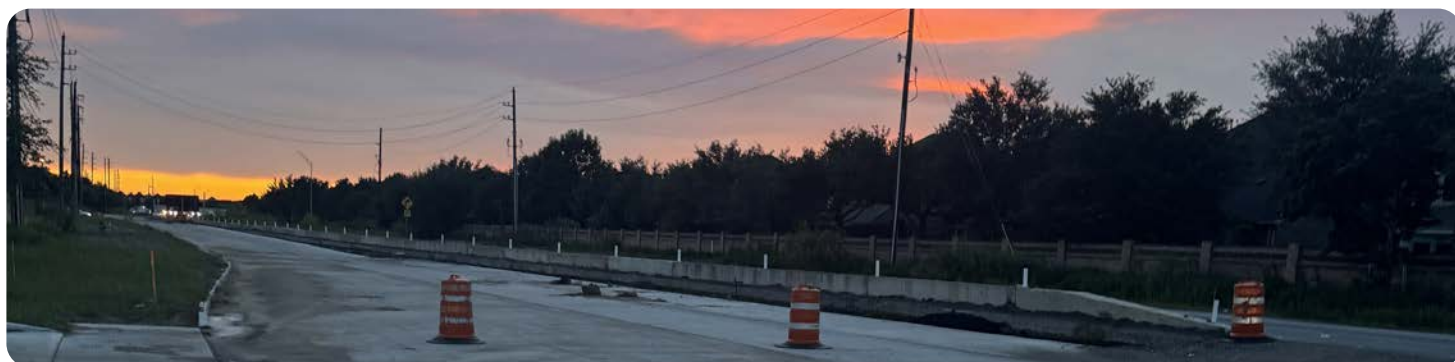
3D TEMPLATE

We utilize our innovative 3D template creator in PS&E to optimize the design by visually evaluating various alternatives and finalizing the street design through faster refinement of schematics and quicker design of horizontal and vertical alignments. We use topographic data to quickly create and model the existing ground surface for use in design. Our innovative 3d template creator's dynamic design features enable the quick optimization of cut and fill quantities including the evaluation of mass haul diagrams. This allows for more effective use of existing ROW and minimizes additional ROW. The modeling enables us to verify the functionality of the storm sewer to avoid conflicts with underground utilities. We can quickly visually verify design slopes by generating cross-sections.

14

TRAFFIC CONTROL PLAN (TCP)

OTHON will develop the conceptual TCP for review by the City and coordination with property owners. We will provide a TCP that will maintain adequate levels of service for areas with a high potential for congestion. We will maintain the existing number of lanes throughout all phases of construction and ensure uninterrupted access to all businesses during the project. We will integrate utility adjustments, illumination, signs and stripes, temporary driveways and signing, changeable message signing, SW3P, dust control and temporary drainage into each phase, sequence, and step of the TCP to provide a seamless progression of traffic handling, facility operation, and roadway construction. We will analyze all pavement structures involved in TCP traffic handling to determine their adequacy. We will utilize City's website and social media for notifications of major traffic changes. We will determine vehicle types (e.g., trucks & transit) and accommodate turning radii. In critical path construction areas, we will analyze the use of lane rental specifications and high-early-strength concrete pavement. To avoid claims, we will develop special provisions that show a detailed schedule of ROW acquisition and utility adjustment dates. We will include requirements to ensure TCP does not impact travel times. Temporary closures or lane reduction will not be permitted during special events. The TCP will be in conformance with the TMUTCD. The phasing plan will limit construction to within the existing ROW for the initial phases to allow time for the remaining 20% of the ROW to be acquired in the center of the project.



15

FINAL UTILITY CLEARANCE

Subsurface Utility Engineering (SUE) will be performed in accordance with ASCE/CI Standard 38-02 and AASHTO standards. We will develop a list of utility owners based on 811 tickets and SUE QL C&D Information. We will collect and review the following documents: as-builts, utility record drawings, water and wastewater facility information, survey topography, and Railroad Commission Site Pipeline information. We will send a Notice of Proposed Construction (NOPC) form to utility owners. We will hold an initial coordination meeting with utility owners. Utility layout will be developed, showing the proposed design and SUE QL C&D information. By 60%, we will identify critical locations for utility conflicts that will require SUE QL A&B to ensure the accuracy of utility location and decrease risk of unidentified conflicts. SUE QL A test hole data reports will include the depth of cover, horizontal and vertical coordinates of the exposed utility, soil type, pavement type and thickness, survey benchmarks, and plan and profile views. SUE levels are color-coded on the utility layout with owner and sizes. We will coordinate with the utilities agencies and aggressively pursue non-responsive utility companies by implementing an escalation plan which involves contacting the supervisor, president, owner of the utility companies. Our utility matrix will track information and identify areas of conflict. We will develop design options to minimize utility conflicts. For required adjustments, we will send a Notice of Required Accommodation (NORA) to the owner. We will develop an alternative analysis for relocations/adjustments including cost and schedule options. The proposed relocation for the utility will be tracked in the utility layout map to ensure additional conflicts are not created. We will coordinate with the utility owner to develop a relocation work plan, including a schedule for relocation by the 90% submittal. By 100% submittal the UC will submit a Utility Certification Letter, including relocation dates for utilities that have not been relocated.

16

BRIDGE DESIGN

The bridge design criteria used for this project will be AASHTO LRFD Bridge Design Specifications. For grade separations, several issues will be considered such as the cross street typical section, horizontal and vertical clearance requirements, sight distance, retaining wall and embankment cost versus bridge cost, and beam/girder type. While performing the bent layout conflicts with utilities, drainage structures and underlying roadways will be avoided. Bents can be skewed to avoid conflicts. The type of column will determine the type of foundation to be used (pile, single drilled shaft, multiple drilled shafts with footings). TX 54 girders are a good economical choice up to 125' and can be adjusted up to 140.' Steel plate I-girders/steel trapezoidal box girders are less economical and are used for longer spans when bent placement is constrained.

The bridge layouts will be developed based on the above constraints and required information from our innovative Bridge Layout Check List in our Bridge Detailing Manual. We will use our innovative Bridge Geometry System (BGS) software to determine bridge geometry: bearing seat elevations, vertical clearances, vertical clearance ordinates (VCO), bridge deck areas, finished deck grade elevations, bent reports and beam reports. Detailed design will utilize design programs such as VBent, RC-PIER, Prestressed 14, Cap18, and Stadd for the Tx girders, bent caps, columns, and abutments. Foundations will be designed based on WinCore results and foundations type (drilled shaft vs piles) will be analyzed based on constructability and cost. A standard 8" slab design will be used, along with SEJ expansion joints. Approach slabs will be selected based on the approach pavement type. Any special aesthetic requirements will be incorporated into the design such as beam type (U-Beams), special bent shapes, rail types, formliners or reveals.



TASKS TO BE PERFORMED:

DRAINAGE

DRAINAGE OVERVIEW

Project Manager Ramon Salazar, Jr., will manage the design, plan production, and construction inspection of the project while minimizing the time and effort required of the City. He will use the following methodology, which he perfected on a similar project:

1

SCOPE

Ramon will develop a detailed Scope of Services including the project schedule and list of deliverables, as agreed upon between the City and Design Team. He will plan and manage the efficient completion of this engineering design project by avoiding lost time and expenses associated with false starts and wasted effort associated with tasks not related to the Scope of Services. He will develop a comprehensive and detailed list of deliverables to avoid last-minute discussions and revisions that might waste the time of the City's review team.

2

PROJECT EXECUTION

Ramon will develop a project specific QA/QC plan to ensure the efficient execution of all agreed-upon services and the accurate production of all deliverables. **Ramon** will ensure that all cost estimates, reports, calculations, specifications, and plans are reviewed and revised in-house as extensively and as often as needed to ensure that each item fully and correctly reflects the project's requirements. In addition, for projects intended to be constructed through solicitations of bids, all plans and specifications will be prepared in a manner that clearly and unambiguously illustrates the items, quantities, and services to be furnished or provided by the contractor. His QA/QC planning and implementation will prevent incorrect and/or incomplete plans and specifications which could result in lengthy and expensive change orders that waste the City's time and financial resources.

3

CLARITY

During the construction process, **Ramon** will ensure that adequate staff are always available to assist with construction inspections and reviews at the level required to avoid delay to the contractor. **Ramon** will ensure that all construction questions, requests for information, and shop drawing reviews receive a timely and accurate response thereby preventing unnecessary delays and disagreements. Our PM will assist the City in obtaining a properly constructed project on time and within budget. **Ramon** will ensure that his staff members work as a team with the City and the Contractor in order to expedite the construction process, while ensuring that all construction requirements are met.



INITIAL PROJECT ASSESSMENT

In the first step of developing a comprehensive and effective project management plan for the project, our Project Manager **Ramon** and Team Design Lead(s) will gain a full and thorough understanding of the watershed, flooding sources, historic damage, and potential solutions that may exist. Site visits by our key personnel will help develop a comprehensive view of project alternatives and issues. All these items will be the subject of extensive discussions between the PM and the Client. To ensure these discussions are productive, **Ramon** will have as much project information in hand before beginning discussions with the Client to develop of a properly detailed scope of services and a comprehensive list of deliverables.

PROJECT INFORMATION TO BE COLLECTED INCLUDES:

- 1 Obtain available aerial photographs on Google Earth and elsewhere, to determine drainage area characteristics, flow conveyance and land use development.
- 2 Identify roadway and street crossings in the project area including bridges and culverts.
- 3 Locate overhead power lines, utility crossings and others that may be carried by the existing bridge and culvert structures.
- 4 Identify open tracts of land that may be available for detention storage.
- 5 Identify developed areas that are shown to be flooded on the FIRM panels.
- 6 Determine additional channel conveyance that could help to relieve flooding in the area and detention immediately upstream of the area that could serve to reduce flows such that the flooding potential is significantly reduced.
- 7 Locate areas of substantial vegetation in the channels that may be acting as a restriction to flow and a hindrance to drainage.
- 8 Study the FIRM panels elevations at channel confluences to determine the prevalent source of flooding in an area including backwater effects from major channels which could negate the ability of tributary improvements to provide a flood protection benefit for properties in this area. Detention can serve to reduce flows in major channels and possibly reduce flood elevations at these confluences.

For this project, our PM will ensure that optimal balance between channel conveyance and detention is developed during the preliminary phase of the project. As discussed above, channel improvements may provide significant flood reduction for properties upstream; however, the additional flows moved downstream may unacceptably contribute to flooding in those areas, as well as in major receiving channels. Such an approach would likely only trade one flooding problem for another, with no overall net benefit. On the other hand, channel improvements downstream, combined with detention would allow reduced flows to be conveyed more efficiently to the major channel, resulting in substantial flood reduction along the tributary.

A portion of the projects may receive funding from bond programs or Federal sources, such as FEMA. All methodology and documentation must conform to the requirements of all funding and regulatory agencies. Project construction cost estimates for all studied alternatives should be used in conjunction with a current structure inventory of flooded properties to prepare a Benefit Cost Analysis (BCA) using a current asset inventory. An initial project assessment can be completed in under a week, and if completed prior to contract and scope discussions between OTHON and the City, it may be possible to expedite the project's initiation.

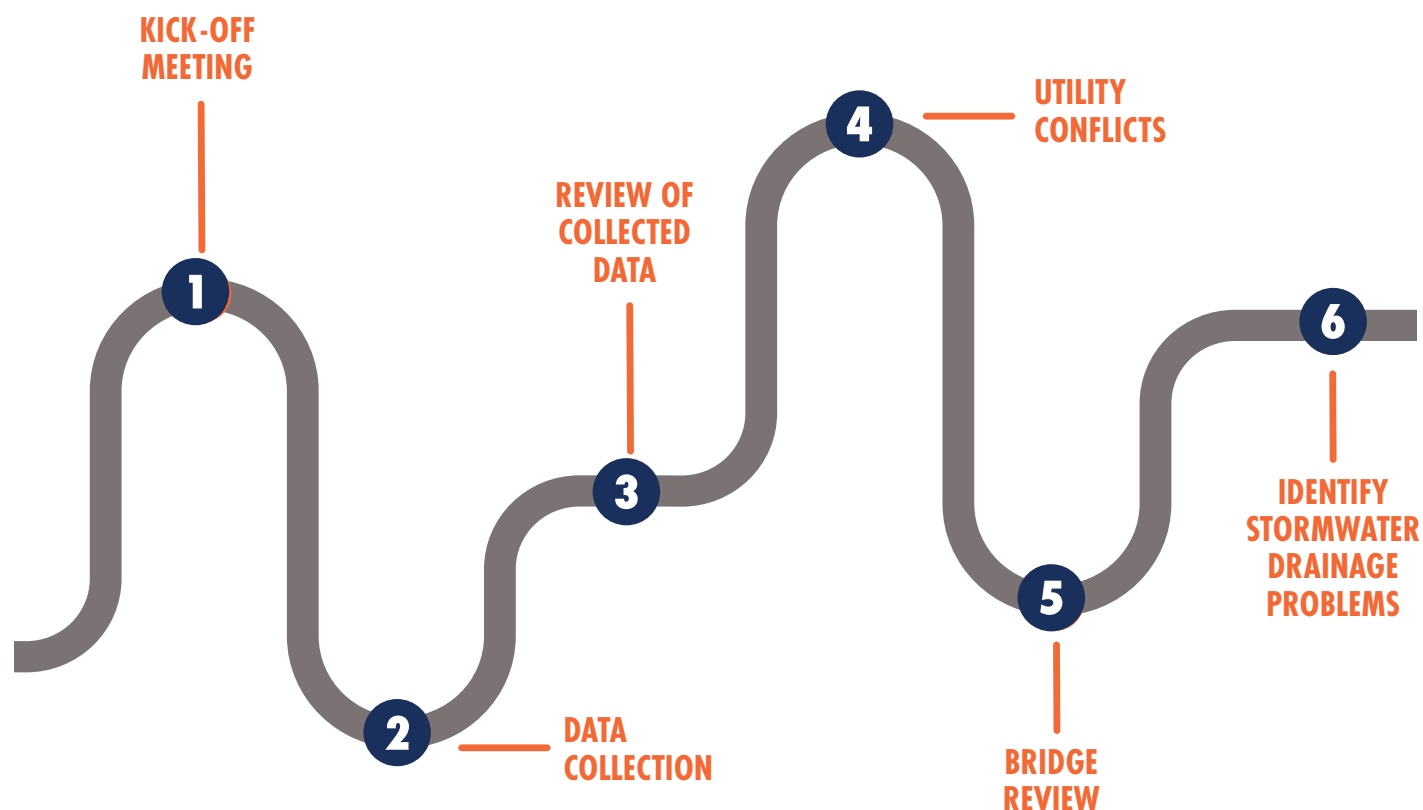
PROJECT PHASING & SCHEDULE

Projects will be divided into distinct phases, with the total project duration determined as the sum of the critical time for each phase as follows:

1

IDENTIFICATION OF STORMWATER DRAINAGE PROBLEMS

We will evaluate the existing drainage conditions of the selected need area(s) to help better define the primary causes of flooding in these areas. Key stages include:



EXISTING CONDITION 1D-2D HYDRAULIC ANALYSIS

HEC-RAS 2D will initially be utilized to identify the overland sheet flow paths and determine if there is an overflow impact to the project area from regions outside the existing drainage boundaries. A detailed 1D-2D SWMM model will be developed to evaluate the storm system, ditch and overland flow paths and identify potential drainage issues, which could include:

- ⚠ IDENTIFICATION OF STORM SEWER CAPACITY DEFICIENCIES
- ⚠ IDENTIFICATION OF BRIDGE RESTRICTIONS
- ⚠ IDENTIFICATION OF STREET FLOODING
- ⚠ IDENTIFICATION OF OVERLAND FLOW ISSUES
- ⚠ IDENTIFICATION OF STRUCTURAL FLOODING FOR VARIOUS STORM EVENTS

OTHON will hold a workshop with the City project team to discuss the results of the alternative analysis and to select a recommended alternative.

PROJECT PHASING & SCHEDULE

Projects will be divided into distinct phases, with the total project duration determined by the sum of the critical time for each phase as follows:

2 EVALUATION OF DRAINAGE DESIGN CONCEPTS

We will identify the potential drainage improvement design concept alternatives. Potential alternatives to be considered include:

- ✓ UPSIZED STORM SEWER SYSTEMS
- ✓ IMPROVED ROADSIDE DITCHES
- ✓ IMPROVED OVERLAND FLOW PATHS TO PRIMARY OUTFALL
- ✓ BRIDGE IMPROVEMENTS OR REPLACEMENTS
- ✓ IMPROVED PRIMARY OUTFALL SYSTEMS
- ✓ A COMBINATION OF THE ABOVE ALTERNATIVES

Each selected alternative will be evaluated using SWMM 1D-2D and compared against the existing condition results. Potential mitigation needs for each alternative will be developed. Mitigation to be considered includes:

- ✓ IN-LINE DETENTION—UPSIZED STORM SEWER SYSTEM
- ✓ OFF-LINE DETENTION BASINS—IF SPACE IS AVAILABLE
- ✓ REGIONAL DETENTION IN CONJUNCTION WITH HARRIS COUNTY PROJECTS

A cost estimate will be developed for each alternative along with a list of its advantages and disadvantages.

3 PRELIMINARY ENGINEERING REPORT

A Preliminary Engineering Report (PER) will be prepared by the team to fully describe and illustrate the design assumptions, methods used, alternatives analyzed, and regulatory and permitting issues to be addressed. Any possibilities of participation by other entities (such as local plans for bridge replacement or local drainage system upgrades) will be fully described. Our focus on preparing a PER is that the PER, at a minimum and as a stand-alone document, will contain all the information required to allow the City to make fully informed decisions related to the appropriate choice of alternatives presented, including the alternative of moving the project ahead, or abandoning the project and moving funds elsewhere.

Our Preliminary Engineering Report will include the following items:

- ✓ Topographic and right of way survey data in plan format showing existing right of way and right of way to be acquired (critical path).
- ✓ A comprehensive list of all permitting requirements.
- ✓ List of all affected regulatory jurisdictions and contact information for each along with submittal/coordination requirements for each.



- ✓ A list/discussion of all potential involvement, including potential financial participation, with other jurisdictions and entities, particularly related to adjoining drainage systems and bridge/culvert upgrades/replacements.
- ✓ Environmental assessment of the project area. In addition to other environmental issues to be evaluated, these include the presence of industrial and commercial sites, development, and environmental contamination. Past experience accumulated by the PM with similar projects has shown that excavations may expose undocumented landfills or disposal sites that will require remediation. All Team Members will be required to be alert for signs of such landfill or dumping activity. We will coordinate with the City's Geotechnical Engineers to check for these possibilities during any drilling and sampling operations.
- ✓ We will coordinate with the City to obtain the results of Geotechnical investigations and recommendations (critical path 90 days). The process of the slope stability analyses starts with our review of the surveyed cross-sections along the project alignment, and the proposed slope modifications to repair the slopes, and selecting critical cross-sections to evaluate global and local slope stability of the proposed slope modifications in terms of End of Construction, Long Term, and Rapid Drawdown loading case.
- ✓ Locations of possible utility conflicts and easements.
- ✓ List of bridge/culvert crossings and recommendations for replacement/upgrade including bridge layout sheets with structural calculations, hydraulic analysis and scour analysis.
- ✓ Results of our H&H model studies based on current FEMA models confirm the proposed design elements.
- ✓ (channel improvements and/or detention) and show flood control benefits to be expected.
- ✓ Schematic drawings and details showing the proposed improvements to be constructed, typical sections, utility relocations, bridge revisions/upgrades and all information needed to describe the proposed project completely.
- ✓ A Benefit Cost Analysis (BCA) prepared using a current asset inventory of flooded properties must be included for each alternative analyzed.

4

SUBMITTAL OF A CLOMR

We will include sufficient information in the PER to allow for a Conditional Letter of Map Revision (CLOMR) submittal, as required to qualify for FEMA funding, based on the PER. This will save time compared to a CLOMR submittal, which requires full production of construction plans and specifications. Once there is acceptance of the CLOMR the City can proceed to the actual bidding of the project. We will prepare the necessary documentation for submittal by the City for a CLOMR as authorized.

5

ENVIRONMENTAL SUBMITTALS & PERMIT REQUESTS

The time and effort required for this task will depend entirely on the results of the City's initial Environmental Assessment and on-site investigations. Typically, projects like this require compliance with the Clean Water Act (CWA), the Antiquities Code of Texas (Code), and various state and federal statutes that help protect threatened and endangered species and their habitats. Federal funding for drainage improvement projects will follow National Environmental Policy Act (NEPA) requirements through Environmental Reviews. If federal funding is involved and Environmental Reviews are required, agency coordination is handled by the City's Environmental Services Consultant to help



make determinations regarding natural and cultural resource issues. If there are no considerable issues, this task may prove insignificant in the project schedule; otherwise, it may substantially influence project duration.

ENVIRONMENTAL CONSTRAINTS ANALYSES

We will consult available online resources and databases to identify known or foreseeable issues that may challenge project schedules. For archeology, we will use online Atlas & TxDOT PALM GIS maps. Additional resources include the TAMU Freedom Colonies Atlas. The example has no properties listed in the National Register of Historic Places or designated as State Archeological Landmarks. There is a probability that cultural resources issues will threaten any project's schedule.

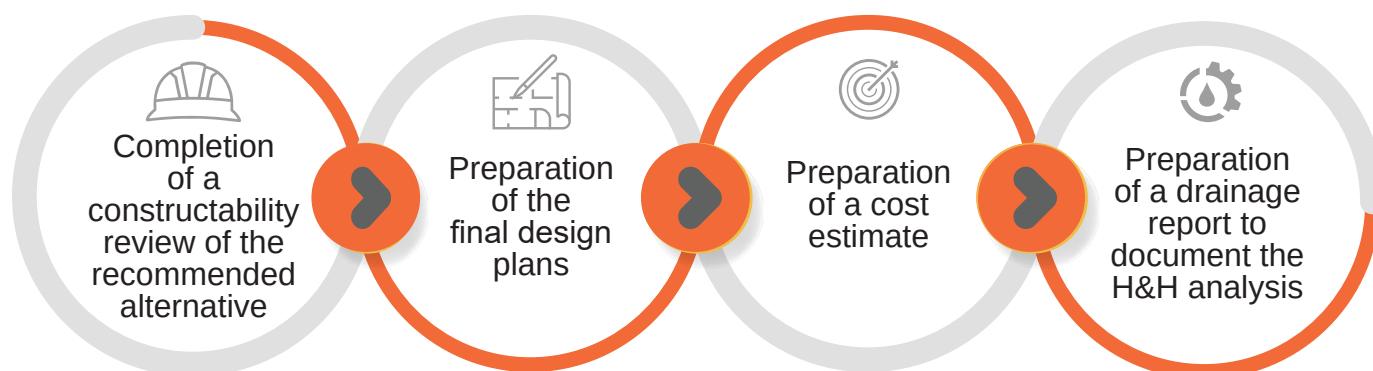
WETLANDS

The National Wetlands Inventory (NWI) atlas, maintained by the U.S. Fish and Wildlife Service, will indicate whether recorded wetland features are present in the project area. This means that the City's field survey to define and delineate possibly jurisdictional features can proceed to determine if jurisdictional features are present. We will verify and coordinate with the U.S. Army Corps of Engineers (USACE) to obtain existing determinations on record regarding the jurisdictional status of drainages. Part of our due diligence involves verifying that these areas haven't already been classified concerning their jurisdictional status.

6

PRODUCTION OF PLANS, SPECIFICATIONS, & ESTIMATES

OTHON will perform the drainage design of the recommended alternative and support the City project team with public engagement efforts. Final design includes:



To save time, the City can begin planning production before final acceptance of a CLOMR, since our PM documented all design decisions made during the review and acceptance of the PER. In this phase, all plans, profiles, details, and SWPPP details will be prepared and assembled into a comprehensive plan set to enable potential bidders to fully understand the items to be installed or furnished. A complete set of detailed specifications will be prepared to provide additional specific requirements and methods of payment for each item.

7

BID PHASE

We will assist the City in advertising for bids; attend pre-bid meetings and assist with clarifications and requests for information from prospective bidders. We will receive, tabulate and verify, and make recommendations regarding the acceptance or rejection of bids.

8

CONSTRUCTION PHASE

We will attend regular construction site meetings, visit the site regularly to review the project progress, review and make recommendations regarding payment of contractor's payment requests, and provide recommendations to the City regarding acceptance/rejection of the work performed. We will maintain staff members on the construction site full time to continuously observe construction observations and to measure installed quantities in place. We will manage the services of the City's materials testing firms to provide testing of critical items such as concrete strength and earthwork compaction.

9

SUBMITTAL OF LOMR

**Critical in the sense that map revisions cannot be made until the LOMR is complete; final funding may be dependent on completion of a LOMR*

We will use as-built construction drawings to prepare the required documentation for the City to submit a formal request for a revision to the current effective FIRM to FEMA.





STATEMENT OF QUALIFICATIONS

PROJECT EXPERIENCE



PROJECT EXPERIENCE:

WASTEWATER

EXPERIENCE WITH FEDERALLY CONSTRUCTED PROJECTS

HURRICANE HARVEY DISASTER COST RECOVERY LIFT STATIONS 2020-21 | CITY OF HOUSTON | HOUSTON, TX

OTHON provided the following support tasks as they relate to the pumping and structural components of 8 lift stations and provided review support for an additional 31:

- TASK 1 ASSET INVENTORY AND ASSESSMENT** Mobilized technical personnel for an on-site asset inventory and assessment of the entire designated facility damaged by Hurricane Harvey. Gathered asset information for all assets at their assigned facility such as, but not limited to, asset name, manufacturer, model, serial numbers, commission date, asset size, asset capacity, asset type, and asset material. Reviewed and analyzed existing documentation such as, work orders generated by EAM, work orders generated by IMS, SCADA information, information from HachWMS, information from CIPMS, City Service Contract service request details, historical and current draw-down test results, and 311 service requests to assess all designated facility assets and reconcile draw-down tests at lift stations.
- TASK 2 TECHNICAL ANALYSIS:** Determined the assets pre- and post-Hurricane Harvey conditions, noting any additional or latent damages identified. Determined the optimal operating condition for the facility at the current permitted flow and loadings and associated discharge limits. Determined if assets met all current applicable codes and advise on recovery efforts that would bring asset into compliance with applicable codes. Determined the repair/replacement alternatives for assets damaged by Hurricane Harvey and conducted a detailed cost estimate using RS means to determine costs. Vendor quotes were obtained for equipment valued over \$10,000 and only cost estimates from Vendor quotes superseded RS Means. Determined the hardening/mitigation required to protect assets during future flood events and the costs associated with implementing the hardening/mitigation. Determined the cost differences for repairs/replacements to bring assets damaged by Hurricane Harvey to pre-Hurricane Harvey condition, optimal condition, and optimal condition with hardening/mitigation. Assumed current facility permitted flows, loadings, and discharge limits for optimal conditions. Created a hydraulic system curve for all lift stations.
- TASK 3 COST RECOVERY DOCUMENTATION SUPPORT, QA/QC:** Assisted City personnel in preparing forms necessary for filing FEMA claims to ensure all technical aspects are sufficiently addressed and all work and costs included as necessary to properly restore all facilities consistent with applicable codes, specifications, and standards. Assisted City personnel in researching and determining codes, guidelines, and specifications required as back-up documentation for FEMA claims.



OWNER CONTACT: STEPHEN COSTELLO, PE - CHIEF RECOVERY OFFICER, CITY OF HOUSTON | 832.393-0811
STEPHEN.COSTELLO@HOUSTONTX.GOV | **SIZE:** 30,00 LF | **CONSTRUCTION COST:** \$400K | **COMPLETED:** 2021

BERING & SAN FELIPE DEEP SANITARY MICROTUNNELING

CITY OF HOUSTON | HOUSTON, TX | AUGUST 2024



PROJECT DESCRIPTION

OTHON provided preliminary design, final design, and construction administration services for the abandonment of San Felipe No. 2 and Bering Lift Stations and construction of 200 LF of 36-inch sanitary sewer, 2,100 linear feet (LF) of 30-in. sanitary sewer, and 4,400 LF of 48-in. sanitary sewer, in addition to the construction of local collector sewers ranging in size from 8 in. to 15 in. Preliminary engineering services included evaluation of four (4) alternative routes for construction of the proposed sanitary sewer trunk lines. Alternatives were compared and ranked based on the City's project objectives. Ranking parameters included construction cost, ease of maintenance, disruption to businesses and residents, traffic impacts, utility conflicts, and capability to satisfy minimum sewer depth requirements developed by the City. The 30-inch, 36-inch, and 48-inch sanitary sewers will be constructed using trenchless construction (i.e., micro-tunnel bore).

CHALLENGES & SOLUTIONS

- ✓ Implemented concurrent construction activities and incentives/disincentives to reduce construction duration for schedule compliance with EPA Administrative Order.
- ✓ Construction impacts to four major thoroughfares required a comprehensive traffic control plan to maintain set number of through lanes. TCP utilized median removal and temporary pavement to avoid crossovers.
- ✓ Coordination for common shaft with adjacent project could cause delays, so a demobilization/remobilization contingency was included in the bid items.
- ✓ Heavy utility congestion required close coordination with utility providers to develop a proposed alignment that allows continued operation of the existing system and reduces utility conflicts and required utility relocations.
- ✓ Supported acquisition of temporary construction easements to maintain minimum TCP travel lanes.

OWNER/CLIENT: **CITY OF HOUSTON** | ROLE: **PRIME** | REFERENCE: **RAGHAD H. AL HAIJ, PE - COH**
PROJECT MANAGER | PHONE: **832.395.2449** | EMAIL: **RAGHAD.ALHAIJ@HOUSTONTX.GOV**

HOLMES ROAD SANITARY SEWER, BUFFALO SPEEDWAY TO KNIGHT ROAD

CITY OF HOUSTON | HOUSTON, TX | AUGUST 2024



PROJECT DESCRIPTION

OTHON prepared construction documents for approximately 9,000 linear feet (LF) of 42-in. and 48-in. fiberglass reinforced gravity sanitary sewer line along Holmes Road.

OTHON assessed existing conditions and evaluated alternative designs for the proposed sanitary sewer. The proposed 48-in. sewer discharges to an existing 84-in. trunk sewer located at a major intersection and a new junction box was designed for the connection.

The design includes a future connection at the proposed intersection of Buffalo Speedway and Holmes Road. The design provides trenchless construction using micro-tunnel technology.

OTHON assisted with exhibits to secure project funding including agreements with community developers. OTHON also performed permitting services and construction administration services.

CHALLENGES & SOLUTIONS

- ✓ Design of a deep, custom junction box to transition the discharge of the proposed 48" sanitary sewer to the existing 84" trunk sewer.
- ✓ Design objectives included reduction of turbulence and release of hydrogen sulfide gas, minimizing relocation of the existing utilities below the pavement, and reduction of impacts to existing traffic during construction.
- ✓ Emphasis on geotechnical investigations and sampling due to proximity to a salt dome and abandoned oil wells. Area had high environmental contamination which was accounted for in the probable construction cost estimate.

OWNER/CLIENT: **CITY OF HOUSTON** | ROLE: **PRIME** | REFERENCE: **DARRYL BURRELL - COH**
PROJECT MANAGER | PHONE: **832.395.2246** | EMAIL: **DARRYL.BURRELL@HOUSTONTX.GOV**

MAGNOLIA POINT UNSERVED AREA SANITARY SEWER

CITY OF HOUSTON | HOUSTON, TX | OCTOBER 2021



PROJECT DESCRIPTION

OTHON provided preliminary design, final design, and construction services for this APWA award nominee project located in the vicinity of Lake Houston. The scope of work included construction of sanitary sewer services ranging in sizes from 8-in., 10-in., 12-in., and 15-in. Sanitary Sewers in the project area for a total approximate length of 21,000 linear feet (LF) and 34,000 LF of 6-in. leads to the ROW. The project enables the elimination of private septic systems to protect the water quality of Lake Houston, safeguard the City's water supply, and reduce the demand for septic tank pump-out services operated by the City. Additionally, the construction of sanitary sewer collection facilities promotes development of the undeveloped properties. 560 lots were provided with sanitary sewer service leads for connection as a result of this project.

CHALLENGES & SOLUTIONS

- ✓ Residential area where homeowners are required to connect to the sanitary sewer at their own expense. The design package was created to minimize frustration for the residents and community engagement efforts aimed to ease the transition.
- ✓ The City does not own the ROW, so construction was phased to minimize damage/impacts to existing infrastructure.
- ✓ High groundwater table due to proximity to Lake Houston required a detailed dewatering evaluation.
- ✓ Ongoing development with planned connections demanded quick redesigns during construction to provide service.

OWNER/CLIENT: **CITY OF HOUSTON** | ROLE: **PRIME** | REFERENCE: **AKHTER HUSSAIN, PE - COH**
PROJECT MANAGER | PHONE: **832.395.2302** | EMAIL: **AKHTER.HUSSAIN@HOUSTONTX.GOV**

GREATER HOUSTON WASTEWATER PROGRAM: SIMS AREA LIFT STATION AND FORCE MAIN CITY OF HOUSTON | HOUSTON, TX | MARCH 2020



PROJECT LENGTH: 12,000 LF

FUNDING: REVENUE BONDS

CONSTRUCTION COST: \$4M

PROJECT DESCRIPTION

OTHON designed improvements to the Sims Bayou Basin sanitary sewer system. The improvements consisted of the \$4 million construction of a new 20 MGD wet weather pump station; 11,000 linear feet (LF) of 30-in. force main; and 2,000 LF of 48-in. gravity sanitary sewer.

CHALLENGES

- ✓ Coordination of permitting with TxDOT, EPA, and US Army Corps of Engineers; State Revolving Fund (SRF) Coordination.
- ✓ Utility coordination
- ✓ Relocation of a sanitary sewer

RESPONSIBILITIES:

- ✓ Analyzing alternatives and providing preliminary and final design for the lift station and force main. The force main utilized a combination of open-cut and deep micro-tunneling and featured four pipe-bridges crossing channels.

SEWER LINE REPLACEMENT - SIMS BAYOU UTILITY CONFLICT RELOCATION FROM ALMEDA RD TO ALMEDA SIMS WWTP CITY OF HOUSTON | HOUSTON, TX | MARCH 2020

PROJECT DESCRIPTION

OTHON's scope consisted of developing construction documents for the relocation of the existing sanitary sewer line running parallel to Sims Bayou leading into the Almeda Sims Wastewater Treatment Plant (ASWWTP) that were in conflict with the proposed channel improvements being undertaken by the U.S. Army Corp of Engineers to increase the capacity of Sims Bayou and address drainage issues in the area. OTHON performed preliminary and final design services as well as construction administration services for the project. OTHON's preliminary design consisted of evaluating various alignment options for the relocated facilities, examination of the existing and future flowrates in order to size the proposed improvements, evaluation of right-of-way and easement needs and the preparation of a Preliminary Engineering Report presenting all findings and recommendations for the final design. Our final design services consisted of conducting a field topographic survey, right-of-way boundary survey, geotechnical investigation, Phase I Environment Site Assessment and the preparation of construction documents for 5,500 LF of new wastewater collection lines ranging in size from 36-inch to 90-inch diameter. OTHON's construction administration services consisted of reviewing shop drawings, answering contractor Requests for Informations (RFI's), monitoring of construction progress and preparation of final As-Built drawings for the City's records.

OWNER/CLIENT: **CITY OF HOUSTON** | ROLE: **PRIME** | REFERENCE: **AKHTER HUSSAIN, PE - COH**
PROJECT MANAGER | PHONE: **832.395.2302** | EMAIL: **AKHTER.HUSSAIN@HOUSTONTX.GOV**

SIX (6) LIFT STATION RENEWAL & REPLACEMENT

CITY OF HOUSTON | HOUSTON, TX | MAY 2025



PROJECT SIZE: 6 LIFT STATIONS

CONSTRUCTION COST: \$4M

FUNDING: FUND 8500 - WATER AND SEWER SYSTEM CONSOLIDATED CONSTRUCTION FUND

PROJECT DESCRIPTION

OTHON performed the evaluation of improvements (Structural, Site, Mechanical, Electrical and Instrumentation) to the following lift stations: Bintliff, Farther Point, Gessner No. 1, Gessner No. 2, Park Ten No. 2, and Willowbend. During the preliminary phase, the findings and recommended improvements were presented in the Preliminary Engineering Report (PER) for review, comments, and concurrence by the City. Upon completion of this approval, the Final Design and Construction Phase Services were authorized, accordingly. For each site, OTHON evaluated the lift station and force main hydraulics for the recommended increased design flow and determined the maximum capacity that can be achieved with the existing facility. For facilities in the floodplain or facilities that were impacted by Hurricane Harvey, we determined the elevation at which the proposed equipment will need to be installed to satisfy the permitting requirements including the visual impact of such elevation and recommendations on how to minimize the negative visual impact on the surrounding area. Five dry pit/wet pit lift stations were converted to submersible lift stations. The single submersible lift station was demolished, removed and replaced with a new increased capacity submersible lift station.

This project is under EPA Administrative Compliance Orders, resulting in an aggressive and strict construction completion deadline.

SIX (6) LIFT STATION RENEWAL & REPLACEMENT, CONTINUED

CITY OF HOUSTON | HOUSTON, TX | MAY 2025

CHALLENGES & SOLUTIONS

- ✓ A primary challenge for each site was preparation of a construction phasing plan to provide continuous operational capability during the demolition, structural rehabilitation, and construction of piping and pumping improvements. Each site required the development of a unique construction phasing plan. Conceptually, the plan consisted of installation of temporary pumps in the existing wet well (or an upstream manhole) with temporary piping for discharge and connection to the existing force main. Close coordination with the City's operations staff was required to determine periods when low influent flow could be stored in the upstream system, and for how long the flow could be retained. This information was imperative for scheduling construction work tasks for dewatering and cleaning of wet well, structural inspection, structural repairs, and application of a final corrosive protection coating for the wet well.
- ✓ For three of the lift stations the existing wet well did not have sufficient volume to accommodate the proposed firm design capacity. For these sites, the existing dry pit was evaluated and determined suitable for conversion to serve as the new wet well. Design included the placement of shaped grout in corners and dead spaces of the wet well to reduce build-up of sediment and organic deposits and to direct these materials to the pump intake.
- ✓ Lift station sites are in neighborhoods adjacent to residences. Lift station sites are also in the 100-yr flood plain which requires construction of raised platforms to support electrical control cabinets for protection against flood damage to equipment. The aesthetics of the proposed facility and acceptance of the proposed improvements by the residents is a design goal for the project. The design team achieved this goal through close coordination with the neighborhood Homeowners Association and the City. The design implemented attractive aesthetic features including selective fencing, landscaping, and application of murals for electrical control cabinets on the raised platforms to achieve neighborhood acceptance.
- ✓ The lift station sites are small tracts approximately 50' x 50', ranging in size from 2,000 – 3,000 sq ft. The sites typically consist of 80%-100% impermeable cover. The City's drainage design standards require detention storage for all impermeable additions constructed on the site. Existing facility improvements provide no available space to construct needed on-site surface detention. Accordingly, OTHON developed design solutions providing in-line underground detention storage with oversize storm sewer and/or underground basins typically located below existing pavement areas.

INNOVATIONS:

- ✓ Conversion of the existing dry pit portion of the structure to serve as the new wet well for the submersible pump station.
- ✓ Placement of shaped grout in wet well corners and dead spaces to reduce build-up of sediment and organic deposits within the wet well and direct the material to pump intakes.
- ✓ Close coordination with the neighborhood and City to develop aesthetically attractive design solution to achieve neighborhood acceptance of the required lift station improvements.
- ✓ Oversizing of storm sewer for In-line detention or construction of underground storage basin typically below existing pavement areas.

OWNER/CLIENT: **CITY OF HOUSTON** | ROLE: **PRIME** | REFERENCE: **DARRYL BURRELL - COH**
PROJECT MANAGER | PHONE: **832.395.2246** | EMAIL: **DARRYL.BURRELL@HOUSTONTX.GOV**

NEIGHBORHOOD SANITARY SEWER IMPROVEMENTS (NSSI)

CITY OF HOUSTON | HOUSTON, TX | AUGUST 2024



FUNDING: WATER & SEWER SYSTEM CONSOLIDATED CONSTRUCTION FUND

PROJECT DESCRIPTION

OTHON performed preliminary, final design, bid phase, and construction phase services for the abandonment and relocation of 30,500 LF of 6-in. to 24-in. sanitary sewer from back lot easements to public right of way, replacement of 5,500 LF of deficient water mains including 1,600 LF of new 24-in. water main, analysis and design for reconstruction of the existing drainage and storm sewer systems, pavement design and reconstruction of approximately 30,000 LF of neighborhood streets, on-street bicycle lanes on collector street Fairview, and reconstruction of sidewalks. The project area included Avalon Place, Glendower Court, Stanford Oaks, and Vermont Commons subdivisions in Houston. Development was primarily high-density single family residential with selected areas of multi-family and commercial development. Large mature trees are typical throughout the neighborhood. Impacts to trees were minimized by using trenchless technology, zero curb cutback, tree protection fencing, root pruning, checker-plate for sidewalk at selective locations, and flexibility in design of sidewalk alignments. The tree protection plan cataloged and reviewed 1,646 trees.

CHALLENGES & SOLUTIONS:

SANITARY SEWER CONFLICT: The flow line of the proposed 24-in. sanitary sewer is fixed by the existing elevation at the connection point. This resulted in a conflict of the sanitary sewer with an existing upstream 54-in. monolithic storm sewer. OTHON's solution included subsurface utility engineering to locate the bottom elevation of the 54-in. storm sewer, replacement of a 20-foot section of the monolithic sewer with new CCFRPM pipe with reduced wall thickness, and variance approval to match sanitary sewer spring lines instead of crowns at the connection point.

ENCROACHMENTS: 410 encroachments were identified in the public right of way. Encroachments were summarized by type as— landscape only (72), code enforcement (29), combination landscaping and special materials (143), and special material only (166). Letters were sent by the City to 243 properties (all except special material only) to inform residents of their need to remove the encroachment from the ROW. OTHON prepared two exhibits (a picture and a plan drawing showing the encroachment) that were included with each letter.

CONSTRUCTION PHASING: OTHON evaluated multiple construction phasing options to reduce the duration of the construction schedule. A sheet-by-sheet quantity take-off was used to summarize construction activities. Construction progress rates were obtained and contractor's information provided on similar projects. Options were evaluated using Primavera P6 scheduling software. The recommended option provides two work crews working in parallel to accomplish seven construction phases required for the project.

OWNER/CLIENT: **CITY OF HOUSTON** | ROLE: **PRIME** | REFERENCE: **TANU HIEMATH, PE COH PROJECT MANAGER** | PHONE: **713.837.0311** | EMAIL: **TANU.HIEMATH@HOUSTONTX.GOV**

An aerial photograph of a wastewater treatment plant. In the foreground, a large circular aeration tank is visible, with water splashing and creating white foam. To the left, there is a white building with a brown roof and several windows. In the background, there are more circular tanks, some with metal walkways, and a line of tall, thin trees. The sky is clear and blue.

PROJECT EXPERIENCE:

WATER

AUSTIN PARKWAY WATER PLANT

CITY OF SUGAR LAND | SUGAR LAND, TX | SEPTEMBER 2018

**FUNDING:** WATER & WASTEWATER REVENUE BONDS**CONSTRUCTION COST:** \$1.7M**PROJECT DESCRIPTION**

OTHON performed preliminary engineering, final design, bid phase, and construction phase services for the rehabilitation of an existing water plant booster pump station for the City of Sugar Land.

The project included replacing existing pumps, valves, piping and appurtenances to upgrade the water pumping facility to meet production and pressure requirements identified in the City's Water Master Plan.

The existing suction header was abandoned and replaced with new 30-in. suction piping and isolation valves. The existing five pumps and motors were located on an exterior slab unprotected from the weather. The existing pumps were replaced with higher capacity, higher head pumps to meet a design flow of 8,225 gpm at 175 ft. total dynamic head.

Proposed improvements included construction of a concrete masonry unit block wall and standing seam metal roof building to weatherproof the rehabilitated pump station.

The pump building included standard lighting, an electric space heater, and a 12-ft. roll up door to provide vehicle access for equipment removal.

A bridge crane was provided for maintenance and removal of pumps, motor, valves, and piping. A new MCC cabinet was provided to house motor starters for the pumps.

Construction phasing for the proposed improvements was evaluated and a plan for staged construction was prepared to comply with the City's need for continuous operation of the pumping facility during the rehabilitation.

OWNER/CLIENT: **CITY OF SUGAR LAND** | ROLE: **PRIME** | REFERENCE: **ROSS WOODFIN, PE - SUGAR LAND**
PROJECT MANAGER | PHONE: **281.275.2357** | EMAIL: **RWOODFIN@SUGARLANDTX.GOV**

SURFACE WATER TRANSMISSION/WATERLINE REPLACEMENT PROGRAM (30-IN. WATERLINE)

CITY OF HOUSTON | HOUSTON, TX | DECEMBER 2018



PROJECT LENGTH: 2.5 MI.

FUNDING: WATER SYSTEM REVENUE BONDS

CONSTRUCTION COST: \$13M

PROJECT DESCRIPTION

The City of Houston's Surface Water Transmission Program entailed a major capital improvement program to refocus the City's main source of drinking water from groundwater to more sustainable surface water. The program included design and construction of large diameter, high-pressure waterlines, pumping stations, and related appurtenances, and consolidation of existing groundwater pumping stations to distribute the increased water supply from the East and Southeast water purification plants. Since the start of the program, OTHON managed five contracts involving the design of over 70,000 LF of large-diameter water transmission lines ranging from 24 to 84 inches along with related facility improvements. Engineering services included analysis of alternatives, pipe alignment design, traffic control planning, tunneling and thrust restraint design, design of cathodic protection, utility relocations and production of construction documents and cost estimates. Projects involved a variety of challenges including design through active fault zones and a fast-track schedule. In addition, coordinated with private utility companies to relocate existing facilities and incorporate any proposed facilities upgrade. Relocated facilities included gas lines, underground conduits, fiber optic cables, overhead poles, handholes, access manhole and appurtenances. OTHON also provided agency coordination including working with the Texas Department of Transportation (TxDOT) on extended tunnel sections across TxDOT rights-of-way. In addition to the Surface Water Treatment Program, OTHON has worked extensively on the City's small-diameter waterline replacement program. Services included waterline horizontal and vertical design, utility conflict resolution, traffic control planning, cost estimating, and coordination with various governmental entities for 150,000 LF of waterline replacement. (The project scope consisted of providing engineering services and materials necessary to enable the City of Houston to advertise and award a construction contract for the complete construction of approximately 10,600 LF of 36-in. water main, valves and appurtenances along Beamer Rd from Scarsdale to north of Turkey Creek.)

CHALLENGES & SOLUTIONS

- The 30-in. waterline provided for a key connection to the SWTP and future expansion west and east along Briar Forest Drive
- Waterline was designed to minimize impact to heavily landscaped areas on Briar Forest Drive
- Major Texas Department of Transportation (TxDOT) crossing at Westheimer Road—tunneled waterline with casing
- Major Harris County Toll Road Authority (HCTRA) crossing at Beltway 8 and Briar Forest Drive—tunneled waterline with casing
- Improved water delivery from the purification plant to key transmission points between Gessner Road and Wilcrest Drive

OWNER/CLIENT: **CITY OF HOUSTON** | ROLE: **SUB** | REFERENCE: **J. TONY BOYD, PE - LAN PROJECT MANAGER** | PHONE: **713.266.6900** | EMAIL: **JABOYD@LAN-INC.COM**

LUCE BAYOU INTERBASIN TRANSFER PROJECT

COASTAL WATER AUTHORITY (CWA) | DAYTON, TX | SEPTEMBER 2020



SIZE: 1,200 AC

FUNDING: STATE WATER IMPLEMENTATION FUND

CONSTRUCTION COST: \$120M

OTHON provided project management, canal design, and drainage design for canal segment two, which extends five miles along the proposed Luce Bayou Canal. The purpose of the project was to transfer surface water from Trinity River to Lake Houston. OTHON analyzed drainage patterns for the properties adjacent to the canal. The studied drainage area intercepted by the canal was 1,200 acres. OTHON performed hydrology and routing calculations using TR-55; ditch design and ponding analysis using HEC-RAS steady and unsteady state models; 2-D surface ponding analysis using FLO-2D; designed two 36-in. drainage inverted siphons to allow cross drainage to pass under the proposed canal; designed drainage culverts using HEC-RAS and HY8 software to minimize drainage backwater effects for the 100-yr event.

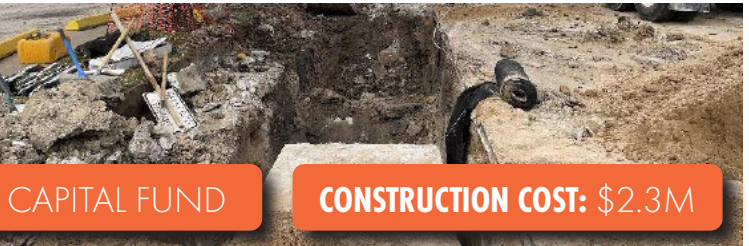
CHALLENGES & SOLUTIONS

- Performed analysis to eliminate one of three canal inverted siphons that saved the client \$800K in construction cost

OWNER/CLIENT: **COASTAL WATER AUTHORITY (CWA)** | ROLE: **SUB** | REFERENCE: **GITI ZARINKELK, PE**
CWA BOARD MEMBER | PHONE: **713.724.5489** | EMAIL: **GITI.ZARINKELK@GMAIL.COM**

LEDGE STREET WATERLINE

CITY OF HOUSTON | HOUSTON, TX | NOVEMBER 2024



PROJECT AREA: 120 ACRES

FUNDING: DDSRF CAPITAL FUND

CONSTRUCTION COST: \$2.3M

OTHON performed preliminary design, final design, and construction administration services. The project area is 120 acres. The scope of the project included analysis, design, and reconstruction of existing drainage and storm sewer systems, design and reconstruction of neighborhood streets (from rural parallel ditch street section to urban concrete curb and gutter street section), abandonment and replacement of 3,200 LF of 10-in. sanitary sewer, and replacement of 6,200 LF of 8-in. water main with 12-in. water main. The increased water supply capacity was needed to satisfy domestic water demand and to improve fire-fighting capability. Existing development in the project area is approximately 20% single family residential, 70% multi-family residential, and 10% commercial.

CHALLENGES & SOLUTIONS:

- Preparation of water line alignments to minimize impacts to existing large live oak trees along Ledge Street
- Use of directional drilling and boring to reduce impacts to area residents
- Preparation of designs and traffic control plans to reduce traffic impacts at water main tie-in locations on the I-45 SB frontage road and on Clearwood St.
- Provision of new fire hydrants and water main isolation valves to improve firefighting capacity and to better serve maintenance need

OWNER/CLIENT: **CITY OF HOUSTON** | ROLE: **PRIME** | REFERENCE: **LUCIA LEE, PE -COH PROJECT**
MANAGER (NOW CIVITAS) | PHONE: **713.684.4123** | EMAIL: **LLEE@CIVITASENGR.COM**

NEIGHBORHOOD INFRASTRUCTURE IMPROVEMENTS, WATER MAIN REPLACEMENT (NSSI) CITY OF HOUSTON | HOUSTON, TX | AUGUST 2024



PROJECT LENGTH: 7,100 LF

CONSTRUCTION COST: \$2.3M

FUNDING: WATER & SEWER SYSTEM CONSOLIDATED CONSTRUCTION FUND

PROJECT DESCRIPTION

OTHON performed preliminary, final design, bid phase, and construction phase services for the abandonment and relocation of 30,500 LF of 6-in. to 24-in. sanitary sewer from back lot easements to public right of way, replacement of 5,500 LF of deficient water mains including 1,600 LF of new 24-in. water main, analysis and design for reconstruction of the existing drainage and storm sewer systems, pavement design and reconstruction of approximately 30,000 LF of neighborhood streets, on-street bicycle lanes on collector street Fairview, and reconstruction of sidewalks. The project area included Avalon Place, Glendower Court, Stanford Oaks, and Vermont Commons subdivisions in Houston. Development was primarily high-density single-family residential with selected areas of multi-family and commercial development. Large mature trees are typical throughout the neighborhood. Impacts to trees were minimized by using trenchless technology, zero curb cutback, tree protection fencing, root pruning, checker-plate for sidewalk at selective locations, and flexibility in design of sidewalk alignments. The tree protection plan cataloged and reviewed 1,646 trees.

CHALLENGES & SOLUTIONS:

SANITARY SEWER CONFLICT: The flow line of the proposed 24-in. sanitary sewer is fixed by the existing elevation at the connection point. This resulted in a conflict of the sanitary sewer with an existing upstream 54-in. monolithic storm sewer. OTHON's solution included subsurface utility engineering to locate the bottom elevation of the 54-in. storm sewer, replacement of a 20-foot section of the monolithic sewer with new CCFRPM pipe with reduced wall thickness, and variance approval to match sanitary sewer spring lines instead of crowns at the connection point.

CONSTRUCTION PHASING: OTHON evaluated multiple construction phasing options to reduce the duration of the construction schedule. A sheet-by-sheet quantity take-off was used to summarize construction activities. Construction progress rates were obtained and contractor's information provided on similar projects. Options were evaluated using Primavera P6 scheduling software. The recommended option provides two work crews working in parallel to accomplish seven construction phases required for the project.

OWNER/CLIENT: **CITY OF HOUSTON** | ROLE: **PRIME** | REFERENCE: **TANU HIEMATH, PE COH PROJECT MANAGER** | PHONE: **713.837.0311** | EMAIL: **TANU.HIEMATH@HOUSTONTX.GOV**

RICHMOND AVENUE WATERLINE REPLACEMENT | CITY OF HOUSTON

OTHON performed the design of 10,500 LF of 8-in. waterline and 730 LF of 16-in. waterline using trenchless construction for 10 local streets and one major thoroughfare (Richmond Avenue). The project location is in the Parkhollow Place Subdivision in West Houston. The project involved upgrades to the water distribution system to improve firefighting capabilities for the residents and accommodate future demand. Additional fire hydrants were installed to improve safety and comply with the current City of Houston Design Standards. The connection to the existing 16-in. waterline on Richmond Avenue was designed to minimize traffic impacts to allow at least one lane of traffic to remain open during construction.

PARKHURST WATERLINE REPLACEMENT | CITY OF HOUSTON

This project consisted of 26,977 LF of 8-in. to 12-in. new replacements of the existing waterlines in the Parkhurst Area. OTHON designed new larger diameter lines to address the inadequately sized lines, low water pressure, and customer and maintenance issues. OTHON provided the City of Houston with design solutions according to all City, Federal, and State regulations. This project required complete plan & profile drawings, along with details and specs, including traffic control drawings, stormwater pollution prevention plans, and tree protection plans. Additional easements were required for the project. OTHON also performed Construction Administration Services for this project. The City of Houston Substitute Service Program was a part of this project.

MAGNOLIA GROVE WATERLINE REPLACEMENT | CITY OF HOUSTON

OTHON designed and prepared construction documents for approximately 12,000 LF of 30-in. waterline. Engineering services included traffic control plans, analysis of alternatives, tunneling design, and construction cost estimates. Special Project Issues included obtaining TxDOT permits, utility coordination, and pipeline design through a fault zone. OTHON performed Construction Administration Services for this project.

BROAD OAKS WATERLINE REPLACEMENT | CITY OF HOUSTON

OTHON's scope of work was the development of plans for 22,600 LF of waterlines consisting of 4-in., 6-in., 8-in., and 12-in. waterlines. Also included were 6-in. fire hydrant leads, fire hydrants including all TS&V's, gate valves complete with box, fittings, service connections, cut & plugs & abandons, and appurtenances. The extent of the work also included site and pavement restoration, tree protection, and stormwater pollution prevention in relation to the construction of the waterlines. OTHON also performed Construction Administration Services.

WOODLAND HEIGHTS EAST AREA WATERLINE REPLACEMENT | COH

OTHON provided engineering services and prepared construction documents for the construction of 28,963 LF of waterline consisting of 4-in., 6-in., 8-in., and 12-in. waterlines including one aerial crossing of 152 LF on Wrightwood Street. Also included are 6-in. fire hydrant leads, fire hydrants including all TS&V, gate valves complete with box, fittings, service connections, wet connections, cut & plugs, and appurtenance as shown on the plans. The extent of work also included: site and pavement restoration, tree protection, and stormwater pollution prevention in relation to the construction of the waterlines. The project was in Council District "H" in the Woodland Heights East Area bounded by Pecore on the North, North Freeway Feeder Road (IH 45) on the East, White Oak Bayou on the South, and Julian on the West. OTHON also performed Construction Administration Services.

BROAD OAKS WATERLINE REPLACEMENT | CITY OF HOUSTON

OTHON's scope of work was the development of plans for 22,600 LF of waterlines consisting of 4-in., 6-in., 8-in., and 12-in. waterlines. Also included were 6-in. fire hydrant leads, fire hydrants including all TS&V's, gate valves complete with box, fittings, service connections, cut & plugs & abandons, and appurtenances. The extent of the work also included site and pavement restoration, tree protection, and stormwater pollution prevention in relation to the construction of the waterlines. OTHON also performed Construction Administration Services.

GREENSBORO AREA WATERLINE REPLACEMENT | CITY OF HOUSTON

OTHON provided engineering services and prepared construction documents for the City of Houston for the construction of 20,972 LF of waterline, consisting of 4-in., 6-in., 8-in., and 12-in. waterlines and all associated appurtenances. OTHON designed new larger diameter lines to address the inadequately-sized lines, low water pressure, and customer and maintenance issues. The extent of services provided included preliminary design engineering, alternate route selection and evaluation, preparation of a preliminary engineering report, final design, permitting, and construction administration.

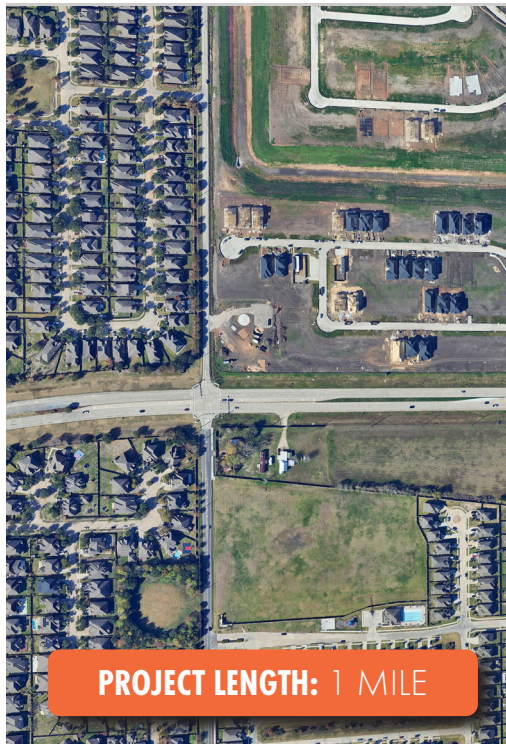
An aerial photograph of a suburban neighborhood. In the foreground, a paved road with a white arrow pointing right runs diagonally. To the left of the road is a grassy area with a sidewalk and some trees. In the background, there are several houses with blue roofs, some with white siding, and a large green lawn. A white car is driving on the road. The overall scene is bright and sunny.

PROJECT EXPERIENCE:

STREETS/ PAVEMENT

MADDEN ROAD PAVING & DRAINAGE IMPROVEMENTS

FORT BEND COUNTY | RICHMOND, TX | MARCH 2022



PROJECT LENGTH: 1 MILE



FUNDING: MOBILITY BOND

CONSTRUCTION COST: \$1.6M

PROJECT DESCRIPTION

OTHON provided preliminary design, final design, and construction administration services for:

- 1 2-lane asphalt mill, overlay, and widening of existing roadway with improved drainage along Madden Road from 2,400 ft. north of West Bellfort Avenue.
- 2 2-lane asphalt mill and overlay of existing roadway along Madden Road from 2,800 ft. west of FM 1464.
- 3 2-lane concrete roadway with storm sewer from east of FM 1464 to Clodine Road.

CHALLENGES & SOLUTIONS

1 CHALLENGE: During the preliminary analysis it was discovered that the existing centerline of the roadway 2,400 ft. north of West Bellfort Avenue was not centered in the ROW.

SOLUTION: To optimize the design, the proposed alignment was centered between the ROW which now changed the location of the roadway crown. To accommodate the new crown location, proposed HMA level-up was used. Another benefit of moving the crown of the roadway to the center of the ROW was improving the widths of the ditches.

2 CHALLENGE: One of the existing issues identified was ponding at a culvert crossing that also serves as an outfall. Survey analysis revealed that the flowlines of the cross culvert were lower than those at the outfall within the right-of-way and had insufficient slope, contributing to poor drainage.

SOLUTION: To optimize this culvert crossing, it was proposed to raise the culvert so it can flow smoothly towards the designated outfall direction. In doing this, the ditch flowlines parallel to Madden Road had to be raised thus replacing the culvert crossings of the driveways.

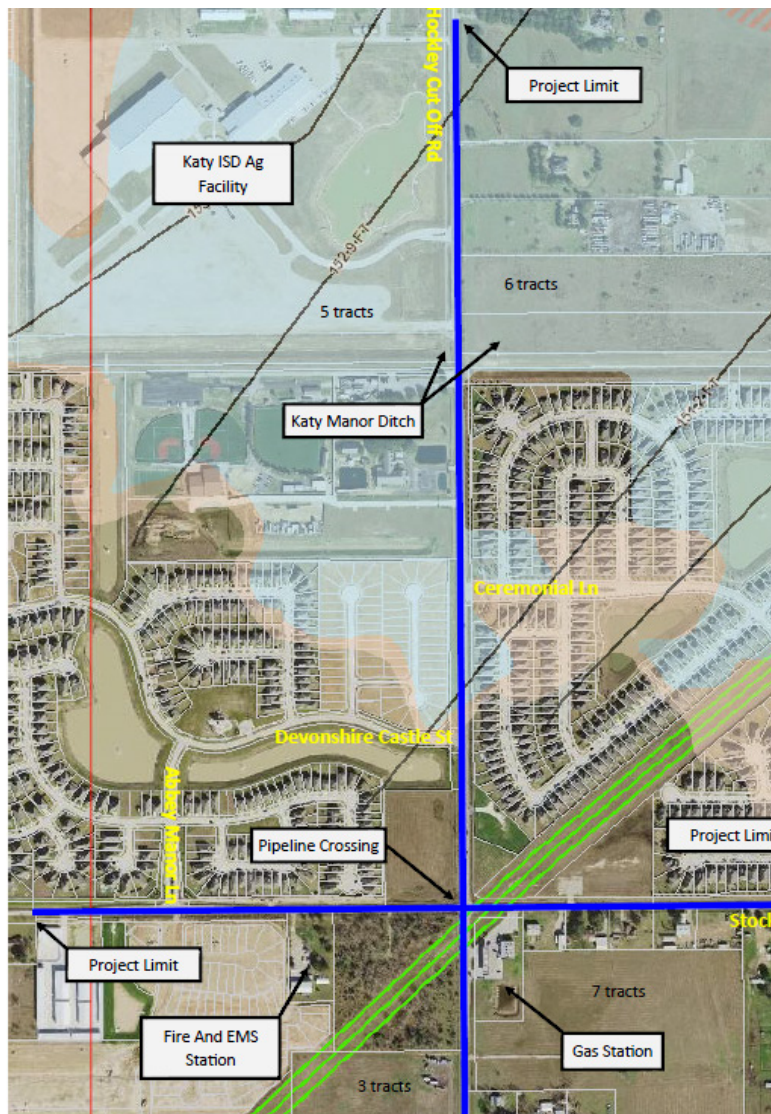
ACHIEVEMENT

One of the most significant improvements of the project was reconstructing a roadway curve. The improvement involved increasing the size of the existing radius. To achieve this, additional ROW had to be taken. With this improvement, the curve became safer and easier to drive.

OWNER/CLIENT: **FORT BEND COUNTY** | ROLE: **PRIME** | REFERENCE: **J. STACY SLAWINSKI, PE**
PROJECT MANAGER | PHONE: **281.633.7508** | EMAIL: **STACY.SLAWINSKI@FORTBENDCOUNTYTX.GOV**

KATY HOCKLEY CUT-OFF ROAD

HARRIS COUNTY | HARRIS COUNTY, TX | DESIGN: 2024



PROJECT DESCRIPTION

OTHON prepared PS&E for the following:

- Katy Hockley Cut-Off Road** – reconstruct one mile of a two-lane undivided rural roadway to a four-lane divided urban roadway with center-raised median & underground storm sewer.
- Stockdick School Road** – reconstruct 2,900 ft. of a two-lane undivided rural roadway to a four-lane divided urban roadway with center-raised median and underground storm sewer.

OTHON developed roadway geometry to address potential conflicts with drainage and gas utility elements at various locations along the corridor.

The design of roadway transitions was adjusted to accommodate first responder access to and from an existing fire station. Sidewalks were included along both roadways to accommodate the need for safe pedestrian facilities in a congested corridor.

Drainage design included early coordination with the County to maintain existing drainage patterns since Stockdick School Road is aligned along an important drainage divide. Most of the project lies within the FEMA floodplain of South Mayde Creek. The design included compliance with previous design projects to ensure the adjacent drainage systems are not impacted.

Detention design was developed to mitigate an increase in flow from the project corridor and ensure drainage computations comply with Atlas 14 requirements. The existing detention facility from a previous project was expanded to provide additional mitigation for the increased impervious surface area.

CHALLENGES & SOLUTIONS

1

CHALLENGE: Designing a cost-efficient drainage system that is compatible with adjacent projects, avoids changes to existing drainage patterns, and avoids impact to the FEMA floodplain model for the project area.

SOLUTION: OTHON addressed the challenge through coordination with the County and development of interlocal agreements to ensure the drainage needs of affected public agencies were met.

2

CHALLENGE: Designing roadway geometry and the underground storm drainage system to avoid impacts to existing gas pipeline crossings.

SOLUTION: OTHON addressed the challenge by modeling the roadway and drainage improvements and verifying the design elevations with the available utility information.

PROJECT LENGTH: 1.55 MI.

FUNDING: METRO BOND

CONSTRUCTION COST: \$11.5M

OWNER/CLIENT: HARRIS COUNTY, PRECINCT 4 | ROLE: PRIME | REFERENCE: JESUS R. GARCIA, PE
PROJECT MANAGER | PHONE: 713.214.3882 | EMAIL: JESUS.GARCIA@ENG.HCTX.NET

CYPRESS NORTH HOUSTON ROAD AT GREENHOUSE ROAD, FOUR-LANE BOULEVARD

HARRIS COUNTY | HOUSTON, TX | AUG 2020



PROJECT LENGTH: 1.66 MI.

FUNDING: PCT 3 CAPITAL FUNDS

CONSTRUCTION COST: \$2.3M

PROJECT DESCRIPTION

OTHON provided preliminary design, final design, and construction administration services for the widening of the existing Cypress North Houston Road, from east of Cypress Creek Bend Lane to east of Greenhouse Road, and the widening of Greenhouse Road, 700 ft. north and south of its intersection with Cypress North Houston Road.

IMPROVEMENTS

- 1 WIDENING** consisted of completion of the four-lane concrete boulevard with curb and gutter, storm sewers and with asphalt pavement transitions north, south, and east of the intersection of Cypress North Houston Road and Greenhouse Road.
- 2 INSTALLATION OF A TRAFFIC SIGNAL SYSTEM** at the intersection of Cypress North Houston and Greenhouse Roads.
- 3 STORM SEWER LATERALS DESIGN FOR CONNECTION TO EXISTING SYSTEM.** The existing system was analyzed to ensure proper sizing of laterals, placement of inlets, and impact to existing system—all while adhering to Harris County and City of Houston design criteria.

PROJECT DESIGN ITEMS

- ✓ BID PHASE SERVICES
- ✓ CONSTRUCTION PHASE SERVICES
- ✓ PAVEMENT CONDITION ANALYSIS
- ✓ COST ESTIMATION
- ✓ ROADWAY GEOMETRIC DESIGN
- ✓ UNOBSTRUCTED VISION EASEMENTS
- ✓ TRAFFIC SIGNAL DESIGN
- ✓ TRAFFIC CONTROL
- ✓ EROSION CONTROL
- ✓ SIGNING & PAVEMENT MARKINGS
- ✓ UTILITIES & ROW COORDINATION
- ✓ SUBSURFACE DRAINAGE SYSTEMS DESIGN

OWNER/CLIENT: **HARRIS COUNTY** | ROLE: **PRIME** | REFERENCE: **MICHELLE PATTON, PE**
PROJECT MANAGER | PHONE: **713.274.3694** | EMAIL: **MICHELLE.PATTON@ENG.HCTX.NET**

HUGHES ROAD RECONSTRUCTION CITY OF HOUSTON | HOUSTON, TX



PROJECT LENGTH: 2.5 MI

FUNDING: FUNDS 4040, 4042, 8500

CONSTRUCTION COST: \$13M

PROJECT DESCRIPTION

OTHON provided preliminary design, final design and construction administration services to rehabilitate 2.5 miles of Hughes Road from Beltway 8 to the City Limits. Hughes Road is an existing four-lane boulevard section roadway located in southeast Houston. The project provided for pavement reconstruction and upgrading of utilities within the right-of-way, replacement of 13,000 LF of 16-inch waterline, and the replacement of 13,000 LF of 12-in. and 21-in. sanitary sewer.

SPECIFIC DESIGN SERVICES PROVIDED:

- 1 ROADWAY DESIGN** HORIZONTAL AND VERTICAL ALIGNMENTS TO MINIMIZE CONSTRUCTION CONFLICTS
- 2 TRAFFIC CONTROL PLAN DESIGN, SPM, SIGNALIZATION DESIGN, STREET LIGHTING, AND TEMPORARY TRAFFIC SIGNALS**
- 3 PREPARATION OF STRUCTURAL DESIGN OF A PIPE BRIDGE WATERLINE** CROSSING CHANNEL A120-00-00
- 4 PREPARATION OF CONSTRUCTION COST ESTIMATES** AT EACH PROJECT MILESTONE
- 5 HYDROLOGIC/HYDRAULIC IMPACT ANALYSIS REPORT** FOR THE AERIAL CROSSING OF CHANNEL A120-00-00
- 6 PHASE I & II ENVIRONMENTAL SITE ASSESSMENTS**
- 7 SURVEY OF EXISTING TREES, EVALUATION OF IMPACTS OF PROPOSED CONSTRUCTION, AND PREPARATION OF TREE PROTECTION PLAN** FOR THE AERIAL CROSSING OF CHANNEL A120-00-00
- 8 COORDINATION OF THE DESIGN, PERMITTING, AND CONSTRUCTION** OF THE PROJECT WITH THE VARIOUS LOCAL GOVERNMENTAL ENTITIES HAVING JURISDICTION OVER THE PROJECT, INCLUDING THE CITY, THE COUNTY, AND THE FLOOD CONTROL DISTRICT.
- 9 EVALUATION OF EXISTING STORM SEWER SYSTEM** TO COMPLY WITH CURRENT DESIGN STANDARDS FOR THE 2-YR AND 100-YR EVENT. SELECTED LOCATIONS OF THE EXISTING STORM SEWER SYSTEM WERE RETAINED TO SERVE AS IN-LINE DETENTION FOR MITIGATION OF INCREASED IMPERVIOUS AREA CONSTRUCTED FOR THE REHABILITATION PROJECT.

OWNER/CLIENT: **CITY OF HOUSTON** | ROLE: **PRIME** | REFERENCE: **IVY WANG, PE - PROJECT MANAGER**
CELL: **817.710.0629** | OFFICE: **832.394.9124** | EMAIL: **IVY.WANG@HOUSTONTX.GOV**



PROJECT EXPERIENCE:

DRAINAGE

MORNINGSIDE PLACE SUBDIVISION (A135-01-00-E001)

HCFCFCD | HOUSTON, TX | AUG 2024



PROJECT DESCRIPTION

OTHON identified measures to reduce the recurring street ponding in the Morningside Place subdivision that occurred within the area east of Presidents Drive West (Phase 1 of the development of the subdivision). OTHON performed a drainage study to investigate the existing drainage conditions and identify potential improvements to mitigate this street ponding. The drainage study included an evaluation of the existing drainage system and potential alternatives to reduce the frequency, depth, and duration of flooding within the subdivision, along with the associated costs. OTHON proactively held regular coordination meetings with HCFCFCD, the Preliminary Engineering Team, and HCFCFCD Final Design & PS&E Teams to successfully achieve optimal agency coordination.

RELEVANT SERVICES PROVIDED

- 1 COMPLEX HYDROLOGIC & HYDRAULIC MODELING
- 2 ROADWAY DRAINAGE - EXISTING
- 3 FLOOD MITIGATION
- 4 PROPOSED IMPROVEMENTS

CHALLENGES — CONVEYANCE

There was adequate detention storage available for the subdivision, but the existing storm sewer infrastructure did not meet current design standards. Ponding on the street occurred due to limited inlet capacity and conveyance capacity in the storm sewer system that drains the roadways.

OUR XP-SWMM ANALYSIS of the storm sewer system indicated increases in the storm sewer inlets capacity were needed to increase conveyance into the detention facility.

OUR HEC-RAS 2D SIMULATIONS indicated that excess flow not carried by the storm sewer cannot access the detention basin and ponds. The HEC-RAS 2D results further indicated the lack of outfall channel facilities restrict drainage from the subdivision during the studied frequencies.

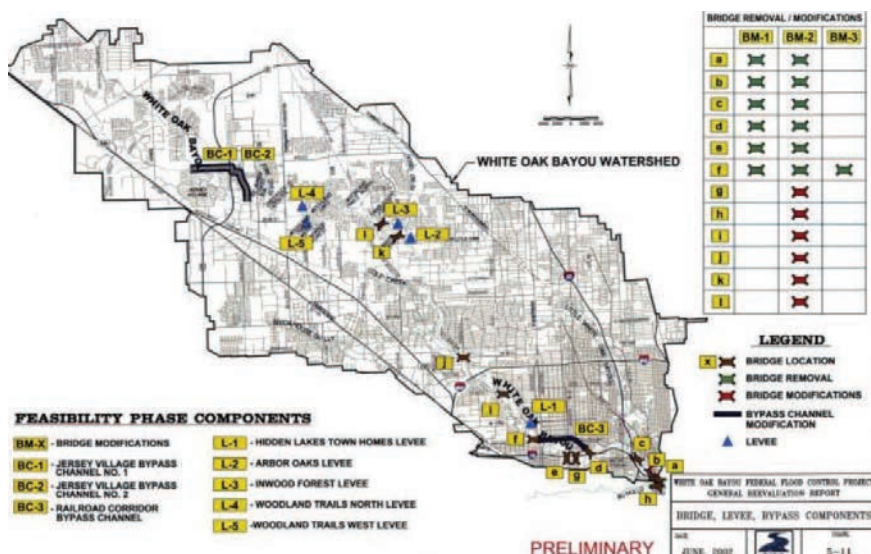
MODIFYING THE INLETS AND STORM SEWER SYSTEM WAS ANALYZED USING XP-SWMM. During the analysis, it was determined that improving the conveyance of the storm sewer system would help provide better drainage along the roadways and increase use of the available detention within the detention basin. In addition to the storm sewer modifications, it was also determined that modifications are warranted in HCFCFCD Unit No. A135-01-00, the outfall channel for the detention basin.

OTHON DEVELOPED FINAL PLANS, SPECIFICATIONS, AND ESTIMATES FOR CONSTRUCTION AND PERFORMED THE CONSTRUCTION PHASE SERVICES.

OWNER/CLIENT: **HCFCFCD** | ROLE: **PRIME** | REFERENCE: **THOMAS LIEBERT, PE, CFM - PROJECT MANAGER** | PHONE: **386.286.4029** | EMAIL: **THOMAS.LIEBERT@HCFCFCD.HCTX.NET**

LOWER WHITE OAK BAYOU BRIDGE, MITIGATION, AND REGIONAL DETENTION ANALYSIS

HCFCF | HOUSTON, TX | NOVEMBER 2016



PROJECT DESCRIPTION

OTHON performed the complex hydraulic and hydrologic analysis of Lower White Oak Bayou in Houston, Texas. The scope of the analysis was to determine whether a proposed land site could be used to provide sufficient in-line or offline detention to mitigate the removal of one or more of any of five abandoned multispan railroad bridges crossing Lower White Oak Bayou. Based on HEC-1 and HEC-2 models of White Oak Bayou provided by the Harris County Flood Control District (HCFCF), OTHON located and corrected several errors, most notably a revision of the SQ/SV records in the HEC-1 models.

RELEVANT SERVICES PROVIDED

- 1 COMPLEX HYDROLOGIC AND HYDRAULIC MODELING
- 2 COMPLEX IN-LINE DETENTION DESIGN
- 3 OPTIMAL COORDINATION WITH CITY AND HCFCF DESIGN TEAM

CHALLENGES — DRAINAGE AREA

The densely urban development character and sensitive nature of the watershed required significant hydrologic and hydraulic modeling efforts to thoroughly investigate and quantify the effects of any combination of bridge removals, and whether the proposed detention site could be used to provide sufficient mitigation to completely offset the effects to the watershed of removal of one or more of any of the five bridges identified.

CONCLUSION

The required detention facility should be an in-line detention facility extending the channel at 1 12:1 slope for 406 feet from the center line of the channel. This will require just under 250 feet of property beyond the channel Right-of-Way. The detention facility should extend 1,230 linear feet and should slope back up to natural ground at a rate of 3:1. The excavation required to construct this detention facility is sufficient to fill the remainder of the property 18 inches above the 100-year floodplain. The analysis assumed full development above the 100-year floodplain of the remainder of the 17.3-acre site.

ACCOMPLISHMENTS

Allowed for mitigation of the effects requiring these abandoned railroad bridges. Proactive, successful, optimal coordination with HCFCF Design Team & COH.

OWNER/CLIENT: **HCFCF** | ROLE: **PRIME** | REFERENCE: **WAYNE CRULL, PE - PROJECT MANAGER, HCFCF**
PHONE: **713.684.4087** | EMAIL: **WAYNE.CRULL@HCFCF.HCTX.NET**

LEDGE STREET AREA DRAINAGE & PAVEMENT IMPROVEMENTS

CITY OF HOUSTON | HOUSTON, TX | NOVEMBER 2024



PROJECT DESCRIPTION

OTHON was authorized to conduct drainage studies, preliminary engineering, final design, and construction administration services for drainage improvements to the Easthaven and Clearwood Subdivisions in the southeast quadrant of the City of Houston along the west side of IH 45 between Airport Boulevard and Almeda Genoa Road. The project area is in the Sims Bayou Watershed and has a drainage area of approximately 211 acres, and is divided into four (4) distinct drainage sub-areas with two (2) primary outfalls to HCFCD channels. OTHON held regular meetings to proactively coordinate with COH planning team, HCFCD programming team, and COH final design team for successful optimal agency coordination. Existing and proposed condition models were developed to simulate each of the outfalls using XP-SWMM dynamic modeling software. Hydraulic analysis included evaluation of two TxDOT culvert crossings under IH 45 (Ditch B - three 6'x4' box culverts, Ditch C – three 9'x5' box culverts with flow restrictor). Findings indicated existing HCFCD outfall channels limited conveyance capacity from the project area to the 2-year rainfall event. Three mitigation alternatives were developed in the preliminary engineering report for each subdivision with recommendations made for the most cost-effective solutions. Alternative solutions included analysis of overland flow, new storm sewers versus open ditch drainage, in-line detention, and off-site detention within the project area due to the limited conveyance capacity of existing HCFCD outfall ditches.

RELEVANT SERVICES PROVIDED

- 1 DRAINAGE STUDIES
- 2 COMPLEX HYDROLOGIC AND HYDRAULIC MODELING
- 3 ROADWAY H&H DESIGN
- 4 PROPOSED IMPACT MITIGATION

RECOMMENDED DRAINAGE AND PAVING IMPROVEMENTS INCLUDED:

STREET RECONSTRUCTION OF 7,100 LF FOR SIX STREETS IN THE CLEARWOOD AREA:

1. GRANNIS
2. HOLLOCK
3. INTERVALE
4. NATHANIEL
5. LEDGE
6. MINNESOTA

THE EXISTING ASPHALT STREETS WITH DUAL PARALLEL OPEN DITCH DRAINAGE WERE REPLACED WITH CONCRETE CURB AND GUTTER STREET SECTION WITH NEW STORM SEWERS.

PAVEMENT WIDTHS WERE 26 FT. FOR RESIDENTIAL LOCATIONS AND 36 FT. FOR MULTI-FAMILY AND COMMERCIAL LOCATIONS.

STORM SEWER IMPROVEMENTS WERE DESIGNED TO IMPROVE CONVEYANCE AND IN-LINE STORAGE WAS PROVIDED TO COMPLY WITH THE CITY'S DESIGN STANDARDS FOR THE 2-YEAR AND 100-YEAR RAINFALL EVENTS.

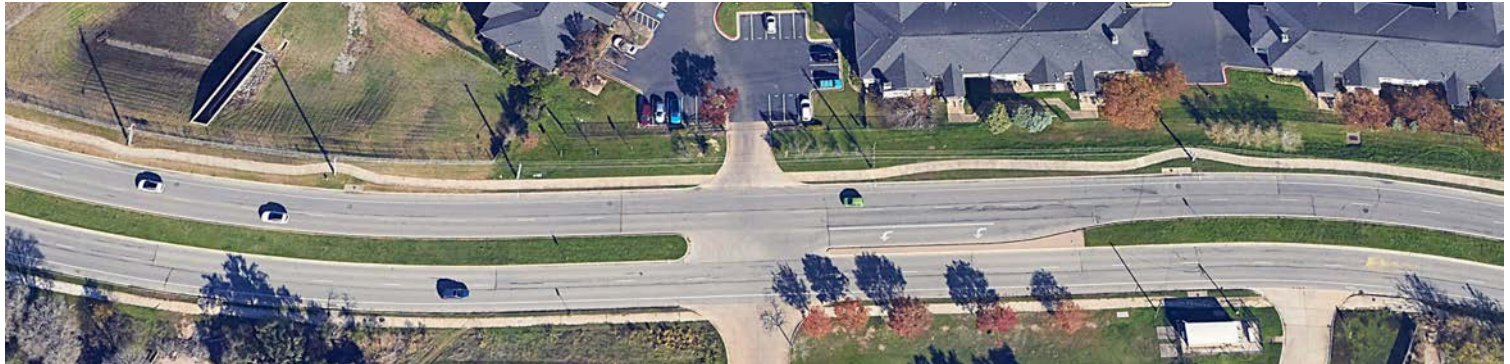
THE PROJECT INCLUDED ENGINEERING DESIGNS TO PROTECT THE CANOPY AND ROOT ZONES OF LARGE OAK TREES LINING THE EXISTING STREETS.

UTILITY DESIGNS INCLUDED REPLACEMENT OF 5,335 FT. OF EXISTING 8-IN. WATERLINE WITH 12-IN. WATERLINE, AND THE REPLACEMENT OF 1,800 FT. OF EXISTING 8-IN. CONCRETE SANITARY SEWER WITH 8-IN. PVC SANITARY SEWER.

OWNER/CLIENT: CITY OF HOUSTON (NOW CIVITAS) | ROLE: PRIME | REFERENCE: LUCIA LEE, PE - COH PROJECT MANAGER | PHONE: 713.684.4123 | EMAIL: LLEE@CIVITASENGR.COM

DAVIS LANE DRAINAGE IMPROVEMENTS

CITY OF AUSTIN | AUSTIN, TX | MAY 2022



PROJECT DESCRIPTION

OTHON performed stormwater analysis and designed storm drainage facilities, including storm sewers, detention ponds, sedimentation and water quality treatment facilities and re-irrigation systems for the major collector roadway improvements (which included full depth street reconstruction, widening, and extension of the roadway).

RELEVANT SERVICES PROVIDED

- 1 COMPLEX HYDROLOGIC & HYDRAULIC MODELING
- 2 ROADWAY DRAINAGE - EXISTING
- 3 FLOOD MITIGATION
- 4 PROPOSED IMPROVEMENTS

CHALLENGES

Permitting for this project was complex. It required a City of Site Development Permit, TCEQ permits, compliance with requirements pertaining to the Edwards Aquifer Recharge Zone, measures to protect Critical Environmental Features including Karst features and underground caves, and compliance with Barton Springs recharge zone ordinances.

ACHIEVEMENTS

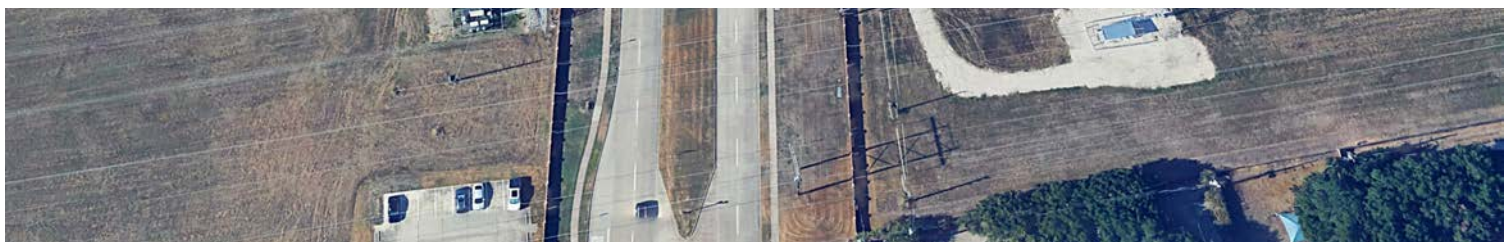
- ▣ Provided alternate sites for detention and water quality treatment, significantly reducing the overall footprint of the project.
- ▣ Positive effect on water quality

SERVICES PROVIDED

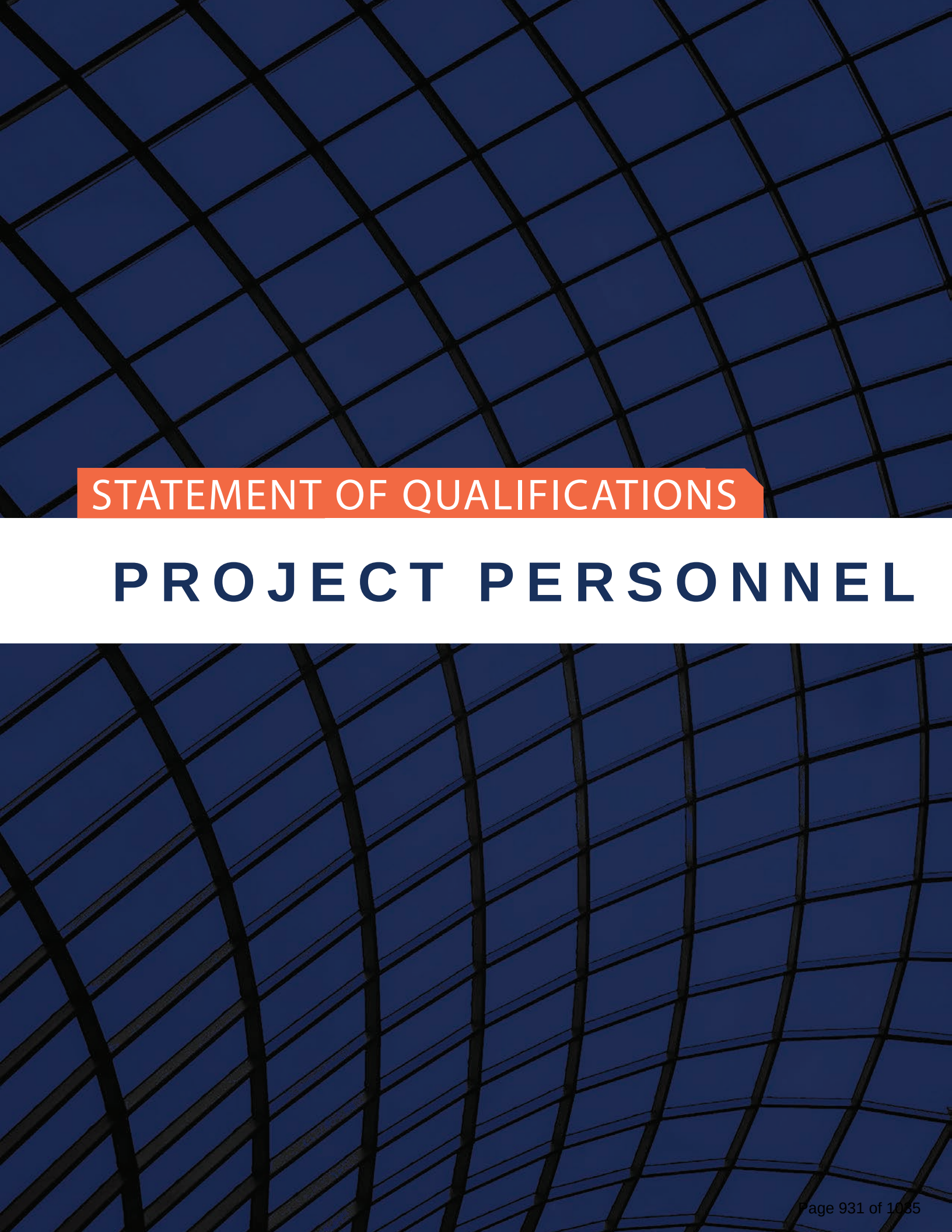
- ▣ STORM SEWER DESIGN
- ▣ STORMWATER RUNOFF DETENTION DESIGN
- ▣ WATER QUALITY TREATMENT DESIGN

DULLES AVENUE DRAINAGE STUDY

CITY OF SUGAR LAND | SUGAR LAND, TX | APRIL 2021

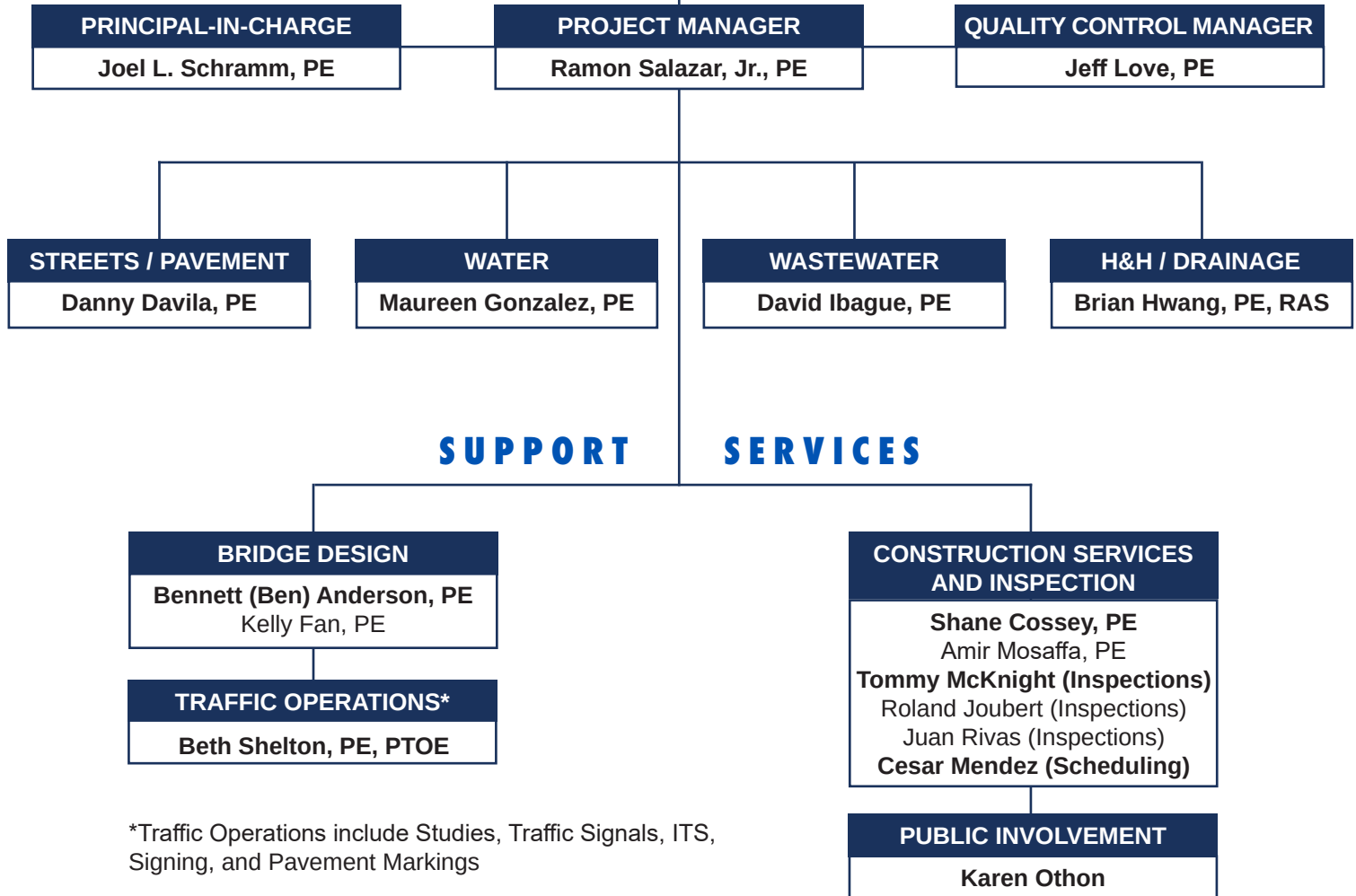


OTHON performed detailed H&H analysis to determine the source of flooding problems and provide recommended solutions for the mitigation of same for Dulles Ave. OTHON prepared detailed H&H modeling and analysis of multiple drainage systems associated with the dense urban development characteristics of the watershed and identified the source of flooding: insufficient capacity of driveway culverts created substantial head losses throughout the drainage reach. The cumulative effect of these head losses caused flooding upstream. OTHON provided recommended cost-effective solutions to reduce the severity of flooding along Dulles.



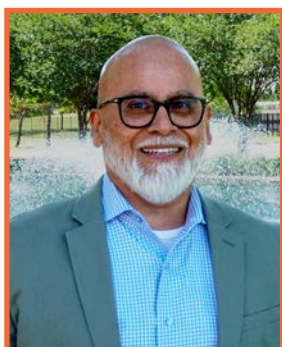
STATEMENT OF QUALIFICATIONS

PROJECT PERSONNEL



RAMON SALAZAR, PE

PROJECT MANAGER



AVAILABILITY: 70%

EDUCATION

B.S., CIVIL ENGINEERING
UNIVERSITY OF TEXAS
AT AUSTIN

REGISTRATION

PE TX No. 69000

EXPERTISE

MUNICIPAL ENGINEERING
MANAGEMENT
WASTEWATER COLLECTION
WATER TREATMENT
LAND DEVELOPMENT
PUMPING & TREATMENT
CONSULTING

RESIDENCE

HOUSTON

Ramon is a licensed professional engineer with over 40 years of experience. His expertise spans program, project, and construction management in land development; water treatment, distribution, and pumping; as well as wastewater collection, pumping, and treatment. He has held leadership roles in municipal engineering, international consulting, and corporate management.

As a former municipal engineer, Ramon managed all capital improvements for pump stations, reservoirs, and lift stations. Other experiences include improving or rehabilitation of existing facility and infrastructure systems or developing new regional infrastructure systems, including delivering feasibility studies and engineering designs for large-diameter water pipeline projects involving multi-disciplinary teams. He has overseen the construction of more than 230 miles of pipelines, 480 MGD of pumping and storage capacity, and \$2B worth of capital improvements

He has managed all design aspects of assigned projects, including technical issues, information requests, financial reporting, client interaction, scheduling, cost estimating, leading design reviews and progress meetings, preparing status reports, coordinating with client and lead the client bidding and contractor qualification process.

Ramon's construction management experience includes observation of construction progress and quality, project safety plan implementation, prepare response to requests for information from Owner or Contractor, prepare supporting documentation for Change Order processing, participate in Owner progress meetings and prepare records of proceedings, review and process Contractor submittals.

PROJECT EXPERIENCE

PROFESSIONAL SERVICES AND TECHNICAL SUPPORT FOR WW CONSENT DECREE PROJECTS (CAPITAL PROJECTS) | PROJECT MANAGER | CITY OF HOUSTON (COH) | HOUSTON, TEXAS

PROJECT MANAGER. Ramon was the Project Manager during the initial task order numbers 1-4 for this contract.

- **Task Order No. 1** - Evaluation of Causes of Change Orders for Various Lift Station Projects and Recommendations Mitigating Change Order Occurrences: The scope of work for this order involved reviewing more than 100 change order requests related to various lift station construction projects, conducting a root cause analysis for each, and providing recommendations to minimize the likelihood of similar change orders in the future. These change orders had a significant negative impact on the City's efforts to comply with its Consent Decree response.
- **Task Orders 2-4** provided staff augmentation support for various Consent Decree-related wastewater lift stations and treatment plant system improvements. Ramon coordinated and facilitated the provision of staff resources, ensuring terms and conditions met the City's expectations and satisfaction.

**FY '16 LIFT STATION RENEWAL & REPLACEMENT
GREEN RIVER DRIVE, BRETSHIRE NO. 2, BAYFIELD,
HIGHLAND MEADOW, HEMPSTEAD NO. 1, AND
FERGUSON WAY | PROJECT MANAGER, QA/QC,
TECHNICAL OVERSIGHT | CITY OF HOUSTON |
HOUSTON, TEXAS**

PROJECT MANAGER. Ramon served as the client manager during the construction phase, providing technical oversight and supporting efforts to resolve, to the client's satisfaction, various conflicts between design documents and field conditions, pumping operations, and hydraulic transient issues that arose during final acceptance of the lift station and force main systems. The overall project scope included condition assessment, preliminary engineering, and design and construction phase services necessary to ensure compliance with the City's Consent Decree response effort.

**DISASTER MITIGATION FOR WASTEWATER
FACILITIES INDUCED BY HURRICANE HARVEY,
PACKAGE 1 — KINGWOOD AREA | CLIENT &
PROJECT MANAGER, PROJECT ENGINEER,
TECHNICAL OVERSIGHT | CITY OF HOUSTON |
HOUSTON, TEXAS**

PROJECT MANAGER. Ramon served as the client and project manager for the development and preparation of updates to the final Cost Estimating Format (CEF) supporting the study that outlined the planning and design approach for reconfiguring the City of Houston's (COH) wastewater collection and treatment system (WCTS) in the Kingwood Area. This reconfiguration, based on diversion and consolidation strategies, assumed implementation of the FEMA-proposed solution. The Kingwood Study Area, included in Package 1, consisted of three (3) wastewater treatment plants and forty-four (44) lift stations, twenty-five (25) of which were flooded during Hurricane Harvey. The study assessed system performance, evaluated storm-related damage, and proposed a long-term solution to mitigate future flooding impacts. The solution was developed within the framework of the FEMA Public Assistance funding program and is documented in the "Project 1 Preliminary Engineering Report FEMA Hazard Mitigation Proposal Supporting Document.

**KEE BRANCH SANITARY SEWER RELOCATION
(MAYFIELD & WOODSIDE) IMPROVEMENTS |
PROJECT MANAGEMENT, TECHNICAL OVERSIGHT
CITY OF ARLINGTON | ARLINGTON, TEXAS**

PROJECT MANAGER. Ramon provided technical oversight during the design development of lift station and force main improvements needed to bypass existing 30-inch sewer segments at risk of failure due

to streambank erosion and rapid channel migration along Kee Branch Creek. An alternatives analysis to protect or relocate the vulnerable sewer segments resulted in recommended improvements, including 4,500 LF of 20-inch force main and a lift station with a firm capacity of 11.7 MGD. Additional improvements to the wastewater collection and water distribution systems were also included in the final design.

**RWRD WATER SYSTEM IMPROVEMENTS PROGRAM
(WSIP) | DESIGN MANAGER | RIVERBEND WATER
RESOURCES DISTRICT (RWRD) | TEXARKANA, TEXAS**

DESIGN MANAGER. Ramon served as the Design Manager responsible for planning and developing a regional water system that included treatment facilities, water intake, pump stations, and transmission lines extending from Wright Patman Lake to RWRD's member entities. The system was designed to ultimately supply up to 115 million gallons of water per day to RWRD members. His primary responsibilities included overseeing and guiding the development of conceptual engineering documents for all water supply components, establishing preliminary design criteria, defining program design details and management procedures, coordinating subconsultants, standardizing program documentation, and providing QA/QC and technical support during engineering, design, and construction of the raw water intake, pump stations, transmission mains, and treatment facilities. The program was funded through a \$200 million Texas Water Development Board State Revolving Fund Loan.

**RICHLAND CHAMBERS PUMP STATION AT ENNIS
OPERATIONS AND MAINTENANCE | PROJECT
MANAGER | TARRANT REGIONAL WATER DISTRICT |
FORT WORTH, TEXAS**

PROJECT MANAGER. The Ennis Booster Pump Station contains five (5) horizontal centrifugal pumps, each rated at approximately 50 MGD and 401 feet of total dynamic head (TDH), driven by 5,000 HP motors. The station operates to convey flows between 141 and 244 MGD within the Richland Chambers Pipeline system. Construction Cost: \$27.0 million. As Project Manager, he was responsible for developing start-up, routine operation, shutdown, and alternative operation procedures, and providing engineering support during the preparation of the Operations and Maintenance (O&M) Manual for the Ennis, Texas booster pumping station.

PUMPING FACILITY CONTROL VALVE AND PUMP CONTROL STRATEGY STUDY FOR THE MCCULLOUGH LATERAL PLANNING | PROJECT MANAGER | SOUTHERN NEVADA WATER AUTHORITY | LAS VEGAS, NEVADA

PROJECT MANAGER. The original project concepts featured a total system capacity of 350 to 400 million gallons per day, roughly 26 miles of large-diameter pipeline (114–72 inch), about six miles of large-diameter tunnel through hard rock, a 100-million-gallon storage/regulating reservoir, up to five flow control stations ranging from 15 to 155 MGD, and a new high-capacity pump station with up to 155 MGD capacity. Estimated cost of all proposed infrastructure improvements: \$700 to \$900 million.

As Project Manager, Ramon was responsible for developing and preparing draft and final reports summarizing findings from national and international water agency surveys, product research, industry expert input, existing and proposed pump control strategies, and for providing recommendations on implementing appropriate technologies and control strategies based on pump station operating conditions. The study evaluated pump control strategies, valve and actuator types, and proposed specifications for control equipment used on pumps with head and flow rate ranges of 100 to 500 feet and 2 to 39 MGD, respectively. It also examined control valves and actuators for use in a 480-MGD water pump station and pipeline system, developing specifications to enhance the reliability of current and future pumping stations.

PROJECT MANAGEMENT CONTRACTOR (PMC) SERVICES | LEADER OF PUMPING/MECHANICAL TEAM; JOINT VENTURE | REFINERIA DEL PACIFICO ELOY ALFARO RDP, EMPRESA PUBLICA DE HIDROCARBUROS DEL ECUADOR EP PETROECUADOR AND PETROLEOS DE VENEZUELA, S.A. | MANABI, ECUADOR

LEADER OF PUMPING/MECHANICAL TEAM. Ramon was assigned to the host country as a member of the PMC Integrated Project Management Team (IPMT), serving as the Leader of the Pumping/Mechanical Team in support of the development of a 300,000-barrel-per-day oil refinery and petrochemical complex. He provided oversight of the EPC contractors' functions, including but not limited to specifying and tendering the project execution package, monitoring and reporting on the execution contractor, and coordinating the activities of multiple contractors. His primary responsibilities included providing QA/QC and technical support during the engineering, design, and construction of the pump station, which was designed to discharge raw water

at initial and ultimate flow rates ranging from 800 to 6,600 cubic meters per hour (5 to 42 MGD), with a total dynamic head (TDH) of 450 meters (1,476 feet). The water was conveyed through 93,000 meters of 48-inch steel pipeline to the RDP refinery's storage and water treatment facilities, as well as to surrounding communities. All facilities were designed in conformance with API and ASME standards.

TAYLOR SLOUGH LIFT STATION IMPROVEMENTS | PROJECT MANAGER, PROJECT ENGINEER | CITY OF AUSTIN WATER AND WASTEWATER UTILITY | AUSTIN, TEXAS

PROJECT MANAGER. Ramon was responsible for preliminary engineering, development and preparation of bid documents, coordination of technical resources, and QA/QC oversight. The project addressed odor complaints from homeowners downstream of the Taylor Slough Lift Station and various operational and maintenance needs at both the Taylor Slough and Taylor Branch lift stations. A review of the collection system and analysis of pumping performance at both stations led to a recommendation to decommission the Taylor Branch lift station by rerouting flow to the existing Cross-Town tunnel. As a result, the required firm pumping capacity at Taylor Slough was reduced to 2,400 GPM, and the force main was also rerouted to the Cross-Town tunnel. This revised operating scheme would ensure more efficient pump cycling and minimize the potential for anaerobic conditions in the wet well and force main. Preliminary engineering also identified necessary mechanical, electrical, and instrumentation control upgrades to meet current City of Austin Lift Station design and operational standards. Planned Taylor Slough improvements included the replacement of check and gate valves, continuous wet well level monitoring, ventilation system upgrades, and the installation of a new control panel.

SAFETY AND STANDARDIZATION IMPROVEMENTS FOR LIFT STATIONS | CITY ENGINEER | CITY OF AUSTIN | AUSTIN, TEXAS

CITY ENGINEER. Ramon supervised the assessment of approximately 100 existing lift stations owned and/or operated by the City of Austin for compliance with city standards and the Texas Administrative Code Chapter 317.3 – Design Criteria for Sewerage Systems. The assessment involved collecting and documenting data to support recommended improvements. Additionally, each lift station was evaluated for location relative to the 100-year floodplain and accessibility during a 25-year flood event; floor and walkway drainage; correct placement of circuit breakers, indicator lights, pump control switches, and other electrical components; presence of non-slip stair steps; availability of

removable ladders at smaller stations; provision of passive or mechanical ventilation for wet and dry wells; use of explosion-proof and spark-proof equipment; condition of hoisting systems and safe pump/motor/valve access; proper drainage from dry wells or valve vaults to wet wells without allowing hazardous gas entry; verification of single or three-phase power supply; identification of alternate power sources; and confirmation of functional alarm systems. Responsibilities included overseeing and guiding the development of conceptual engineering documents for all water supply components, establishing preliminary design criteria, defining program design details and management procedures, coordinating subconsultants, standardizing program documentation, and providing QA/QC and technical support during engineering, design, and construction of the raw water intake, pump stations, transmission mains, and treatment facilities. The program was funded through a \$200 million Texas Water Development Board State Revolving Fund Loan.

BLUFFINGTON NO. 3 LIFT STATION IMPROVEMENTS | PROJECT MANAGER | CITY OF AUSTIN WATER AND WASTEWATER UTILITY | AUSTIN, TEXAS

PROJECT MANAGER. Ramon was responsible for the engineering, design, and construction of all improvements, coordinated technical resources, and provided QA/QC oversight. He led the project to address the lack of safe, reliable access to Bluffington Lift Station No. 3. Preliminary engineering services evaluated alternatives to ensure safe access and implement upgrades in compliance with City of Austin lift station design standards. Additional project services included an environmental impact study, which encompassed 100-year floodplain determination, geological assessment, Karst survey, and preparation of a Biological Technical Report.

DAVIS SPRINGS MUD LIFT STATION | CITY ENGINEER | CITY OF AUSTIN | AUSTIN, TEXAS

CITY ENGINEER. Ramon was responsible for supervising design review and construction oversight of a 7,000-GPM firm-capacity wet pit/dry pit lift station and force main system within the Davis Springs MUD in northwest Austin. The lift station system was designed to convey wastewater through several thousand feet of 21-inch pipeline and discharge it into the City of Austin's wastewater collection system.

RATTAN CREEK LIFT STATION | CITY ENGINEER | CITY OF AUSTIN | AUSTIN, TEXAS

CITY ENGINEER. Ramon was responsible for supervising capacity upgrade improvements to a

4,000-GPM wet pit/dry pit lift station in northwest Austin. The project also involved rerouting the discharge from the Bull Creek to the Williamson Creek basin by constructing 3,000 linear feet (LF) of new 14-inch force main and abandoning the existing 21-inch pipeline.

VILLAGE NORTH PHASE I PROJECT MANAGER | WATER AND PAVEMENT REHAB | PLANO, TEXAS
PROJECT MANAGER. Ramon was the Project Manager responsible for preparing design plans, specifications, and probable cost estimates for constructing approximately 12,000 LF of 8- and 12-inch water mains in the Village North Phase I subdivision. The project included abandoning existing substandard water mains in place. He maintained project schedules and budgets, provided technical oversight, and coordinated all efforts of the subconsultants. Construction Cost: \$3.0 million.

FM 116/SH 9 30-INCH WATER TRANSMISSION MAIN | PROJECT MANAGER | CITY OF COPPERAS COVE | COPPERAS COVE, TEXAS

PROJECT MANAGER. Ramon was responsible for the engineering and design of approximately 10,700 LF of 30-inch water transmission main, to be constructed by open-cut methods within the proposed FM 116/SH 9 Roadway Improvements right-of-way in Copperas Cove, Texas. The project's design schedule was fast-tracked to align with the Texas Department of Transportation's (TxDOT) bid letting date, and design was closely coordinated with TxDOT's roadway design consultant.

COMANCHE 24-INCH WATER MAIN | PROJECT MANAGER | CITY OF SAN MARCOS | SAN MARCOS, TEXAS

PROJECT MANAGER. Ramon was the Project Manager responsible for the construction and preparation of design plans, specifications, and probable cost estimates for approximately 6,400 LF of 24-inch water main between the Spring Lake Pump Station and Comanche water reservoir. The project included various creek crossings and traffic coordination with Texas State University to minimize impacts on daily university operations. He maintained project schedules and budgets, provided technical oversight, and coordinated efforts of the subconsultants. Ramon will lead construction phase services, including participating in client team meetings, monitoring construction progress and quality, reviewing and processing contractor submittals, supporting change orders, responding to requests for information from both contractors and clients, managing project close-out, and preparing record drawings. Construction Cost: \$2.0 million.

**SEGMENT 20, IH35 MCKINNEY FALLS PARKWAY
48-INCH WTM | PROGRAM MANAGEMENT
CONSULTANT/PROJECT MANAGER | CITY OF AUSTIN
| AUSTIN, TEXAS**

PROGRAM MANAGEMENT CONSULTANT/PROJECT MANAGER. Ramon participated in one of nine Program Management Consultant firms developing bid documents for an area-wide water/wastewater infrastructure program in Austin. URS led the Program Management Team for the IH-35 Water/Wastewater System Improvements Program. Ramon was the Project Manager responsible for coordinating with the Program Manager and overseeing all engineering, design, and construction of assigned large-diameter water pipelines. Program improvements included over 86,000 LF of 36- and 48-inch water transmission mains and more than 16,000 LF of tunneled 18- through 60-inch wastewater interceptors. Additionally, one 20-MGD water pump station and one 4-MGD elevated water storage tank were constructed. Total improvement cost was \$102M. All program improvements were scheduled for completion by the end of 2011. As Project Manager, he provided technical oversight and developed preliminary engineering, design plans, specifications, and probable cost estimates for approximately 7,300 LF of 48-inch water main, including valves and appurtenances, along the proposed McKinney Falls Parkway in southeast Austin. He ensured compliance with South IH-35 W/WW Program QA/QC, design submittal requirements, utility stakeholders, and Texas Department of Transportation permitting. The design was expedited to meet the Travis County bid/award schedule due to overlapping project area limits.

SEGMENT 6, IH35 SOUTH OF ONION CREEK 36-INCH WATER MAIN | PROJECT MANAGER | CITY OF AUSTIN | AUSTIN, TEXAS

PROJECT MANAGER. Ramon participated in one of nine Program Management Consultant firms that developed bid documents for an area-wide water/wastewater infrastructure program in Austin. He was responsible for preparing all engineering, design, and construction documents for assigned large-diameter water pipelines. Program improvements included over 86,000 LF of 36- and 48-inch water transmission mains and more than 16,000 LF of tunneled 18- through 60-inch wastewater interceptors. Additionally, one 20-MGD water pump station and one 4-MGD elevated water storage tank were constructed. The total cost of improvements was \$102 million. All program improvements were successfully completed by the end of 2011. Ramon was the Project Manager/Engineer responsible for developing and preparing preliminary engineering and final design plans, specifications, and probable cost estimates for

constructing approximately 3,000 LF of 36-inch water main, including valves and appurtenances, along S. IH-35 south of Onion Creek. He successfully coordinated and adapted to the client's changing project schedule milestones and requirements. Ramon ensured compliance with South IH-35 W/WW Program QA/QC and design submittal requirements, provided permitting support, delivered engineering calculations to support technical design, coordinated construction cost development, prepared final technical specifications, and compiled front-end documents. He was also responsible for ensuring compliance with all utility stakeholders and Texas Department of Transportation permitting requirements.

LBJ/SESSOM DRIVE ROADWAY IMPROVEMENTS | PROJECT MANAGER | CITY OF SAN MARCOS | SAN MARCOS, TEXAS

PROJECT MANAGER. This project reconstructed 3,200 LF of a high-traffic urban corridor. Ramon was the Project Manager responsible for preparing design drawings, specifications, and cost estimates for constructing 3,400 LF of 12-inch water line and other miscellaneous utility improvements related to the LBJ Drive reconstruction. He ensured compliance with all utility stakeholders and Texas Department of Transportation permitting requirements and provided construction management support. Construction Cost: \$4.0 million.

MCCARTY LANE (LOOP 110) ROADWAY IMPROVEMENTS | PROJECT MANAGER | CITY OF SAN MARCOS | SAN MARCOS, TEXAS

PROJECT MANAGER. This project constructed 7,000 LF of a 4-lane divided roadway section, including a storm drain system, culvert, 330-ft multi-span bridge, extensive landscaping, illumination, and traffic signals. Ramon was the Project Manager responsible for preparing design drawings, specifications, and cost estimates for constructing 7,000 LF of 16-inch water line and other miscellaneous utility improvements related to McCarty Lane's reconstruction. He ensured compliance with all utility stakeholders and Texas Department of Transportation permitting requirements. Ramon also provided construction phase services, including participating in client team meetings, monitoring construction progress and quality, reviewing and processing contractor submittals, supporting change orders, responding to contractor and client RFIs, managing project close-out, and preparing record drawings. Construction Cost: \$10.0 million.

JOEL SCHRAMM, PE

PRINCIPAL-IN- CHARGE



AVAILABILITY: 40%

EDUCATION

M.S., CIVIL ENGINEERING
UNIVERSITY OF HOUSTON

B.S., CIVIL ENGINEERING
UNIVERSITY OF TEXAS AT AUSTIN

REGISTRATION

PE TX No. 71210

EXPERTISE

PROJECT MANAGEMENT
ROADWAY DESIGN
DRAINAGE DESIGN
TRAFFIC ENGINEERING
TRAFFIC OPERATIONS & TCP

RESIDENCE

HOUSTON

Joel has over 36 years of extensive S&E & PS&E PM experience managing the project development process to successfully deliver projects that required his expert knowledge of many engineering and survey disciplines including Schematic Design, Alternative Analysis, Roadway Design, Hydrologic Analysis & Hydraulic Design, Bridge & Wall Design, Structural Detailing, Traffic Control & Sequencing of Construction, Design Survey, ROW Mapping, Utility Engineering, SUE, Geotechnical Investigations, Environmental Assessment, Signing and Pavement Markings.

PROJECT EXPERIENCE

MORNINGSIDE PLACE SUBDIVISION (A135-01-00-E001), HCFC, HOUSTON, TX

PRINCIPAL-IN-CHARGE (PIC). Joel identified measures to reduce the recurring street ponding in the Morningside Place subdivision that occurs within the east of Presidents Drive West (Phase 1 of the development of the subdivision) and developed a drainage study to investigate the existing drainage conditions and identify potential improvements to alleviate this street ponding. The drainage study included an evaluation of the existing drainage system and potential alternatives to reduce the frequency, depth, and duration of flooding within the subdivision, along with associated costs.

NEIGHBORHOOD INFRASTRUCTURE IMPROVEMENTS | 2024 | CITY OF HOUSTON

AVALON PL, GLENDOWER CT, STANFORD OAKS & VERMONT COMMONS PIC. Joel's team performed preliminary design, final design and construction administration services for this project. The project area included the Avalon Place, Glendower Court, Stanford Oaks, and Vermont Commons subdivisions in Houston. Development was primarily high-density single family residential with selected areas of multi-family and commercial development. The area had experienced recent significant urban redevelopment with increased density of new residential, business, and commercial construction (including high-rise condominiums).

HUGHES ROAD REHABILITATION | 2021 | CITY OF HOUSTON

PIC. Joel was the principal and oversaw preliminary design, final design and construction administration services for the rehabilitation of 2.5 miles of Hughes Road from Beltway 8 to the City Limits. Specific design services provided include: roadway design, drainage analysis including design for the 2-year event (storm sewer conveyance) and the 100-year event, overland sheet flow analysis for the extreme event, design of approximately 13,000 LF of 16-in. waterline, preparation of a hydrologic/hydraulic impact analysis report for the water line aerial crossing of Channel A120-00-00, structural design of the pipe bridge aerial crossing of Channel A120-00-00, design of the replacement of approximately 13,000 ft. of 12-in. and 21-in. sanitary sewer, surveying, subsurface geotechnical investigation, fault study, Phase I and Phase II environmental site assessments, intersection design, signing and striping design, signalization design, street lighting, temporary traffic signals, traffic control, and tree protection plans.

MADDEN ROAD PAVING & DRAINAGE IMPROVEMENTS | 2022

CITY OF RICHMOND

PIC. Joel's team provided preliminary design, final design, and construction administration services for:

1. 2-lane asphalt mill, overlay, and widening of existing roadway with improved drainage along Madden Rd from 2,400 ft. north of West Bellfort Ave.
2. 2-lane asphalt mill and overlay of existing roadway along Madden Rd from 2,800 ft. west of FM 1464, and
3. 2-lane concrete roadway with storm sewer from east of FM 1465 to Clodine Rd.

KATY HOCKLEY CUT OFF ROAD SEGMENT 2 | 2024 S. OF STOCKDICK SCHOOL ROAD TO S. OF BECKENDORFF ROAD

(PS&E) HARRIS COUNTY, TX, HARRIS COUNTY P4.

PIC Joel developed roadway geometry to address potential conflicts with drainage and gas utility elements at various locations along the corridor. Design of roadway transitions was adjusted to accommodate first responder access to and from an existing fire station. Sidewalks were included along both roadways to accommodate the need for safe pedestrian facilities in a congested corridor. Drainage design included early coordination with the County to maintain existing drainage patterns since Stockdick School Road is aligned along an important drainage divide, and the majority of the project lies within the FEMA floodplain of South Mayde Creek. The design included compliance with previous design projects to ensure adjacent drainage systems are not impacted. Detention design was developed to mitigate an increase in flow from the project corridor and ensure that the drainage computations comply with Atlas 14 requirements. Expansion of the existing detention facility from a previous project was included to further mitigate the increase in impervious area.

SUGAR LAND-HOWELL DRAINAGE AND PAVING IMPROVEMENTS

FORT BEND COUNTY, SUGAR LAND, TX

Project Manager. Joel led preliminary engineering, final design, bid phase, and construction phase services to upgrade 3,500 lf of existing 2-lane asphalt roadway with ditch drainage to a 3-lane 8" reinforced concrete pavement with curb and gutter, widening of Keegans' Bayou Bridge, retaining walls, sidewalks, and a bike trail.

DULLES AVENUE DRAINAGE STUDY | CITY OF SUGAR LAND, TX

PIC. Joel oversaw a detailed hydraulic and hydrologic analysis to determine the source of flooding problems and provide recommended solutions for the mitigation of same for Dulles Avenue in the City of Sugar Land Texas. OTHON prepared detailed H&H modeling and analysis of multiple drainage systems associated with the dense urban development characteristics of the watershed. Joel provided recommended solutions to reduce the severity of flooding along Dulles Avenue

SUGAR LAND INTERSECTION EVALUATION & DESIGN | CITY OF SUGAR LAND, TX

Project Manager. Joel provided engineering services to analyze vehicular crash data for 14 intersections. David developed engineering recommendations for locations where crashes could be corrected through design or operational means. Intersections evaluated in this project included: W. Airport Blvd and Gillingham Ln., W. Airport Blvd and Industrial Blvd, SH 6 and Frost Pass, Burney Rd, and Voss Rd., Dairy Ashford Rd. and Alston Rd., Dairy Ashford Rd. and West Airport Blvd., Dairy Ashford Rd. and Corporate Dr., US 59 SBFR and S. Dairy Ashford Rd., US 59 NBFR and Sugar Creek Blvd., University Blvd and Telfair Ave., Brooks St. and Guenther St., 86 Austin Pkwy. and Lexington Blvd., Austin Pkwy. and Sweetwater Blvd./Williams Trace Blvd., and Austin Pkwy. and Cross Lakes Blvd.

BELLAIRE BLVD PAVING & DRAINAGE IMPROVEMENTS

FM 1464 TO SAN PABLO

FORT BEND MOBILITY BOND PROGRAM | FORT BEND COUNTY, TX

Project Manager. Joel provided preliminary engineering, final design, bid phase, and construction phase services for 2,500 LF of four-lane divided concrete curb and gutter roadway including installation of 3,200 LF of 24 thru 60-in. storm sewer.

LEDGE STREET AREA DRAINAGE & PAVING IMPROVEMENTS | 2024

CITY OF HOUSTON

PIC. Joel was the Principal on this project and oversaw detailed design and construction documents for drainage system improvements including detention pond and inline detention, channels, culverts, storm sewer, and pavement improvements. Specific services included Drainage analysis, XP-SWMM model, HouStorm analysis, storm sewer design, street vertical alignment design, sanitary sewer design, waterline design.

LONGSTREET RD FROM FM 1097 TO IH 45, MONTGOMERY COUNTY, TX

Project Manager for the widening and reconstruction of Longstreet Rd. Designed the Traffic Control Plans, Signing & Striping, Culvert Improvements, culvert crossing safety improvements, and SW3P. Performed quality control along with client coordination.

WILLIS-WAUKEGAN RD: FROM FM 1484 TO NICHOLSON RD, MONTGOMERY COUNTY, TEXAS

Project Manager for the widening and reconstruction of Willis-Waukegan Rd. Designed the Traffic Control Plans, Signing & Striping, Culvert Improvements, culvert crossing safety improvements, and SW3P. Performed quality control along with client coordination.

SPRING STUEBNER ROAD FALVEL RD TO IH 45(N), SPRING, TEXAS | HARRIS COUNTY PRECINCT 4

Project Manager for the Planning, Environmental Assessment, H&H Study and PS&E for the reconstruction of this 2.5 mile, 2-lane rural road to a 4-lane divided boulevard section with raised curbed median. He managed the ROW acquisition, geometric design, drainage design, signing/pavement marking layouts, TCP, and erosion control. Joel used Low Impact Development (LID) techniques to reduce the drainage and ROW costs by 40%. He coordinated with TxDOT to add a unique mid-block signal at the IH 45 frontage road to improve safety.

UNIVERSITY BOULEVARD PS&E: STADIUM DRIVE TO US 90A, SUGAR LAND, TX, CITY OF SUGAR LAND

Project Manager for the Planning, Environmental Assessment, H&H Study and PS&E for new alignment 4-lane divided curb & gutter boulevard section with raised median and storm sewer. He managed the ROW acquisition, geometric design, and bridge design. Joel coordinated with UPRR for the new at-grade crossing, UPRR spur realignment and Exhibit A for the overpass of the UPRR spur at Oyster Creek. He managed the UPRR signal diagnostics and led the public meetings for the closing of 2 other streets to allow for the new at-grade crossing. He coordinated with TxDOT to reconstruct and raise US 90A to provide a safer UPRR crossing. He implemented the aesthetic theme of the ballpark stadium onto the new spur crossing bridge.

ANDERSON MILL RD: US 183 TO FM 734, AUSTIN, TEXAS (2005) TXDOT AUSTIN DISTRICT (PS&E)

Project Manager for the Schematic, Environmental Assessment, H&H Study and PS&E for the reconstruction of this 2.3 mile, 2-lane rural road to a 4-lane divided curb and gutter boulevard section with raised median and storm sewer. He managed

geometric design, drainage design, signing/pavement marking layouts, TCP, and erosion control. Joel coordinated with AT&T for the relocation of a major fiber duct bank line. He designed the 2-stage storm sewer treatment to TCEQ requirements for the Edwards Aquifer recharge zone. Joel designed an innovative splitter junction box which included a weir which diverted the initial rainfall to the treatment ponds. He coordinated with the school district on school zone signal and pedestrian railing near Deer Park Middle School. He designed the new culvert crossing at Lake Creek Branch to eliminate impacts to the floodplain and WSE. This federal off-system project was funded and managed by TxDOT to TxDOT standards and criteria and would be maintained by Williamson County, once completed, and lies within the ETJ of City of Austin. Joel met monthly with City of Austin and Williamson County to discuss progress and met with them to discuss each milestone submittal review. He received environmental clearance, schematic approval, and the project was constructed within budget and schedule.

STEWART RD.: COVE VIEW BLVD TO 7 ½ MILE RD., GALVESTON, TEXAS (PS&E)

Project Manager for the Planning, Environmental Assessment, H&H Study and PS&E for the reconstruction of this 2.5 mile, 2-lane rural road to a 3-lane divided section with center continuous left turn lane. He managed geometric design, drainage design, signing/pavement marking layouts, TCP, and erosion control. Joel used Low Impact Development (LID) techniques to reduce the drainage cost by 30% and eliminate new ROW. He designed low profile retaining walls to avoid impacting jurisdictional wetland areas. He managed the SUE to locate and avoid a parallel asbestos city water line.

CYPRESS NORTH HOUSTON ROAD AT GREENHOUSE ROAD, 4-LANE BOULEVARD | HARRIS COUNTY | HOUSTON, TX

PIC. Joel oversaw the Planning, Environmental Assessment, H&H Study and PS&E for the reconstruction of this 2.5 mile, 2-lane rural road to a 3-lane divided section with center continuous left turn lane. He managed the geometric design, drainage design, signing/pavement marking layouts, TCP, and erosion control. Joel used Low Impact Development (LID) techniques to reduce the drainage cost by 30% and eliminate new ROW. He designed low profile retaining walls to avoid impacting jurisdictional wetland areas. He managed the SUE to locate and avoid a parallel asbestos city water line.

DAVID IBAGUE, PE

WASTEWATER TASK LEAD



AVAILABILITY: 60%

EDUCATION

B.S., CIVIL ENGINEERING
UNIVERSITY OF HOUSTON

REGISTRATION

PE TX No. 142044

EXPERTISE

PROJECT MANAGEMENT
SANITARY SEWER DESIGN
ROADWAY DESIGN
STORM SEWER DESIGN
TRAFFIC CONTROL PLANS

RESIDENCE

HOUSTON

David currently is providing Project Management for various projects. He has 12 years of applicable civil engineering experience in fields related to roadway and highway design, wastewater design and plan preparation, storm sewer design, pump station operation design and maintenance control, Primavera scheduling design and contractor review for complex municipal designs. He has extensive training in MicroStation, GEOPAK Road, Open Roads Designer ORD, Microsoft Project, and AutoCAD and entry level training in Primavera P6.

David works closely with City staff to assess projected growth within the project area. He develops design solutions that not only address current conditions but also accommodate future growth. His designs carefully consider the impact on traffic flow, nearby neighborhoods, businesses, mail routes, school bus routes, EMS services, churches, and public facilities. David thoroughly evaluates each design alternative for cost-effectiveness and constructability, with detailed cost estimates prepared for every option. Additionally, he performs comprehensive life cycle cost analysis to ensure the most efficient and sustainable solution.

PROJECT EXPERIENCE

BERING AND SAN FELIPE DEEP MICROTUNNELING | PROJECT MANAGER | CITY OF HOUSTON | HOUSTON, TEXAS

PROJECT MANAGER. As Project Manager, David oversaw preliminary design, final design, and construction administration services for the abandonment of San Felipe No. 2 and Bering Lift Stations and construction of 200 LF of 36-in. sanitary sewer; 2,100 LF of 30-in. sanitary sewer; and 4,400 LF of 48-in. sanitary sewer, in addition to the construction of local collector sewers ranging in size from 8-in. to 15-in. Preliminary engineering services included evaluation of four (4) alternative routes for construction of the proposed sanitary sewer trunk lines. Alternatives were compared and ranked based on the City's project objectives. Ranking parameters included construction cost, ease of maintenance, disruption to businesses and residents, traffic impacts, utility conflicts, and capability to satisfy minimum sewer depth requirements developed by the City. The 30-in., 36-in., and 48-in. sanitary sewers were constructed using trenchless construction (i.e., microtunnel bore).

HOLMES ROAD SANITARY SEWER | PROJECT MANAGER | CITY OF HOUSTON | HOUSTON, TEXAS

PROJECT MANAGER. As Project Manager, David led preparation of construction documents for 9,000 LF of 42-in. and 48-in. fiberglass reinforced gravity sanitary sewer line along Holmes Road. David assessed existing conditions and evaluated alternative designs for the proposed sanitary sewer. The proposed 48-in. sewer discharges to an existing 84-in. trunk sewer located at a major intersection and a new junction box was designed for the connection. The design includes a future connection at the proposed intersection of Buffalo Speedway and Holmes Road. The design provides trenchless construction using microtunnel technology. David assisted with exhibits to secure project funding including agreements with community developers. He also performed permitting services and construction administration services.

MAGNOLIA POINT UNSERVED SANITARY SEWER | PROJECT MANAGER | CITY OF HOUSTON | HOUSTON PROJECT MANAGER.

As Project Manager, David oversaw preliminary design, final design, and construction services for this APWA Award-nominated project located in the vicinity of Lake Houston. The scope of work included construction of sanitary sewer service leads in the project area ranging in sizes from 8-in., 10-in., 12-in., and 15-in. for a total length of 21,000 LF, and 34,000 LF of 6-in. leads to the ROW. The project enables the elimination of the private septic systems to protect the water quality of Lake Houston, protect the City's water supply, and reduce the demand for septic tank pump-out service operated by the City. Additionally, the construction of sanitary sewer collection facilities promotes development of the undeveloped properties. 560 lots were provided with sanitary sewer service leads for connection as a result of this project.

GREATER HOUSTON WASTEWATER PROGRAM: SIMS AREA LIFT STATION AND FORCE MAIN | PROJECT MANAGER | CITY OF HOUSTON | HOUSTON PROJECT MANAGER.

As Project Manager, David led the design of improvements to the Sims Bayou Basin sanitary sewer system. The improvements consisted of the \$4M construction of a new 20 MGD wet weather pump station; 11,000 LF of 30-in. force main; and 2,000 LF of 48-in. gravity sanitary sewer. This project involved coordination of permitting with TxDOT, the EPA, and the US Army Corp of Engineers (USACE) as well as State Revolving Fund (SRF) coordination; utility coordination; and relocation of a sanitary sewer. David analyzed the alternatives and provided preliminary and final design for the lift station and force main. The force main utilized a combination of open-cut and deep microtunneling and featured four pipe-bridge crossing channels.

SEWER LINE REPLACEMENT: SIMS BAYOU UTILITY CONFLICT RELOCATION | PROJECT MANAGER | CITY OF HOUSTON | HOUSTON, TEXAS

PROJECT MANAGER. As Project Manager, David led the development of construction documents for the relocation of the existing sanitary sewer lines running parallel to Sims Bayou leading into the Almeda Sims Wastewater Treatment Plant (ASWWTP) that were in conflict with the proposed channel improvements being undertaken by the USACE to increase the capacity of Sims Bayou and address drainage issues in the area. David performed preliminary and final design services as well as construction administration services for the project. David's preliminary design consisted of evaluating various alignment options for the relocated facilities, examining the existing and future flowrates in order to size the proposed improvements, evaluating right-of-way and easement

needs, and preparing a Preliminary Engineering Report presenting all findings and recommendations for the final design. David's final design services consisted of conducting a field topographic survey, right-of-way boundary survey, geotechnical investigation, and Phase I Environmental Site Assessment, as well as preparing construction documents for 5,500 LF of new wastewater collection lines ranging in size from 36-in. to 90-in. in diameter.

NEIGHBORHOOD SANITARY SEWER INFRASTRUCTURE IMPROVEMENTS (NSSI) | PROJECT MANAGER | CITY OF HOUSTON | HOUSTON PROJECT MANAGER.

As Project Manager, David was responsible for managing preliminary design, final design, and construction administration services for comprehensive infrastructure replacement within the 250-acre project area. The project included reconstruction of neighborhood streets, abandonment and replacement of sanitary sewer from back lot easement to public right of way, reconstruction of storm sewer systems, sidewalk reconstruction, and replacement of 5,500 LF of deficient water mains.

HUGHES ROAD SANITARY SEWER | PROJECT MANAGER | CITY OF HOUSTON | HOUSTON, TEXAS PROJECT MANAGER.

As PM, David provided preliminary design, final design, and construction administration services for the rehabilitation of 2.5 miles of Hughes Road from Beltway 8 to the City Limits. Hughes Road is an existing four-lane boulevard section roadway located in southeast Houston. The project provided for pavement reconstruction and upgrading of utilities within the right of way; replacement of 13,000 ft. of 16-in. waterline; and the replacement of 13,000 ft. of 12-in. and 21-in. sanitary sewer.

- ROADWAY DESIGN - HORIZONTAL AND VERTICAL ALIGNMENTS TO MINIMIZE CONSTRUCTION CONFLICTS
- TCP DESIGN, SPM, SIGNALIZATION DESIGN, STREET LIGHTING, AND TEMPORARY TRAFFIC SIGNALS
- PREPARATION OF CONSTRUCTION COST ESTIMATES AT EACH MILESTONE
- STRUCTURAL DESIGN OF A PIPE BRIDGE WATERLINE CROSSING CHANNEL A120-00
- PHASE I AND PHASE II ENVIRONMENTAL SITE ASSESSMENTS
- HYDROLOGIC/HYDRAULIC IMPACT ANALYSIS REPORT FOR THE AERIAL CROSSING OF CHANNEL A120-00-00
- SURVEY OF EXISTING TREES, EVALUATION OF IMPACTS OF PROPOSED CONSTRUCTION, AND PREPARATION OF TREE PROTECTION PLAN
- COORDINATION OF THE DESIGN, PERMITTING, AND CONSTRUCTION OF THE PROJECT WITH THE VARIOUS LOCAL GOVERNMENTS ALL HAVING JURISDICTION

MAUREEN GONZALEZ, PE

WATER TASK LEAD



AVAILABILITY: 60%

EDUCATION

B.S., CIVIL ENGINEERING
UNIVERSITY OF TEXAS
SAN ANTONIO

REGISTRATION

PE TX No. 143557

EXPERTISE

WATERLINE DESIGN
PROJECT MANAGEMENT
PER & COST ESTIMATION
DETAILS/STANDARDS
WATER & WASTEWATER
CONSTRUCTION MGMT
UTILITIES

RESIDENCE

HOUSTON

Maureen will lead waterline design, and supervise PER activities and submittals. She has 11 years of experience in the analysis and design of waterlines, storm sewers, and sanitary sewers; cost estimating; and scheduling for residential and commercial zones. She has extensive training in water resources engineering, structural analysis, project design, and construction management. Maureen has completed projects for City of Houston, Harris County, HCFCD, CWA, SWA, and other municipalities and public works agencies.

Maureen has expertise in Preliminary Engineering Reports (PER) and cost estimating, and advanced understanding of design procedures and technical management of municipal projects.

PROJECT EXPERIENCE

LEDGE STREET WATERLINE REPLACEMENTS | PROJECT MANAGER | CITY OF HOUSTON | HOUSTON, TEXAS

PROJECT MANAGER. Maureen was the Project Manager for this project and provided preliminary design, final design, and construction administration services for the waterline replacements and drainage improvements on Ledge Street. Design services included design of 5,335 LF of new 12-in. diameter waterline to replace existing 8-in. asbestos cement waterline; pavement design and reconstruction of 7,100 LF of neighborhood streets; design of 10,500 LF of new and replacement sidewalk; abandonment and replacement of 3,200 LF of 10-in. sanitary sewer; and analysis and design for reconstruction of existing drainage and storm sewer systems.

WATERLINE REPLACEMENT ON RICHMOND AVENUE | PROJECT ENGINEER | CITY OF HOUSTON | HOUSTON, TEXAS

PROJECT ENGINEER. Maureen performed water resources engineering for 10,500 LF of 8-in. waterline and 730 LF of 16-in. waterline using trenchless construction for 10 local streets and one major thoroughfare (Richmond Avenue). The project location is in the Parkhollow Place Subdivision in West Houston. The project involved upgrades to the water distribution system to improve firefighting capabilities for the residents and accommodate future demand. Additional fire hydrants were installed to improve safety and comply with current City of Houston Design Standards. The connection to the existing 16-in. waterline on Richmond Avenue was designed to minimize traffic impacts to allow at least one lane of traffic to remain open during construction.

AUSTIN PARKWAY WATER PLANT | PROJECT ENGINEER | CITY OF SUGAR LAND | SUGAR LAND, TEXAS

PROJECT ENGINEER. Maureen was the Project Engineer on the preliminary engineering, final design, bid phase, and construction phase services for the rehabilitation of an existing water plant booster pump station for the City of Sugar Land. The project included replacing existing pumps, valves, piping, and appurtenances to upgrade the water pumping facility to meet production and pressure requirements identified in the City's Water Master Plan. Construction phasing for the proposed improvements was evaluated and a plan for staged construction was prepared to comply with the City's need for continuous operation of the pumping facility during the rehabilitation.

LUCE BAYOU INTERBASIN TRANSFER | PROJECT ENGINEER | COASTAL WATER AUTHORITY (CWA) | HOUSTON, TEXAS

PROJECT ENGINEER. As the Project Engineer, Maureen was responsible for canal design, and drainage design for canal segment 2, which extends five miles along the proposed Luce Bayou Canal. The purpose of the project was the transfer of surface water from Trinity River to Lake Houston. Maureen designed drainage patterns for the properties adjacent to the canal. The studied drainage area intercepted by the canal was 1,200 acres. Maureen performed hydrology and routing calculations using TR-55; ditch design and ponding analysis using HEC-RAS steady and unsteady state models; 2D surface ponding analysis using FLO-2D; designed two 36-in. drainage inverted siphons to allow cross drainage to pass under the proposed canal; designed drainage culverts using HEC-RAS and HY-8 software to minimize drainage backwater effects for the 100-yr event; and performed analysis to eliminate one of three canal inverted siphons that saved the client \$800,000 in construction cost.

NSSI (AS069) NEIGHBORHOOD INFRASTRUCTURE IMPROVEMENTS: WATER MAIN REPLACEMENT | PROJECT MANAGER | CITY OF HOUSTON | HOUSTON

PROJECT MANAGER. As the Project Manager, Maureen led the preliminary design, final design, and construction administration services for water main replacement within the 250-acre project area. The project included replacement of 5,500 LF of deficient water mains.

SOUTHEAST WATER TRANSMISSION LINE STAFFING SUPPORT | PROJECT MANAGER | CITY OF HOUSTON | HOUSTON, TEXAS

PROJECT MANAGER. OTHON is providing support for technical services overseeing five design teams for the Southeast Transmission Water Line projects. This project consists of 11.4 miles of large diameter water transmission lines from the 96-inch SEWPP discharge line to the League City-GCWA facility off Highway 3 and the Bay Area Transmission Line replacement. Maureen is currently assisting with project management and coordination with City of Houston. She is providing engineering and waterline staff augmentation design services.

GROUNDWATER FACILITY/RE-PUMP STATION/HVAC AND VENTILATION SYSTEM IMPROVEMENTS AT VARIOUS LOCATIONS | PROJECT MANAGER | CITY OF HOUSTON | HOUSTON, TEXAS

PROJECT MANAGER. This project involved preparing construction documents for various groundwater facilities, including stormwater quality management plan reports and stormwater applications for submission to the Houston Permitting Center. As Project Manager, Maureen was responsible for overseeing the on-site stormwater detention design, site drainage analysis, and site drainage plan for multiple facility locations.

WASTEWATER SUBSTITUTE SERVICES PROJECT WORK ORDER | PROJECT MANAGER | CITY OF HOUSTON | HOUSTON, TEXAS

PROJECT MANAGER. Maureen oversaw professional engineering services for the Neighborhood Back Lot Wastewater Substitute Service Program with emphasis on the transfer of sanitary service lines from back lot sewer mains to the front sewer mains within the street right-of-way sewer. The work was requested by the City of Houston in writing and initiated through individual "Negotiated Work Orders".

DARLING MAINTENANCE ROAD | PROJECT ENGINEER | SAN ANTONIO WATER SYSTEM (SAWS) | SAN ANTONIO, TEXAS

PROJECT ENGINEER. San Antonio Water System (SAWS) emergency maintenance roadway project on private property to grant SAWS access to another sanitary sewer project. Maureen designed the proposed maintenance roadway with plan and profile. Coordinated with the utility companies. Prepared the tree protection permits construction progress reports.

RECONSTRUCTION OF FM 2552 (NACOGDOCHES ROAD) FROM EVANS ROAD TO FM 3009 | PROJECT ENGINEER | SAN ANTONIO, TEXAS

UTILITIES TL. Reconstruction of FM 2252 (Nacogdoches Rd), including replacement of existing drainage culverts and utility coordination. Maureen prepared the utility conflict matrix. Reviewed the existing roadway with proposed roadway to see if any existing waterlines, sanitary sewer mains, and fiber optic lines conflicted with proposed roadway and design culverts. Coordinated with SoftDig (an underground utility locating and subsurface utility firm) to provide Level A pothole for existing utilities that conflict with proposed design to get an exact location and depth of utility.

DANNY DAVILA, PE

STREETS/ PAVEMENT TASK LEAD



AVAILABILITY: 50%

EDUCATION

B.S., CIVIL ENGINEERING
UNIVERSITY OF HOUSTON

REGISTRATION

PE TX No. 119224

EXPERTISE

PROJECT MANAGEMENT
ROADWAY DESIGN
DRAINAGE DESIGN
CPM SCHEDULING
MOT/TCP DESIGN

RESIDENCE

HOUSTON

Daniel (Danny) Davila has over 17 years of civil engineering experience. His areas of expertise include project management, roadway design, traffic control plans, preparation of project milestones, design/build procurement and plan preparation, storm sewer design, pump station operation design and maintenance control, scheduling design and contractor review for complex highways and interchanges. He is proficient in MicroStation, Geopak, Primavera Version P3, and Primavera Version P6.

PROJECT EXPERIENCE

PAVING AND DRAINAGE IMPROVEMENTS FOR MADDEN ROAD | FORT BEND COUNTY | HOUSTON, TEXAS

PROJECT MANAGER. Danny was the Project Manager for the preliminary design, final design, and construction administration services for:

1. 2-lane asphalt mill, overlay, and widening of existing roadway with improved drainage along Madden Road from 2,400 ft. north of West Bellfort Ave.
2. 2-lane asphalt mill and overlay of existing roadway along Madden Road from 2,800 ft. west of FM 1464.
3. 2-lane concrete roadway with storm sewer from east of FM 1464 to Clodine Road.

WILLIAMS WAY BOULEVARD | PROJECT MANAGER | FORT BEND COUNTY | SUGAR LAND, TEXAS

PROJECT MANAGER. Danny served as designed and produced plan sheets, specifications, and an estimate for the 2-mile construction widening of a non-freeway facility in Fort Bend County, Texas. This project entailed preparing construction plans which consisted of designing roadway plan and profile, traffic control plan sequencing, storm sewer plans, signing and pavement marking plans, and demolition plans in accordance with applicable codes and standards. Danny's duties included:

- ☐ Designed the traffic control sequencing plan which involved safely maintaining live traffic throughout the duration of construction in accordance with all traffic control requirements;
- ☐ Determined that in order to maintain traffic throughout construction it was necessary to provide temporary storm sewer during the construction phasing. As a result, Danny designed a temporary storm sewer system to prevent flooding and maintain positive drainage;
- ☐ Identified existing utility conflicts with proposed roadway elements and then engineered a solution to solve the conflict;
- ☐ Designed the signing and pavement markings layouts for the project limits. The signing and pavement markings were produced in accordance with Fort Bend County requirements and specifications;
- ☐ Once the design of the proposed roadway facility was completed, he calculated the quantities to produce an Engineer's estimate, prepared the construction plan set, and assembled project specifications for project letting.

CYPRESS NORTH HOUSTON RD | PROJECT MANAGER | HARRIS COUNTY | HARRIS COUNTY, TEXAS

Project Manager. OTHON provided preliminary design, final design, and construction administration services for the widening of the existing Cypress North Houston Road, from east of Cypress Creek Bend Lane to east of Greenhouse Road and the widening of Greenhouse Road, approximately 700' to the north and south of the intersection of Cypress North Houston and Greenhouse Roads. Improvements included:

- ❑ Widening consisted of completion of the four-lane concrete boulevard with curb and gutter, storm sewers and with asphalt pavement transitions north, south, and east of Cypress North Houston Rd/Green House Rd intersection.
- ❑ Installation of a traffic signal system at the intersection of Cypress North Houston and Greenhouse Road.
- ❑ Storm sewer laterals designed for connection to existing system. The existing system was analyzed to ensure proper sizing of laterals, placement of inlets and impact to existing system. All while adhering to Harris County and City of Houston design criteria.

SH 99 SEGMENT H & I, DESIGN-BUILD | PROJECT DESIGN MANAGER | TXDOT HOUSTON | HOUSTON, TEXAS

PROJECT DESIGN MANAGER. Danny managed and led multi-disciplinary design teams, administering design requirements, and coordination with DB Contractor and TxDOT. Under an accelerated schedule, Danny led the development of multiple separate construction packages including: 52 separate bridge design packages, 4 traffic operations design packages, 4 SW3P Design Packages, 4 MOT/TCP Design Packages and 4 roadway design packages.

SH 99 THE GRAND PARKWAY, SEGMENT E | DESIGN ENGINEER | TXDOT HOUSTON | FORT BEND COUNTY

DESIGN ENGINEER. Danny designed, produced plan sheets, and provided quantities for estimation purposes for the 9-mile construction of a new location freeway facility in Harris County, Texas. This project consisted of preparing construction plans which entailed designing roadway plan and profile, traffic control plan sequencing, storm sewer plans, and signing and pavement marking plans in accordance with TxDOT standards and requirements.

FM179 FROM SH114 TO DONALD PRESTON DR | PROJECT MANAGER | TXDOT | LUBBOCK COUNTY, TEXAS

PROJECT MANAGER. Danny served as design engineer and project manager. Designed and coordinated efforts to produce plan sheets, provide quantities for estimation purposes, and prepare the contract time determination for the 4-mile construction widening of a non-freeway facility in Lubbock County, Texas. This project consisted of preparing construction plans which required designing roadway plan and profile, traffic control plan sequencing, storm sewer plans, traffic operations, and signing and pavement marking plans in accordance with TxDOT standards and requirements. Danny's duties included:

- ❑ Designed the traffic control sequencing plan which involved safely maintaining live traffic throughout the duration of construction in accordance with all traffic control requirements;
- ❑ Addressed comments received from TxDOT at 30%, 60%, 90%, and 100% submittal stages which I then implemented into the design;
- ❑ Supervised and provided guidance to CADD techs in order to produce a set of construction plans;
- ❑ Developed a critical path method (CPM) schedule to determine contract time determination using Primavera scheduling software;
- ❑ Created the schedule by quantifying construction phasing activities, assigning a production rate, finding the duration of construction phasing activities, and then assigning predecessor and successor relationships;
- ❑ Once the design was completed, Danny calculated the quantities and prepared the construction plan set for project letting.

SH 46: AMMAN RD TO FARHILLS DR (S&E) | SENIOR PROJECT ENGINEER | TXDOT SAN ANTONIO | KENDALL & COMAL COUNTIES, TEXAS

SENIOR PROJECT ENGINEER. Developing SH 46 from Amman Rd to Farhills Dr in Kendall & Comal Counties design schematic, environmental documents/studies in support of the schematic work, public involvement, value engineering support, permit procurement, data collection analysis, mitigation and remediation, monitoring, drainage, conceptual traffic control, traffic projections, traffic engineering and operations including traffic simulations and 3-D modeling, surveying and mapping, subsurface utility engineering (SUE), and utility coordination.

BRIAN HWANG, PE, RAS

H&H AND DRAINAGE TASK LEAD



AVAILABILITY: 60%

EDUCATION

M.S., CIVIL ENGINEERING
UNIVERSITY OF ILLINOIS,
URBANA-CHAMPAIGN

B.S., CIVIL ENGINEERING
UNIVERSITY OF ILLINOIS,
URBANA-CHAMPAIGN

REGISTRATION

PE TX No. 131159
RAS No. 1638

EXPERTISE

PROJECT MANAGEMENT
DRAINAGE DESIGN
ROADWAY DESIGN
ADA COMPLIANCE

RESIDENCE

DALLAS

Brian Hwang, PE, RAS has over 14 years of combined experience in design and task management in transportation and traffic engineering as well as an additional four years in construction management and inspection. He is an experienced engineer in the development of schematics and construction plans for roadway reconstructions and expansions, and intersection improvements including traffic signal design, illumination design, signing and pavement marking, ADA compliant pedestrian facilities, ITS design, and traffic control plans. Brian is experienced in OpenRoads Designer, MicroStation V8i, GEOPAK, AutoCAD, Primavera, AGI32, Synchro, HCS, WinStorm, HEC-RAS, and VISSIM. Brian has experience with TxDOT, NTTA, clients from various municipal and state government agencies, developers in the private sector, and consulting engineering and architectural firms.

PROJECT EXPERIENCE

NEIGHBORHOOD STORM SEWER SYSTEM IMPROVEMENTS (AS069) | CITY OF HOUSTON | HOUSTON, TEXAS

PROJECT ENGINEER. Brian was the Project Engineer and led design for drainage system improvements. He provided preliminary design, final design, and construction administration services. The project provided (a) pavement design and reconstruction of 30,000 LF of neighborhood streets (b) abandonment and relocation of 30,500 LF of 6-in. to 24-in. sanitary sewer from back lot easements to public right of way (c) analysis and design for reconstruction of existing drainage and storm sewer systems (d) reconstruction of sidewalks, and (e) replacement of selected water mains that were identified by the Water Operations Department as deficient. All infrastructure improvements complied with the City's Infrastructure Design Manual (IDM). Storm sewer systems were analyzed for the 2-year design event and the 100-year extreme event and compliance with overland flow design standards. The project area is 250 acres. The area had recently experienced significant urban redevelopment with increased density of new residential, business, and commercial construction (including high rise condominiums). Brian evaluated several alternatives for construction of a new 36-in. sanitary sewer trunkline to serve the area. The new 36-in. diameter gravity sewer allows for future abandonment of the existing Camp Logan trunk sewer. The project also included improvements to street lighting and related utility improvements. Extensive utility coordination was performed in addition to coordination with the City, area churches, civic associations, and neighborhood Homeowners Associations.

LEDGE STREET DRAINAGE, PHASE II | PROJECT MANAGER | CITY OF HOUSTON | HOUSTON, TEXAS

PROJECT MANAGER. Brian designed 2,400 LF of new 4'x2', 5'x2', and 2-5'x2' box storm sewers and curb inlets to replace the existing storm sewer on Ledge Street and remediate chronic flooding in the area. The existing storm sewer extends from Clearwood Street to the IH-45 southbound frontage road. The existing storm sewer is located back of curb and will be abandoned in place. The proposed storm sewer will be located within the pavement area to minimize utility conflicts and avoid existing trees.

MORNINGSIDE PLACE SUBDIVISION (A135-01-00-E001) | PROJECT MANAGER | CITY OF HOUSTON | HOUSTON, TEXAS

PROJECT MANAGER. As Project Manager, Brian identified measures to reduce the recurring street ponding in the Morningside Place subdivision that occurred within the east of Presidents Drive West (Phase 1 of the development of the subdivision). He developed a drainage study to investigate the existing drainage conditions and identify potential improvements to alleviate this street ponding. The drainage study included an evaluation of the existing drainage system and potential alternatives to reduce the frequency, depth, and duration of flooding within the subdivision, along with the associated costs.

ALLEY RECONSTRUCTION PROJECT GROUP 17-1303 | DEPUTY PROJECT MANAGER | CITY OF DALLAS | DALLAS, TEXAS

DEPUTY PROJECT MANAGER. Designed paving and drainage reconstruction for alley group (six alleys). Design work included removal and replacement of paving, drainage, water and wastewater improvements for the City of Dallas Public Works Department. Alley conveyance calculations were performed to analyze drainage capacity of the alleys and downstream drainage improvements were designed to facilitate drainage in the project alleys.

ROYAL LANE SBA IMPROVEMENTS | PROJECT ENGINEER AND CONSTRUCTION MANAGER | CITY OF DALLAS | DALLAS, TEXAS.

PROJECT ENGINEER AND CONSTRUCTION MANAGER. Project Designer and Construction Manager. Brian prepared site layouts, hydraulic calculations, and tabulations for storm water drainage, as well as grading and paving plans of the parking lot that include curb ramps and access aisle for a design-build commercial project. He worked closely with the City of Dallas Engineering and Water Utilities division to ensure plan conformities to City of Dallas standards. Brian was involved throughout the project, as he conducted on-site construction inspections.

SH 5 RECONSTRUCTION AND WIDENING BETWEEN STACY ROAD AND SPUR 399 (S&E) | PROJECT MANAGER | TOWN OF FAIRVIEW | FAIRVIEW, TEXAS

PROJECT MANAGER. Completed the drainage analysis and traffic projections and traffic analysis for SH 5 between Stacy Road and Spur 399 in Collin County. The drainage report supported the development of a design schematic. This project included development of hydrology for the corridor, hydraulic modeling of cross-drainage components, and a proposed corridor drainage plan. Traffic Projections and Analysis: Due to the decline of traffic as a result of the pandemic, traffic counts were not captured. OTHON developed

innovative alternatives to estimate the current traffic demand. OTHON has developed a traffic forecasting methodology report where historical traffic data was assessed to develop corridor specific growth rates, vehicle classification ranges, K and D factors in accordance with TPP SOP. These traffic values were used to develop average daily traffic and design hourly volumes for the years 2025, 2045, and 2055. The peak hour volumes were used to evaluate and identify deficiencies under the existing and proposed roadway configurations along the study limits. Extensive coordination has been conducted with the Town of Fairview to understand the effects of planned land improvements (developer funded) and near-term roadway additions parallel to SH 5. The traffic operations results were presented to the client and documented within the traffic operations report. A crash analysis was performed to identify hot spots along the corridor.

FM 1488 RECONSTRUCTION & WIDENING (PS&E) | PROJECT MANAGER | TXDOT | MAGNOLIA, TEXAS

PROJECT MANAGER. Development of Traffic Control Plans (TCP) and temporary drainage facilities for expansion of the existing two-lane roadway to a four-lane facility for 3.6 miles. Plans were developed for all temporary drainage facilities necessary to allow staged construction of the project and to conform with the phasing of adjacent construction projects without significant impact to the hydraulic capacity of the area. Brian prepared traffic control plans, details, typical sections and a sequence of construction narrative for the project. The TCP phasing was accomplished with three major phases with additional phases at intersections through Magnolia. Erosion control and SW3P plans were prepared for each phase of construction.

CENTRAL TRAIL EXTENSION | PROJECT MANAGER | DALLAS COUNTY & TXDOT DALLAS | RICHARDSON AND DALLAS, TEXAS

PROJECT MANAGER. Brian is preparing roadway and drainage plans and profiles for the proposed 12 feet wide trail in Dallas County, TX. The Central Trail Extension follows south side of Buckingham Rd, new curb line at west side of Greenville Ave, and north side of Walnut St. It includes DART crossing and new mid-block crossing in Buckingham Rd. Additional scope includes removal layouts, traffic control plan, DA maps, intersection and ramp details, driveway details, roadway/trail cross sections, and signing & pavement marking plans. The trail will be used for shared-use-path for pedestrians and bicycles. Ramps are designed to accommodate both pedestrian and bicycle traffic. Challenge: Pedestrian paths and ramp crossings prefer to have a flat slope across to minimize impact to bicycle traffic. Solution: Trail/SUP profiles are designed to allow flat slope across the driveway crossings with minimal impact to back-of-curb and driveway profiles.



CITY COUNCIL AGENDA FORM

Meeting Date: July 14, 2025
Prepared by: _____
Department: Administration

Agenda Item: 8.V.
Reviewed by: _____

AGENDA ITEM DESCRIPTION:

Retaining the law firm of Lloyd Gosselink Rochelle & Townsend, P.C. to negotiate the electric franchise agreement with Texas-New Mexico Power Company, a Texas corporation in an amount not to exceed \$6,000.00 - *Legal*

STAFF BRIEFING:

The City's agreement with Texas-New Mexico Power has expired since the last Franchise Agreement in 2015. In order to consider changes to the future contract, the Administration is asking to retain legal counsel to ensure best practices are met.

HISTORY:

06.23.2025 - Contract was not approved for renewal by Council and requested to have it revisited.

FISCAL IMPACT:

Unknown

ORDINANCE NO. 2025-00XX

**AN ORDINANCE GRANTING AN ELECTRIC FRANCHISE TO TEXAS- NEW
MEXICO POWER COMPANY, A TEXAS CORPORATION**

**NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF
LA MARQUE, TEXAS:**

**ARTICLE I
PARTIES**

The City of La Marque, herein called the City, a municipal corporation created under Title 28 of the Texas Revised Civil Statutes, does hereby grant to Texas-New Mexico Power Company, its successors and assigns, herein call Grantee, the nonexclusive right, privilege and franchise herein contained.

**ARTICLE II
NATURE OF GRANT**

The City acting pursuant to Sections 181.004-181.006 and Sections 181.041-181.047 of the Texas Utilities Code, and Articles II and XII of the Charter of the City of La Marque, does hereby grant to Grantee the nonexclusive right, privilege and franchise to erect, maintain, operate and remove electric lines and pertinent facilities over, under, across, upon and along the streets, alleys and other public property in the City or any future extension thereof, subject to the terms and conditions herein set forth.

**ARTICLE III
PURPOSE**

This franchise is granted for the purposes of providing electric service within the City and adjacent areas and transporting electric energy to, from, and beyond the city.

**ARTICLE IV
TERM**

This franchise shall exist for a term of ten (10) years from date of passage, which date is hereinafter set forth.

ARTICLE V LOCATION OF FACILITIES

1. Location of Facilities. All poles placed or maintained under this grant shall be reasonably straight. All poles, and other equipment placed or maintained by Grantee under this grant, shall at all times be of sound material and kept in a safe condition. All of such poles and other equipment shall be so placed, constructed and maintained as not to interfere with drainage within the City or with any public activity maintained and operated by the City, and also so as not to constitute any danger or hazard to members of the public using the street, avenues and alleys within the City. Nothing herein contained shall be construed as authorizing the violation of, or interference with any right of ingress or egress to, or from any private property.

The location, route and position of all poles, conduits, stubs, guys, anchors and other appurtenance placed or maintained under the provision hereof shall be subject to reasonable and proper regulation, control and direction of the City Council or of any City official to whom such duties have been or may be delegated.

2. Excavations. The surface of all streets, avenues, and alleys cut, broken, excavated or disturbed by Grantee in exercising any right or privilege hereunder shall be by Grantee, at its own expense and as soon as practical, restored to as good a condition as previously existed prior to the cutting, breaking, excavating or disturbance thereof to the satisfaction of the governing body of the City of La Marque.

3. Relocation of Facilities. Grantee whenever ordered to do so by the governing body of the City of La Marque, shall expeditiously rearrange, relocate alter or remove any pole, wire, cable, conduit, anchor, or any other appurtenance placed or maintained by Grantee under this grant at its own expense, when the changing, rearranging, relocation, altering or removal thereof may be reasonable, necessary, or desirable in the prosecution or construction of any public work or project or public improvement undertaken by the City of La Marque, alone or jointly.

4. Temporary Removal of Wires. Grantee, on the request of any person, shall remove or raise or lower its wires temporarily to permit the moving of houses or other bulky structures. The expense of such temporary removal, raising or lowering of wires shall be paid by the benefited party or parties provided, however, that no charge shall be made when the house or other bulky structure is not more than twenty-two feet above the surface of the street. Grantee reserves the privilege of determining the route of removal of such structures to avoid raising the larger cables and lines where possible, and shall be given not less than three (3) business days advance notice to arrange for such temporary changes, unless a longer time is provided in the Tariff issued to TNMP by the Public Utility Commission of Texas.

ARTICLE VI INDEMNITY

Grantee shall fully indemnify and save harmless the City from any and all damage, loss, action or less, action or cause of action arising in whole or in part from Grantee's exercise of any of its rights, privileges, franchises and obligations hereunder, except to the extent arising out of the City's sole negligence or willful misconduct. In the event of joint and concurrent negligence or fault of both Grantee and the City, responsibility and indemnity, if any, shall be apportioned comparatively in accordance with the laws of the State of Texas without, however, waiving any governmental immunity available to the City under Texas law and without waiving any of the defenses of the parties under Texas law. It is understood that it is not the intention of the parties hereto to create liability for the benefit of third parties, but that this section shall be solely for the benefit of the parties hereto and shall not create or grant any rights, contractual or otherwise, to any person or entity.

ARTICLE VII STREET RENT

Grantee shall report and pay to the City Council during January, April, July and October of each year of the term of this franchise a street rental equal to \$0.0035779 per kWh or the amount set forth by law and calculated per kWh of electricity delivered by Grantee to each retail customer whose consuming facility's point of delivery is located within the City's Boundaries. This effective rate is based upon the Texas Utilities Code Section 33.008(b).

Upon request of the City Council Grantee shall, within a reasonable time, present to the City Council any and all records, accounts and books for inspection relative to the total kilowatt hours of electricity delivered to retail customers within the corporate limits of LaMarque.

The charge herein made shall be in lieu of, to the extent permitted by law, any other charges or fees of any kind of the City based on, connected with, or incident to the exercise of the nonexclusive right, privilege and franchise here granted, but shall not in anywise impair or diminish Grantee's obligation to pay city ad valorem taxes or in anywise interfere with the collection thereof.

ARTICLE VIII VALUE OF FRANCHISE

The value of this franchise shall not be considered in filing reasonable rates and charges for utility service extended by Grantee within the City. Nor shall any value be affixed to or allowed for this franchise in any proceeding or for any purpose whatsoever, whether related to rate fixing or any other matter.

**ARTICLE IX
RESERVATION OF POLICE POWER**

The City of La Marque does not part with, but expressly reserves, the right and duty at all times to exercise in the interest of the public, full superintendence, regulation and control in respect of all matters connected with the police powers of the City of La Marque, now or hereafter vested in it or its governing body.

**ARTICLE X
ASSIGNMENT**

Notwithstanding anything herein contained to the contrary, Grantee shall not assign the franchise herein granted and contained to any person, firm or corporation without first obtaining the consent of the City Council to such assignment or transfer.

**ARTICLE XI
FORCE MAJEURE**

Grantee will make reasonable provision to insure satisfactory and continuous service, but does not guarantee a continuous supply of electrical energy, and shall not be liable for damages or for failure to perform any provision of this franchise occasioned by interruptions or failure to commence delivery caused by an Act of God, or the public enemy, fire, explosion, strikes, riots, war, order or any court or judge granted in any bona fide adverse legal proceedings or action, or any order of any committee or tribunal having jurisdiction in the premises; or, without limitation by the preceding enumeration, any other act or thing reasonable beyond its control; or interruptions necessary for repairs or changes in Grantee's generating equipment or distribution system.

**ARTICLE XII
ALARM SYSTEM AND OTHER FACILITIES**

Grantee does consent to the use of its poles and other facilities for the erection and maintenance of the City Fire and Police alarm system upon the execution of a Pole Attachment Agreement. Streetlights will be erected and maintained by Grantee in accordance with Grantee's Tariff.

**ARTICLE XIII
SAVINGS CLAUSE**

If any section, paragraph, subdivision, clause, phrase or provision of this ordinance shall be adjudged invalid or held unconstitutional, the same shall not affect the validity of this ordinance as a whole or any part or provision thereof other than the part so decided to be invalid or unconstitutional.

**ARTICLE XIV
ACCEPTANCE OF AGREEMENT**

Grantee shall have thirty (30) days from and after the passage and approval of this ordinance to file its written acceptance thereof with the City Clerk and upon such acceptance being filed this ordinance shall take effect and be in force from and after the date of its passage and approved by the City Council.

**ARTICLE XV
REPEAL AND CODIFICATION**

Ordinance Number O-2015-008 adopted by the City Council of the City of La Marque, Texas, on May 18, 2015, granting an electric franchise to Texas-New Mexico Power Company is hereby repealed. This Ordinance shall be codified as Appendix B to the City Code of ordinance and shall be substituted for the present Appendix B, Electric Franchise, of the City Code of Ordinances.

PASSED AND APPROVED on first reading this ____ day of _____, 20__.

PASSED AND APPROVED on second and final reading this the ____ day of _____, 20__.

Keith Bell, Mayor
City of La Marque, Texas

ATTEST:

Kierra Nance, City Clerk

APPROVED:

Gus Knebel, City Attorney



CITY COUNCIL AGENDA FORM

Meeting Date: July 14, 2025

Prepared by: _____

Department: Public Works

Agenda Item: 8.VI.

Reviewed by: _____

AGENDA ITEM DESCRIPTION:

Approving partnership with N Zone Sports Houston Bay Area as recommended by the La Marque Parks Board - *Parks Board / Public Works*

STAFF BRIEFING:

N Zone Sports – Houston Bay Area is a co-ed youth sports league offering a **fun-first, inclusive** experience for children ages **3–12**, with no tryouts and a focus on **recreation and healthy competition**. Weekly sessions emphasize **core values** like teamwork, sportsmanship, effort, and self-control, with every child recognized through **Value Awards** and end-of-season **Achievement Awards**. Their exclusive service area spans from **Pearland to Galveston**, and we're seeking to **expand into La Marque** by partnering with **Mac McGaffey Highland Bayou Park**. We request **exclusive Saturday use of open fields** starting **June 21 – August 23** for an 8-week Soccer & Cheer season and plan for additional fall (Nov–Dec) and spring (Mar–May) seasons.

They currently run 8–10 week seasons in **Soccer, Flag Football, T-Ball, and Cheerleading**. They also offer **camps, clinics, personal training, and preschool/homeschool programs**, including **N Zone Junior**, a weekday program for toddlers taught in preschools.

We will ensure continued public access to the park, avoid conflicts with pavilion rentals, and support city promotion efforts through online platforms. With a database of **3,000+ trusted families**, we are confident in our ability to **drive traffic, boost community engagement**, and establish a **long-term, impactful presence** in La Marque.

HISTORY:

06.12.2025 - Presented before Parks Board

06.12.2025 - Parks Board approved recommendation to go before Council

FISCAL IMPACT:

Unknown

LA MARQUE

EST 1953

Parks Board

June 30, 2025

To: Council

We, the Parks Board, after reviewing the presentation from N Zone, would recommend approval from the council for the Parks Board to join in partnership with N Zone to utilize the facility at Highland Bayou Park.

Regards,



Mike "Rock" Bock
Chairman
Parks Board
City of La Marque



N ZONE

sports

HOUSTON BAY AREA

(832) 352-3305

FOLLOW OUR PAGE
N Zone Sports -
Houston Bay Area



AGE
3+

NEW SEASON

**SCAN FOR DETAILS
& TO REGISTER**



- ★ Coed Teams
- ★ Practice & Game the Same Day.
- ★ Everyone Plays, Every Game!

NO TRYOUTS!



**PRACTICE
AND GAME
SAME DAY**

**ALL SKILL
LEVELS
WELCOME**

NZoneSports.com/HoustonBayArea



CHECK
IN TENT

Getty Rd

Getty Rd

Getty Rd



Proposal for Partnership

This is a proposal for partnership between the following entities:
SLAMMMD LLC DbA N Zone Sports Houston Bay Area
& City of La Marque Parks and Facilities



**Proposal Prepared By: Savannah Jones Romero
On Behalf of N Zone Sports Houston Bay Area**

OUR COMPANY

We are N Zone Sports – Houston Bay Area. We are a **Fun-First**, No Try-out, Everyone Plays, Coed League that is a balanced blend of recreation and healthy competition. We pride ourselves on the implementation of our core values throughout all programs. Each week has a focus value of Teamwork, Sportsmanship, Effort, or Self-Control, and every week all coaches award a player (or two) with a Value Award recognizing a child of displaying that week's value. By the end of the season – every player will have received a value award. On top of this – we believe in rewarding the hard work and dedication that our player's show consistently throughout the season. Therefore – Every player will also receive an achievement award if they do not qualify for the championship trophy game. *Youngest divisions do not hold championships & all players receive trophies.

Our league makes team sports available to children ages 3 - 12 in the form of once-a-week leagues for a duration of an 8- or 10-week season. Currently offering co-ed T-Ball, co-ed Soccer, co-ed Flag Football, and Cheerleading - our league held at Clear Lake Park boasts over 250 athletes per 8-week season. We have two 8 - week, and one 10 - week season there each calendar year. We can also host seasonal camps, clinics, personal training sessions, and preschooler or homeschooler focused programs. The possibilities with us are endless!

In addition to our leagues, we have N Zone Junior. This program is designed for toddlers and held during the week at Preschools within our territory. We teach coordination, movement, balance, & the fundamentals of multiple team sports. We have found that early exposure to team sports fundamentals positively influences kids' development physically & socially. We can provide a N Zone Juniors Program to the public if desired.

Our exclusive territory reaches from Pearland through Pasadena east to Kemah, South all the way to Galveston, & back up through Alvin. And we have barely scratched the surface of what N Zone Sports can offer the kids in our community. This is our third year having the League City and Clear Lake area to call home to our sports league program, and we are avidly looking to expand that offering to the southern part of our territory. We believe that Mac McGaffey Highland Bayou Park provides the perfect location to do so. This facility provides easy access to I-45 for those wanting to travel from Galveston and Dickinson – while being easily accessible to those from Texas City, Hitchcock, Santa Fe, and of course – La Marque!

PURPOSE

With this partnership, we would like to grow our brand recognition while expanding the reach of our services. We would like to have league exclusivity at Mac McGaffey Highland Bayou Park Open Field Areas on Saturdays to hold our programs. We are also seeking to use any tools available through the city to help promote these leagues locally through La Marque Parks & Facilities web portals or email databases.

We acknowledge park access is for public use & will make sure the community still has free use of the facilities without conflict. We do not need regular use of the pavilion – and will not impede on any rentals of the pavilion. Our partnership will also show that the City of La Marque is making strides to have a positive impact on local youth by allowing us to provide our all-inclusive sports program to this area.

Our partnership has potential for major growth due to us having over 3,000+ families who are in our current database that already trust us & will trust when we show our efforts & initiatives to drive more traffic to Mac McGaffey Highland Bayou Park. We guarantee you will see the impact we will bring, while this partnership will give us the assurance that N Zone Sports – Houston Bay Area has a facility to call “HOME”.

We would like to start showing you our drawing power to the community by using the open field space every Saturday from June 21st through August 23rd by hosting an 8-week Soccer and Cheer Season for kids ages 3 – 12, this includes an added week in the event of a rain out. We are estimating 100 kids minimum to be registered in this league, and that is on the low end since we are already into April and have not yet begun marketing. To promote this initial league at a minimum adequacy – we would need approval by April 19th. Outside of that approval date – we may need to push the beginning and ending dates. I believe there was an event planned for July 5th already – we will schedule a bi-week for that Saturday, so that we do not create a scheduling issue.

We are aware that the park is closed for rentals the entire month of October. We would like to host an 8 week Fall Soccer, Cheer, and Flag Football season due to this closure – For the Saturday Dates November 1st – December 27th. (This includes a 9th Saturday for possible rain reschedules)

We would continue into a Spring 2026 promotion for Soccer, flag-football, & Cheer for the dates of March 21st – May 16th (This includes a 9th Saturday for possible rain reschedules)

SUMMER 2026	Dates TBD
FALL 2026	Dates TBD
SPRING 2027	Dates TBD

TERMS

We would like to offer a partnership that would be beneficial. As stated in purpose, we are looking to grow together as a part of the community and provide a long-term home for our community's youth through N Zone Sports. We would like to agree to the following terms.

- We agree to a \$4 return on every child registered in the program to play at Highland Bayou Park. To be paid out within 14 days after the season's Opening Family Day and paid based on final registration count. Average enrollment is 200-300 kids per season when at least 2 sports are promoted.
- We will reserve the right to advertise at the hosting park without bothering families but to bring awareness.
- We will be an exclusive youth sports partner to the City of La Marque at the Mac McGaffey Highland Bayou Park facility and will not work with competitor leagues. (including but not limited to: i9 Sports, Skyhawks, Soccer Shots, HTX, FFPS)
- We will line all our own soccer fields, provide all equipment for practices and games, and will remove all equipment after all scheduled N Zone Sports Events. The only request is that the fields are mowed at a frequency that keeps the grass levels at an acceptable height for play, and that the park is sprayed for mosquitoes when necessary
- We would like to hold the ability to invite food and beverage vendors to the fields during league play. Given that the vendors obtain the proper permitting necessary to do so.
- We would like to hold the ability to invite league sponsors and local businesses as vendors to participate in the Opening Family Day Activities. (3 per year)

- We will help promote our partnership by adding the City of La Marque Emblem to our printed and online flyers, and on uniforms if requested.
- We will gladly partner with the city to bring sports fields, or any of our carnival style games to city or school district events if given a minimum 21- day notice of the date and items being requested.
- We will not impede on pavilion rentals and will make sure that our parents and participants respect those who have reserved the right to be there.
- We will do our due diligence in maintaining the facilities while in attendance and will leave the facilities in the same (or better) condition as initially presented.

We are happy to discuss any additional terms the City would like to present. We would also be interested in discussing use of the baseball field at Mac McGaffey if we are able to eventually get the field in good shape, or additional use of any indoor facilities available for basketball, volleyball, indoor soccer, and cheer programs in the future.

This agreement will be valid for a term of 2 years. From the dates of April 19th, 2025, to April 19th, 2027. The ability will remain to review terms of partnership during this time if both parties agree to new terms.

City of La Marque Rep.

SLAMMMMD LLC Rep.

Date Signed

Date Signed



CITY COUNCIL AGENDA FORM

Meeting Date: July 14, 2025
Prepared by: _____
Department: Administration

Agenda Item: 8.VII.
Reviewed by: _____

AGENDA ITEM DESCRIPTION:

Reviewing current drug testing policy - *District B*

STAFF BRIEFING:

Request received from Mayor Pro Tem Compian to review the City's Drug Testing Policy and Procedures. The document attached to this item provides the drug testing policy and is provided to all employees.

HISTORY:

FISCAL IMPACT:

Unknown

attempting to work while under the influence of alcohol, drugs, or other controlled substance. Violations of this policy will result in immediate discharge from employment.

The City of La Marque recognizes drug/alcohol dependence as an illness and a major health problem. The City also recognizes drug/alcohol abuse as a potential health, safety, and security problem. We encourage employees who need help in dealing with such problems use our Employee Assistance Program as well as our health insurance plan as appropriate. Conscientious efforts to seek such help will not be used as a basis for corrective action. Once an employee is found to have violated this policy however, their offer to seek rehabilitation on a voluntary basis will not necessarily limit corrective action.

As a condition of employment, employees must abide by the terms of the above policy. They must also report any conviction under a criminal drug statute for violations occurring on or off City premises while conducting City business. A report of a conviction must be made within seventy – two (72) hours after the conviction.

713.1 Drug/Alcohol Testing

A. Criteria for Screening.

1. Pre-employment: All applicants to whom a conditional offer of employment has been made will be required to submit to testing for alcohol and illegal and unauthorized drugs. A positive test result, refusal to test, or attempts to alter or tamper with a sample or part of the test will render the applicant ineligible for consideration of employment or future employment with the City.

All current employees who are transferred from a non-safety sensitive position to a safety sensitive position must pass a pre-employment drug screen before performing the safety sensitive position.

2. Reasonable Suspicion: Any employee may be tested based on a reasonable suspicion that the employee may be under the influence of prohibited substances. The reasonable suspicion is based on, but may not be limited to, the following conditions:
 - a) Excessive absenteeism
 - b) Excessive tardiness
 - c) Physical evidence (i.e. stumbling, slurred speech, dilated pupils)
 - d) Noted differences or decline in quality of work
 - e) A credible eyewitness report of possession or use of drugs, drug paraphernalia or alcohol on the job

3. Post-Accident: All employees who are involved in an accident will be drug/alcohol tested if the accident is determined to be their fault or if fault cannot readily be determined. Additionally, if any involved person requires medical attention, or if the accident causes damage to either City or private property or places the City in a position of liability, the involved employees are subject to a post-accident drug/alcohol test. At the discretion of the Human Resources Department or City Manager, employees may be restricted from operating a City vehicle or performing specific job duties pending the results of the test. Post-accident tests must be conducted as soon as possible but not later than eight (8) hours after the accident for alcohol, and thirty-two (32) hours after the accident for drugs.
4. Other: As defined in department specific policies (i.e. police department).

714 TOBACCO "SMOKING" POLICY

Employees are prohibited from smoking and using tobacco products (including smokeless) while on duty. Employees may not smoke or chew tobacco in City-owned facilities. All buildings, hallways, stairways, restrooms, cashier and service line areas and City vehicles are, without exception, tobacco-free areas. The use of all tobacco products (including smokeless) is prohibited while operating and/or being a passenger in City-owned vehicles and/or equipment.

Use of tobacco will be permitted only in those designated areas outside City-owned facilities. Ashtrays will be located at all designated outdoor smoking areas. The City of La Marque will not incur any expense or make structural or physical modifications to accommodate employees wishing to smoke or chew tobacco.

Employees found to be in violation of this policy will be subject to corrective action up to and including discharge from employment.

715 HARASSMENT POLICY

The City is committed to providing its employees with a professional and productive working environment where co-workers are treated with courtesy and respect. Therefore, it is the City's goal to promote a workplace that is free from harassment. The City prohibits all forms of illegal harassment of employees by managers, supervisors, and co-workers.

The City of La Marque has adopted a policy regarding conduct considered to be sexual harassment according to Section 703 of Title VII of the 1964 Civil Rights Act.

Sexual harassment refers to behavior that is not welcome, that is personally offensive, that fails to respect the rights of others, and that interferes with an employee's work performance. Sexual



CITY COUNCIL AGENDA FORM

Meeting Date: July 14, 2025
Prepared by: _____
Department: City Clerk

Agenda Item: 8.VIII.
Reviewed by: _____

AGENDA ITEM DESCRIPTION:

Scheduling a Council Retreat - *City Clerk*

STAFF BRIEFING:

HISTORY:

FISCAL IMPACT:



CITY COUNCIL AGENDA FORM

Meeting Date: July 14, 2025

Prepared by: Kierra Nance

Department: City Clerk

Agenda Item: 8.IX.

Reviewed by:

AGENDA ITEM DESCRIPTION:

Electing a Mayor Pro Tem -*District A/District D*

STAFF BRIEFING:

HISTORY:

FISCAL IMPACT:

La Marque Public Library

May 2025



Money Saved
\$6,368.00



Visitors
1,413



Computers
Users - 322
Time - 389hrs.



Circulation
806 items



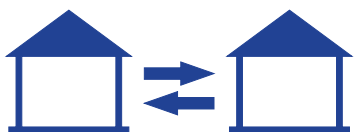
Programs - 19 **Attendance - 242**



New Items
96 added



New Accounts
24 cards



Inter-Library Loans
30 items



Digital Circulation
260 items

Notable Events

May 2025



Amy Miller and Sarah Patina had a table at Ignite School's Career Day on May 7. They shared information on library programs and services with the students and answered questions about librarianship as a career choice.

La Marque Library had a table at the Hurricane Huddle at Central Fire Station on May 17.

Library staff met with staff from the Family Service Center of Galveston County to discuss the possibility of partnering on some upcoming programs focused on self-esteem and mental health for youth.

Library staff worked with the Communications department to select 30 summer camp participants. Over 70 applications were received this year from interested families.

Staff finalized plans for the summer reading program and summer camp and worked to purchase and obtain the necessary program supplies. Summer Reading runs June 3 - June 27, and Summer Camp runs June 23 - July 17. The theme for both programs is Color Our World.

Director's Report

June 2025

- June 18th is the COLM Juneteenth Gala
- See included flyer for details for how to register to attend

- Ms. Amy Miller has been named the Interim Deputy City Manager
- She will continue to oversee the functions of the library until further notice

- At the June 9, 2025 Council meeting, Council requested a joint meeting with the EDC Board at 1:00 PM on either June 23, 2025 or July 28, 2025
- No specific items of discussion were stated
- Mayor mentioned to Council that the same procedure to place an item on a Council agenda will be followed

- Despite a new sewer line being installed to serve Tucon, LLC dba Unbehagen Construction, their sewer problems still exist when it rains
- It is my understanding that a meeting will take place between the owner and the COLM to discuss steps to resolve the ongoing issue
- UPDATE:**
- City Administration, Public Works Director and the business owner met so staff could explain what needs to be done on the city side to fix the ongoing issue
- I am told the steps should be completed in the next 2-3 months

- I am working with another new prospect for the space at 401 Laurel

- I have had an initial discussion with one of our existing primary employers regarding a potential expansion project
- I will keep the Board posted as things develop

- I have had 2 initial discussions with a national retailer facing economic challenges
- Will keep the Board posted on future discussions

-The Small Business Summit will be held on May 28, 2025 at Faust Distributing from noon-2:30PM

UPDATE:

- Roughly 20 attended
- Feedback was positive
- The TCLM is conducting a survey
- Marielle presented on behalf of the EDC

-The latest installment of Mayor Bell's Small Business Summit was held on May 12, 2025 at La Marque Public Library from 5:30 PM - 7:00 PM

-Topic included: "Selling with Impact" | Galveston County SBDC

Update:

- The next installment will be held on August 11th from 5:30-7:00 PM
- Jordan Marketing Consultants will present the topic "Google My Business Pages and SEOs"

1130 1st Street exterior remodel:

- Werner Construction has withdrawn from the project citing bankruptcy and the contract has officially been terminated
- The abandoned scaffolding has been removed from the front of the building and from the roof
- The abandoned dumpster has been removed by the company that owns it
- Evaluation of the remaining scope of the project is underway by the architects
- Next steps are in process with the performance bonding company
- It is our understanding paragraphs 3.1 and 3.2 of the performance bond have been satisfied
- The vast majority of paragraph 3.3 has been satisfied (waiting on a price from another GC to complete the remaining scope, getting a cost for any potential damage from rain penetration)
- A Liberty Mutual Surety Engineer is flew in on 4/29 to review the current conditions regarding the downtown remodel projects
- As of 5/13 we were told by Liberty Mutual Surety Claims Counsel that they would be in touch shortly with resolution options
- All known payment claims have been notified of the payment bond held by Liberty Surety Mutual

UPDATE:

- There are two items related to this project for Board consideration on the June agenda
- As you review, please let me know if you have any questions
- Helm Design Group will be available at the Board meeting to assist with any questions as well

-I was accepted into the new Certified Texas Economic Development (CTED) program developed through a partnership between the Texas Economic Development Council and the Texas A&M Engineering Extension Service

- The first modules I attended were held on October 2-4
- The second modules were held on January 27-28
- The third modules were held April 14-15

UPDATE:

- The next modules are scheduled for July 15-17

O'Faye's Coffee & Beverage Lounge - 405 Laurel

- A 3-year lease has been executed
- The deposit and first 3 months rent has been tendered
- The required liability insurance has been provided
- Mr. Archibald has taken possession of the space
- Mr. Archibald is received his Tapayer ID from State Comptroller's Office
- He is still working with the COLM regarding permitting

UPDATE:

O'Faye's is hoping to open in late July

- Mr. Archibald is appreciative for the Chamber grant that was approved at the May meeting
- Included in your packet for consideration this month is a sign grant application

- The drafting of the Vision 2050 strategic plan is ongoing with Collaborate
- There may be a request from the COLM for additional funds for Collaborate to delve deeper
- Interim City Manager Pritchett is currently reviewing Vision 2050 and evaluating



CITY OF LA MARQUE

JUNETEENTH LEGACY GALA

Harboring hope for the future
by honoring the past

JUNE 18 | 6:00 PM

McKinney Memorial United
Methodist Church

RSVP at
qr.code.cityoflamarque.org/juneteenth



There Are Nearly 500,000 More Sellers Than Buyers

Estimated number of U.S. homebuyers and sellers actively in the market

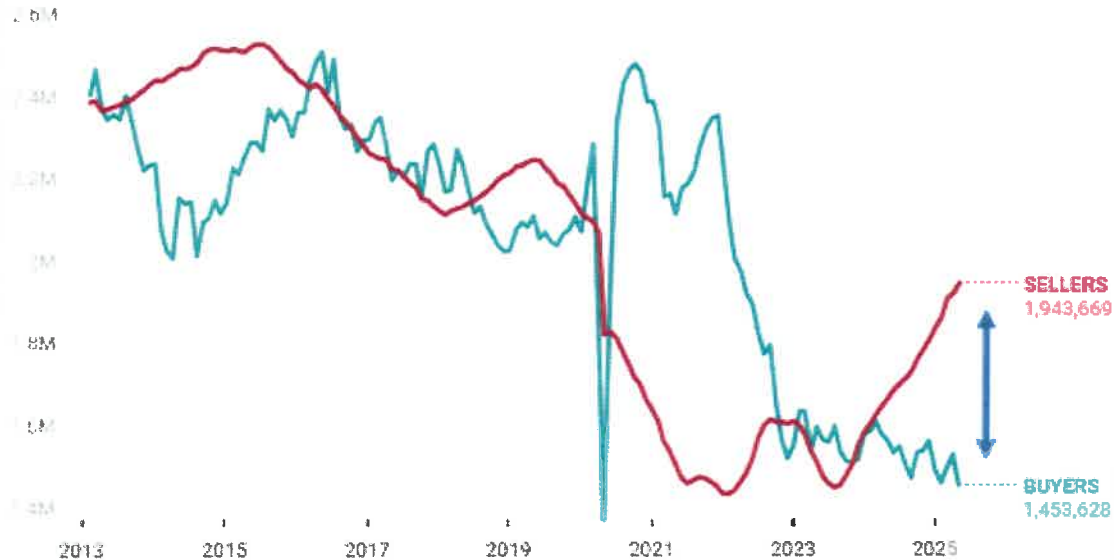
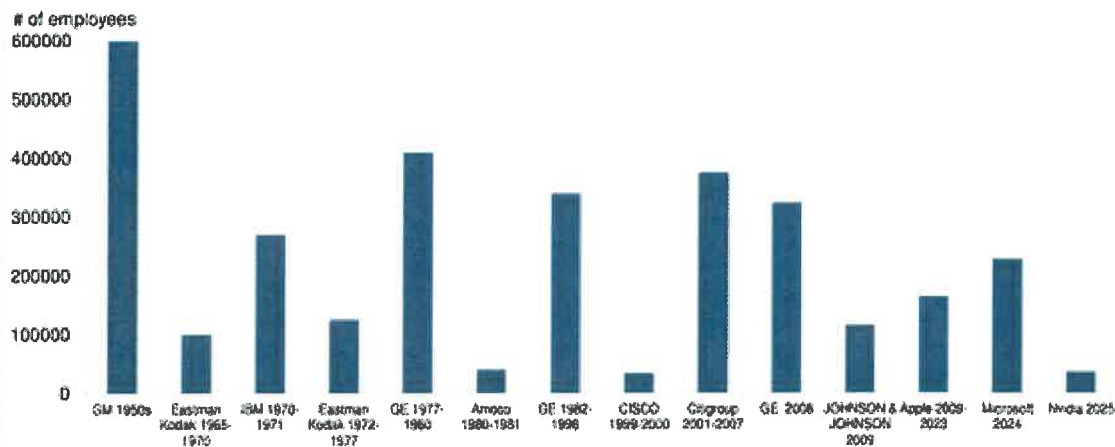


Figure 1: The main largest companies in the US (mkt cap) since the 1950s and how many people they employed (approximately) at their peak as no1

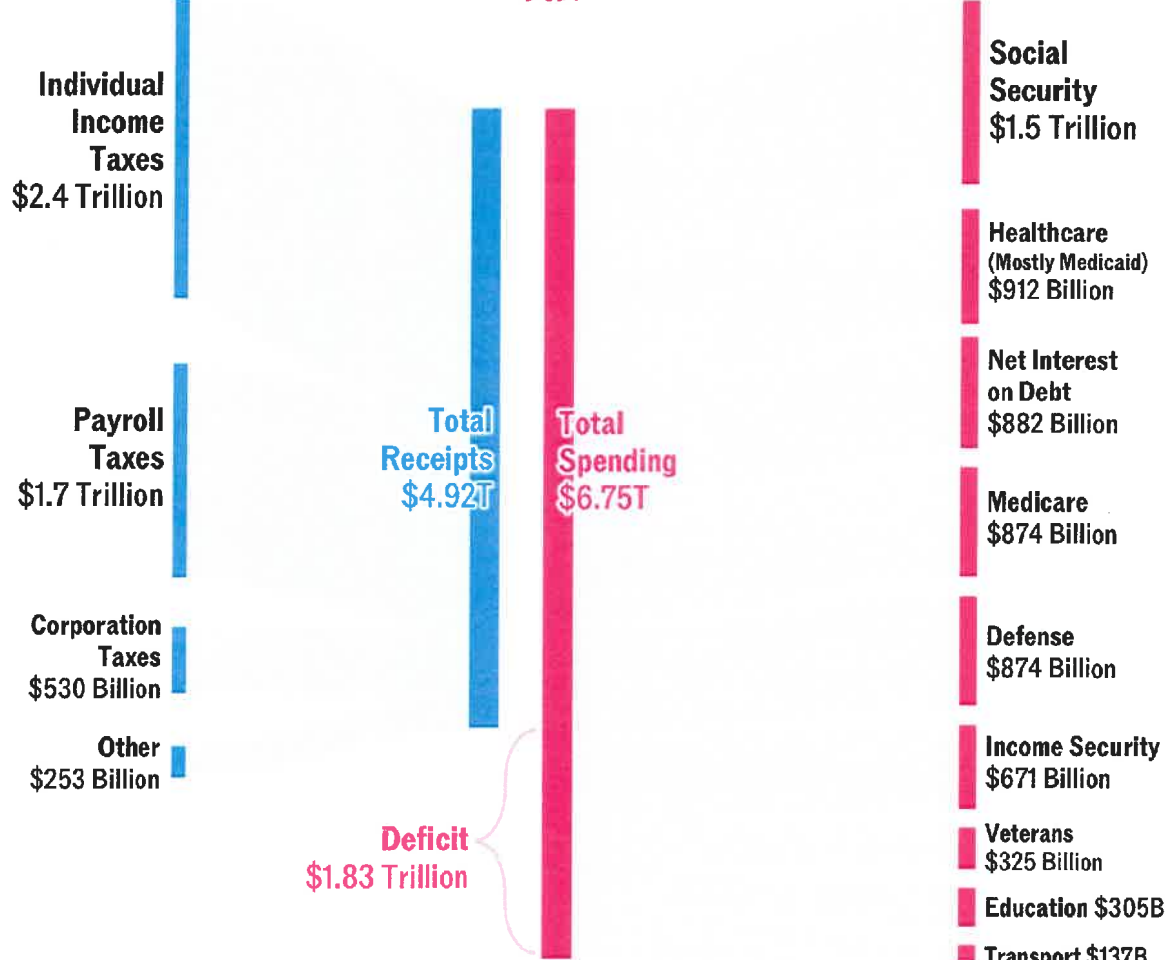


Source: Bloomberg Finance LP, Deutsche Bank

OUT OF POCKET

The US Deficit Was \$1.8 Trillion Last Year

FY 2024,  Federal Budget

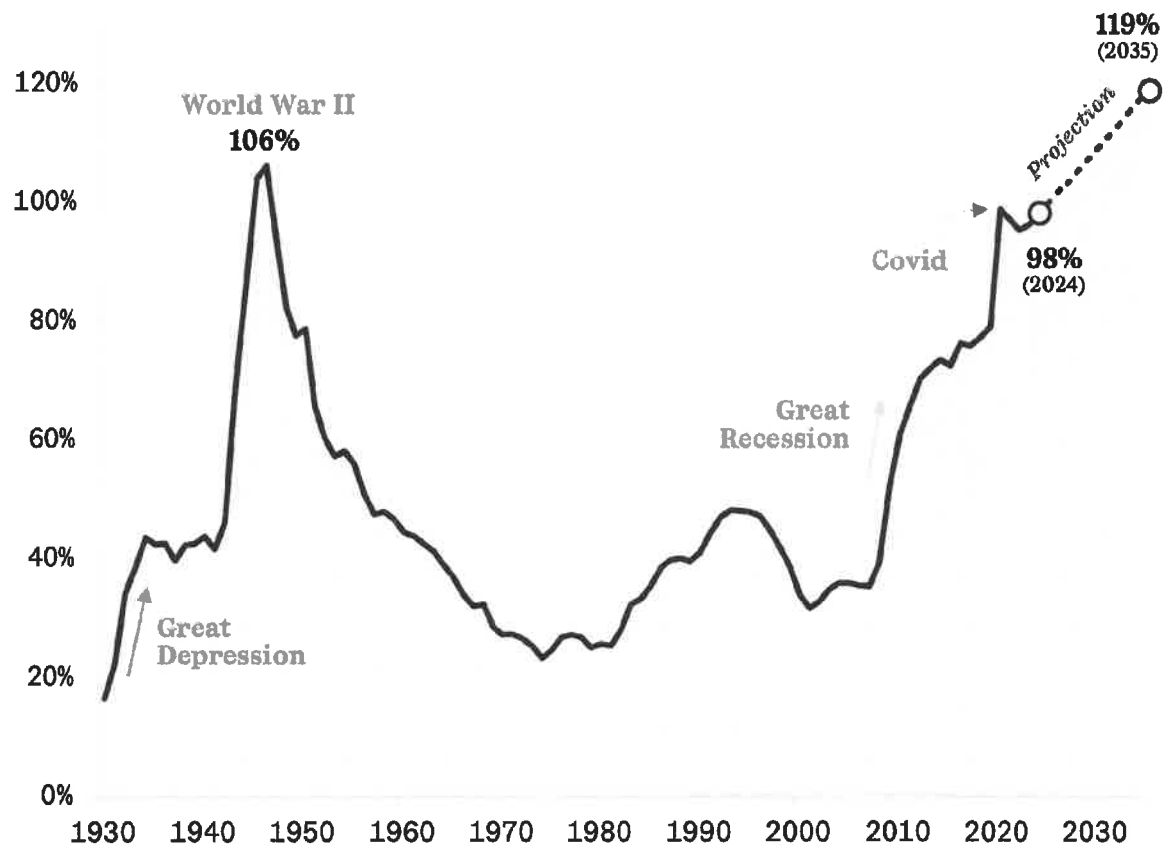


CHART

Source: Monthly Treasury Statement

America's Public Debt Is Catching Up With Its Economy... Just Like After World War II

Debt Held By The Public* As A Percent Of GDP, US [% , FY 1930-2035**]



CHARTR

Source: Congressional Budget Office | *Total national debt = Debt held by the public + intragovernmental debt | **2025-2035 are CBO's projections

89TH LEGISLATIVE SESSION BRIEFING

MODERATED BY DR. BRENDA HELLYER
CHANCELLOR, SAN JACINTO COLLEGE DISTRICT



Senator
Carol Alvarado



Chair of Appropriations
Greg Bonnen, M.D.



Representative
Dennis Paul



Representative
Briscoe Cain



Representative
Terri Leo Wilson



Representative
Jeff Barry

Wednesday, June 25, 2025

- 4:00 - 4:30 p.m. Special Reception Honoring Our Elected Officials
- 4:30 - 6:00 p.m. 89th Legislative Session Briefing

South Shore Harbour Resort & Conference Center - Marina Plaza
2500 South Shore Boulevard, League City, TX 77573

Please let me
know if you would
like to attend.

The Bay Area Houston Economic Partnership's Political Protocol Committee invites you to a special reception honoring our region's elected officials, followed by a briefing on the 89th Legislative Session. This event provides BAHEP members and our elected leaders—especially those newly elected—an opportunity to get to know one another. You will hear a briefing on key legislation passed by the 89th Texas Legislature and how it will impact Texas and our region. We sincerely appreciate the legislators who take time from their busy schedules to join us.

[Please Click Here to Register.](#)

WE GRATEFULLY ACKNOWLEDGE OUR EVENT SPONSORS



GOLD



Legislative Session Update (6/6)

By the Numbers

- House Bills
 - **619** bills sent to the Governor
 - **(-125)** versus previous session)
- Senate Bills
 - **604** bills sent to the Governor
 - **(+92)** versus previous session)

• Governor Actions (as of 6/5)

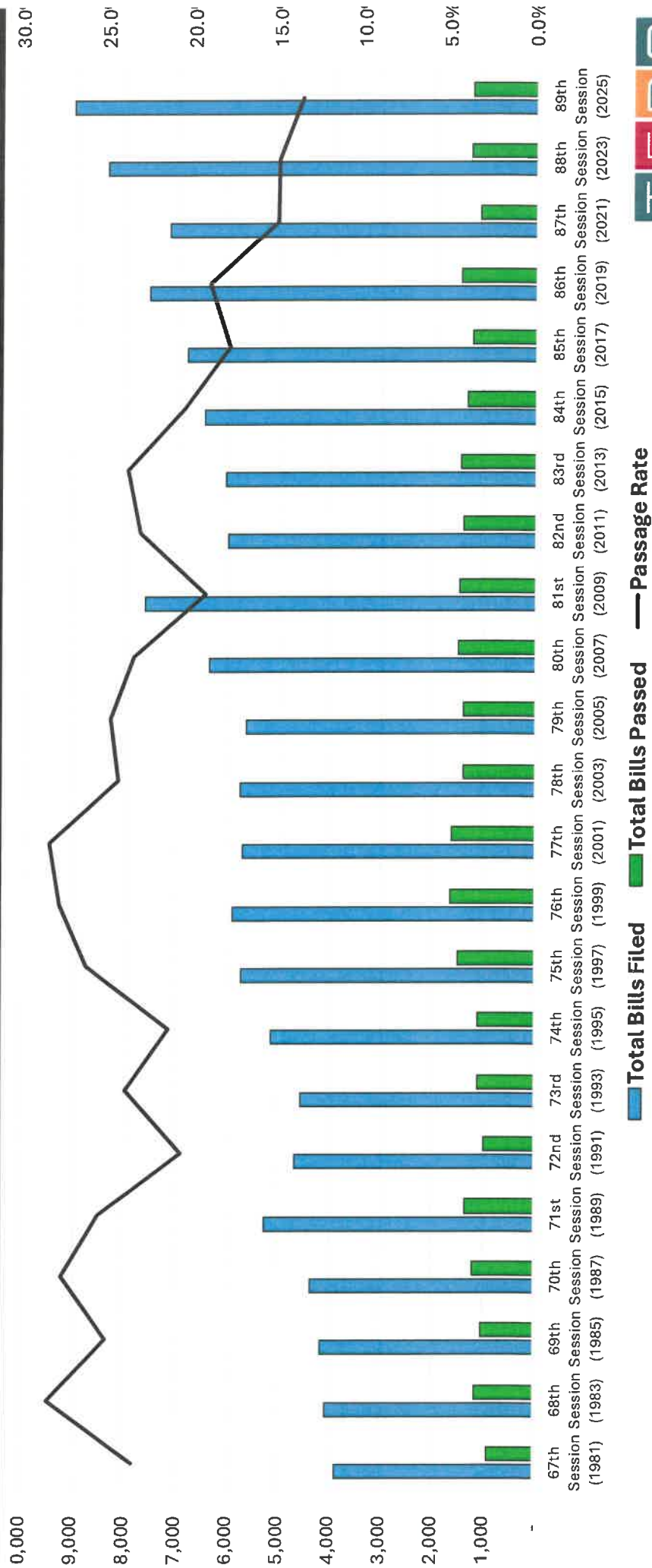
- **1,223** bills sent to the Governor
 - **307** signed by the Governor
 - **24** bills filed without the Governor's signature
 - **2** bills vetoed by the Governor
- **890** bills awaiting action by the Governor

LAST DAY OF VETO PERIOD

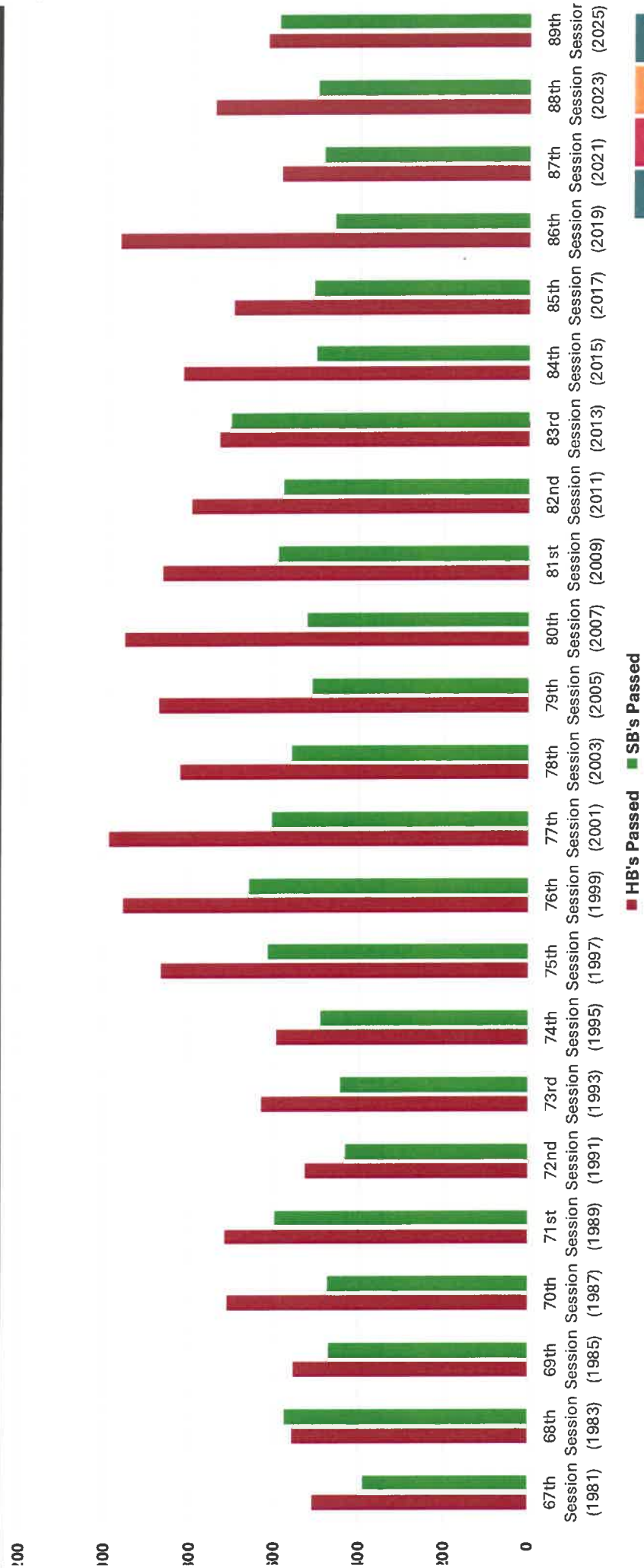
June 22nd = 160th Day of Session

VETO

Historical Bill Passage Rate (1981 – Present)



House v. Senate Bills Passed (1981 – Present)



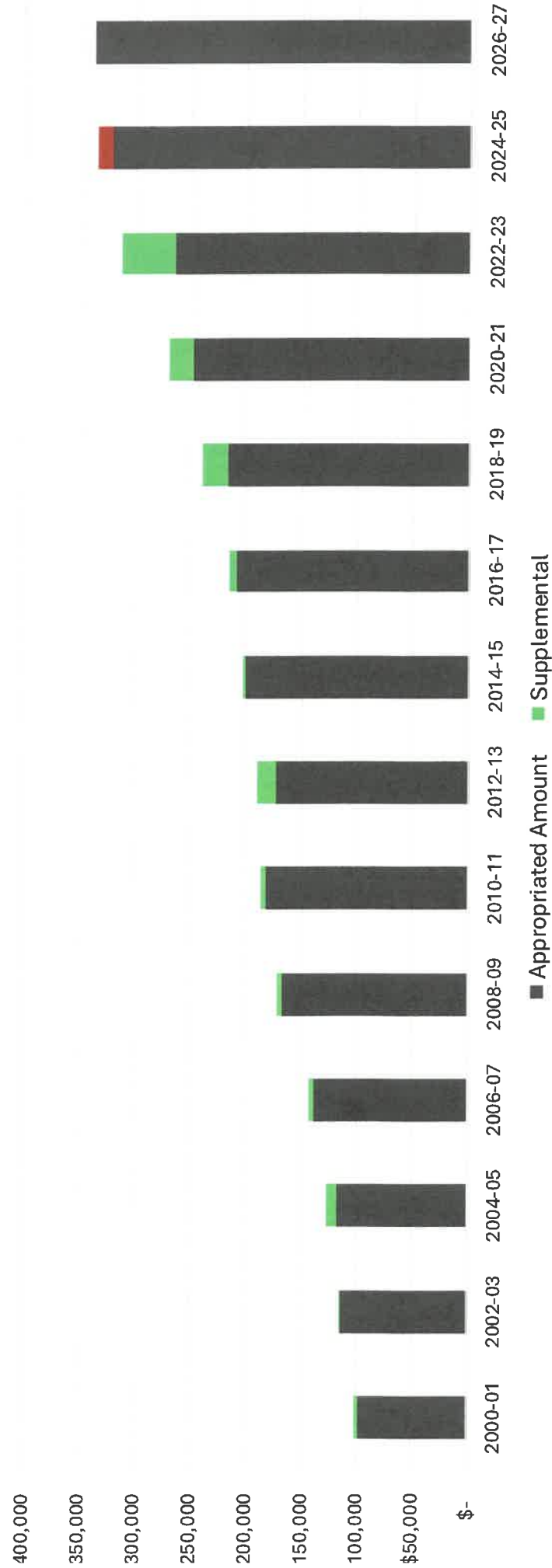
Budget Information

• Two Major Appropriations Bills

- **HB 500 (2025 FY Supplemental Budget)**
 - +\$13.0 billion in FY25
- **SB 1 (2026-2027 Biennial Budget)**
 - \$338 billion



Historical Appropriations (1999 - Present) - *in millions*



LOCAL NEWS

Texas lawmakers consider additional property tax relief amid projected \$20 billion surplus in 2025 session

CBS NEWS
TEXAS

By Jack Fink, Nathalie Marie Palacios

Updated on: January 13, 2025 / 2:18 PM CST / CBS Texas



Budget Information – Tax Cuts

\$10 billion in “new funding for property tax relief”

- \$2.6 billion - Estimated cost of tax compression in existing law
- \$3.5 billion - Cost to maintain property tax relief provided last session

• \$3.9 billion - Cost of new property tax relief measures

- \$2.7 billion (SB 4) – Increase homestead exemption from \$100k to \$140k
- \$1.2 billion (SB 23) – Increase senior homestead exemption from \$10k to \$60k
- \$193 million (HB 9) – Increase business personal property exemption from \$2.5k to \$125k

*NOTE ON BPP EXEMPTION:

\$193m in state funds is used to hold school districts harmless for the exemption
Local governments will lose ~**\$442 million** unless they increase tax rates (no hold harmless from the state)

Budget Information – Major Items

- **Major Items**
 - \$5 billion towards Texas Energy Fund
 - Water Funding
 - \$2.5 billion for water infrastructure/grants
 - \$1 billion annually dedicated to water projects going forward
 - \$1.3 billion for Texas University Fund
 - \$350m to support advanced nuclear industry development
 - \$300m for space exploration initiatives
 - \$250m for Texas Semiconductor Innovation Fund
 - \$250m for Moving Image Fund
 - \$167m for quantum computing and AI chip fabrication at Texas A&M University
 - ~\$90 million for the community college formula (backfill from HB 8 last session)

Headline Issues

- **Public Education**
 - School Choice/Vouchers (SB2) – Capped at **\$1 billion** in state funds
 - School Finance (HB2) - **~\$8.4 billion** in new funding
 - \$4.2 billion for **teacher pay** raises
 - \$1.3 billion for **basic district costs**
 - \$2 billion for special education, full - day pre-k, early learning interventions, CTE
 - \$500 million for **school safety**
 - \$500 for increasing **support staff salaries** (non-teacher, non-admin)
- **Hemp Ban (SB 3)**

Economic Development Policy (general)

SB 2206 (Bettencourt) – Renews the Research and Development tax credit. Enhanced credit for research expenditures with higher education institutions

HB 4751 (Capriglione) – Establishes the Texas Quantum Initiative

Protect EDC Sales Tax

Preserve flexibility for 380/381 agreements.

- Several bills were filed, but none were passed into law
- ~~SB 2747 (Paxton)~~ – Prohibits sales tax “funneling” agreements
 - “sales tax funneling” issue will need to be studied in interim

Economic Development Policy (general)

Enhance Existing Economic Development Tools

- ~~HB 2765 (Guillen)~~ - Clean-up for TX Dept. of Agriculture economic development program. Low-interest loans for rural areas (adds MOUs and other local/water districts)
- ~~HB 105 (Guillen)~~ – JETI program improvements
- ~~HB 112 (Button)~~ – Develops a plan to develop a “Texas Science Park.”
- ~~HB 104 (Bonnen)~~ – Creates the Texas Future Fund - Invests funds in the Economic Stabilization Fund (aka Rainy Day Fund) into innovative Texas companies.
- ~~HB 1268 (Button)~~ – State grant funds for SBIR projects
- ~~HB 5265 (Wilson)~~ – Creates the health care professional education fund
- ~~HB 4735 (Ashby)~~ – Creates "Rural Development Funds" offering tax credits to incentivize development/investment in rural areas.
- ~~HB 4308 (Gates)~~ – Creates a county industrial development district. Bracketed to Fort Bend County, all counties except Harris County



Review Economic Development Policy (workforce)

HB 3260 (K Bell) – Improves the Texas Industry-Recognized Apprenticeship Grant Program

SJR 59(Birdwell/Lambert) – \$850m in funding for TSTC

HB 322 (Guillen) – Expands the use of the JET program at TX Workforce Commission

SB 1143 (Blanco) – Aims to improve local workforce board programs impacting “opportunity youth” & ~~requires new reporting of economic development agreements that create over 100 jobs~~

Economic Development Policy (energy)

SB 6 (King) – Improves the interconnection process for large loads

HB 14 (Harris) – Incentive program for small modular nuclear reactors

HJR 7 / SB 7 (Harris/Perry)– Dedicated Water Funding (\$1b per year)

Support “all the above” electric generation approach

- Several anti-wind, solar, and battery storage bills **did not pass** into law.
 - ~~SB 819 (Kolkhorst)~~=onerous siting requirements for wind/solar projects
 - ~~SB 1754 (Birdwell)~~=prohibits 312, 380, and 381 agreements on renewable energy projects
 - ~~SB 715 (Sparks) / HB 3356 (Patterson)~~=creates firming/reliably requirements aimed at renewable energy projects

General Business Environment

- **SB 840 (Hughes)** – Preempts certain local zoning regulations for cities over 150k in population, in counties over 300k in population. See also:
 - **SB 15** – smaller lot sizes for housing
 - **HB 24** – new rules on comprehensive zoning changes
- **SB 25 (Kolkhorst)** – Creates onerous food labeling requirements.
- **SB 29 (Hughes/Vasut)** – Provides more legal certainty for companies (especially public companies) around internal shareholder disputes, corporate governance, and certain lawsuits
- **HB 150** – Creates the Texas Cyber Command at UTSA

What's Next?

- **Legislative Summaries**
 - Shorter 1-2 pager – high-level information
 - Longer 3-4 pager – In-depth on issue areas (eco devo, workforce, infrastructure...)
- **Rulemaking**
 - Usually starts late summer/early fall, depending on the state agency
- **Policy Development for 90th Legislature**
 - 585 days until the start of the next session 😊
 - JETI changes
 - County Industrial District
 - Better use/investment of ~\$25+b in Rainy Day Fund
 - New items?

BUSINESS BRIEFS

Spring 2025

BAY AREA HOUSTON ECONOMIC PARTNERSHIP

Volume 18, Number 2

INSIDE THIS ISSUE:

**2 QUASAR AWARD
BANQUET**

**3 COMMUNITY
ENGAGEMENT**

**6 SPACE
ALLIANCE
TECHNOLOGY
OUTREACH
PROGRAM**

8 OUR PARTNERS

**BAY AREA
HOUSTON**
Economic Partnership

Letter From the President

This spring, I am proud to reflect on what has already been a fast-paced and productive year for our region. From quality events to tangible successes, we continue to build on the momentum that makes the Bay Area Houston a true powerhouse for innovation, technological advancement, and economic growth.

One of the standout moments this year so far was the Quasar Award, where we had the honor of recognizing Texas A&M University Chancellor, John Sharp, for his exceptional leadership and contributions to the greater Bay Area Houston region. His dedication to advancing Texas' role across industries makes this award well-deserved.

BAHEP also had the opportunity to co-host the annual ASCENDxTexas event, which is the largest space conference across the State of Texas and one of the largest in the country. This event brought together aerospace and business leaders, entrepreneurs, and visionaries from across the globe to discuss the future of manned space exploration.

In addition, Bay Area Houston Day and Galveston County Day at the Texas State Capitol provided a platform to engage with state leaders and advocate for policies that benefit our growing region's economy. These events highlighted the importance of a strong partnership between local communities and state government.

Our region's contributions to space exploration are unmatched. Events such as the Citizens for Space Exploration Freshman Trip in Washington, D.C., and Space Day Texas, allowed us to engage directly with federal and state lawmakers and their offices to advocate for policies that will maintain and grow our leadership in space exploration.

With the introduction of new marketing initiatives and strategies for our Space Alliance Technology Outreach Program (SATOP), we are showcasing the innova-



Brian Freedman

tion that flourishes in our region and translating it into jobs in Bay Area Houston and beyond.

As we move into the second half of 2025, we celebrate the many successes that have emerged through these initiatives, which continue to draw attention to our region as a prime destination for industry, collaboration, and strong partnerships and I am confident that our community will continue to thrive in economic growth. Together, we are shaping a community filled with opportunity for future generations.

Thank you for your support, and let's continue working together to achieve many successes in the future.

Sincerely,

A handwritten signature in blue ink that reads "Brian Freedman". The signature is fluid and cursive.

Brian Freedman
President
Bay Area Houston Economic Partnership

BAHEP's 31st Annual Quasar Award

Since 1994, the Bay Area Houston Economic Partnership (BAHEP) has presented the acclaimed Quasar Award annually for Economic Development Excellence to an outstanding elected official or business leader within the Bay Area region. This award honors someone who has demonstrated a strong and continual effort to support the business foundations of the greater Bay Area Houston communities.

On January 24, 2025, Texas A&M University Chancellor, John Sharp, was honored for his exceptional leadership and dedication at the Quasar Award Banquet held in the elegant Crystal Ballroom at South Shore Harbour Resort & Conference Center in League City, Texas. Vice Chancellor for Engineering at Texas A&M University, Dr. Robert Bishop, accepted the award on Chancellor Sharp's behalf.

As Chancellor of Texas A&M University, Sharp oversees the Texas A&M University at Galveston Campus located on Galveston Island. Founded in 1962, Texas A&M University at Galveston plays a significant role in Bay Area Houston's education, research, and economic development. Chancellor Sharp's leadership also extends to the Texas A&M Space Institute, a \$200 million project that will be located on the NASA Johnson Space Center campus. This institute is set to launch Texas A&M's space research capabilities and collaborations, serving as a critical touchpoint for the Texas Space Commission and fostering partnerships among universities, commercial entities, and government agencies.

Accepting on Sharp's behalf, Dr. Bishop



(L to R) Gwen Griffin, 2024 BAHEP board chairman and CEO/Founder of Griffin Communications; Dr. Robert Bishop, Dr. Greg Bonnen, Texas State Rep., and BAHEP President Brian Freedman.

congratulated Sharp and noted his well-deserved stature, "Chancellor Sharp is a visionary leader. He tirelessly champions the state of Texas and all of its citizens. He is a dreamer, he dreams big, and he inspires other leaders in his orbit, including me, to also dream big. Not only does he set us on a trajectory to take us through lower orbit, to the moon, to mars, and beyond. But he also provides the fuel to make that happen."

BAHEP President, Brian Freedman, congratulated Sharp and thanked Dr. Bishop along with every other person in attendance for their support. Freedman spoke of BAHEP's commitment to assuring quality of life in the Bay Area region. "That's BAHEP in a nutshell: we find practical solutions, one small step at a time, benefiting everyone in the process. Little by little does the trick. We are persistent. We believe that if our first solution does not solve the problem, we will think of another solution. We keep working until we get an an-

swer that works. All thanks to our dedicated, talented team, our board of directors, and our incredible community."

Gwen Griffin, 2024 BAHEP chair and founder and CEO of Griffin Communications, shared her experience, "I say our narrative this year for BAHEP might be called The Quest.... Always working to sustain our thriving region. We completed our strategic plan update. We expanded our outreach and influence across Texas and around the world. We created jobs and capital investments. We established new committees.

Committees to address critical needs for our region, which is another thing of this quest. We always see what needs to be done in a timely fashion. We have expanded our support to our healthcare providers. We have doubled our programming for the benefit of our members and the partners. So, 2024 was a success."

2025 BAHEP Board Chair and President of Barrios Technology, Kelly Page, shared her excitement for the upcoming year. "BAHEP had a great 2024, and I am looking forward to continuing the momentum that was started and entering into BAHEP's 49th anniversary. Thanks to Gwen and Tim's (2023 Chair) leadership, we have charted the next five years of our strategic plan, and I am ready to embark on this first year. Our region is rich in culture and history, and my goal is to take the charge of BAHEP to lead this next generation.... Together I am confident we will continue pushing these boundaries and creating a future we can all be proud of."

Community Engagement



(L to R) BAHEP President Brian Freedman, Board Chair, Kelly Page, Guest Speaker Jesse Thompson, NASA's Johnson Space Center Director, Vanessa Wyche, and President and CEO of Moody Bank, Vic Pierson.

February GMM with Jesse Thompson

The Bay Area Houston Economic Partnership hosted its first General Membership Meeting (GMM) of 2025, on Wednesday, February 19th at the Lakewood Yacht Club in Seabrook, Texas. Sponsored by platinum member Moody Bank, and gold members Harris County Precinct 2, Houston Methodist Clear Lake Hospital, Joiner Architects, and San Jacinto College, BAHEP's February GMM featured Jesse Thompson, a senior business economist at the Houston Branch of the Federal Reserve Bank of Dallas.

Thompson's presentation titled, *"Soft Landing 2025: Optimism, Risks, and Uncertainty in the Houston/Regional Outlook,"* answered questions on current trends on economic data. "As we have come into the year, we have definitely seen a boost in business optimism and improved outlooks, this means that

firms are looking and are optimistic about 2025, more so than they were coming into 2024. Business investment and construction are robust amid well-supplied energy markets [and] the U.S. looks to be on course for trend GDP growth, full employment, and continued progress towards two percent inflation."

ASCENDxTexas 2025

BAHEP partnered with AIAA, The American Institute of Aeronautics and Astronautics, to co-host the fourth annual ASCENDxTexas event at the South Shore Harbour Resort, in League City, Texas, on February 27th.

ASCENDxTexas is an aerospace community summit bringing together a broad set of stakeholders from NASA, industry, academia, and private entities to help build connections into partnerships, and engage in continuous discussions on strategy and development. ASCENDxTexas focused on impactful outcomes and identifying opportunities as a mission rather than a solution.



BayTech Director and Aerospace Marketing Manager, Kim Morris, and Caroline Emmert with AIAA.

Kim Morris, BAHEP Aerospace Marketing Manager, shared, "ASCENDxTexas

brings together a diverse community to foster collaboration, build partnerships, and address evolving challenges in the space economy. This platform helps shape the future of space exploration across NASA, industry, academia, and government; BAHEP is honored to co-host this event."



BAHEP and Clear Lake Area Chamber of Commerce at the Capital for Bay Area Houston Day.

BAHEP Day In Austin

Bay Area Houston Economic Partnership partnered with the Clear Lake Area Chamber of Commerce to organize Bay Area Houston Day at the Capitol on March 4, 2025. Over 100 travelers from our community met with legislative offices to discuss the issues that are important to our region.

BAHEP President, Brian Freedman, and Vice President, Mark Mitchell, met with representatives alongside Clear Lake Area Chamber of Commerce President Cindy Dewease and Vice President, Shari Sweeney, with committee chairs and other legislators advocating for the vitality of Bay Area Houston's industry clusters.

Also in attendance Colonel Mike Fossum (Ret.) Superintendent of the Texas A&M Maritime Academy in Galveston and

four of his cadets, Dr. Richard Walker President of the University of Houston Clear Lake, the Superintendents of Pasadena ISD and Clear Creek ISD both with high school students, former Mayor, Michel Bechtel, and Houston City Councilman Fred Flickinger. In total, our community provided information to 140 elected officials.

Important topics discussed included Aerospace, Defense Economic Adjustment Assistance Grant (DEEAG), Workforce Development, Energy, Healthcare Services, Public Safety, Small Business, Storm Surge Suppression and Flood Mitigation, and Transportation and Infrastructure.

Galveston County Day in Austin

Freedman and Mitchell participated in the 89th Texas Legislature Galveston County Day alongside the Galveston Regional Chamber of Commerce, League City Regional Chamber of Commerce, and Texas City - La Marque Chamber of Commerce on March 6, 2025. BAHEP was honored to contribute to Galveston County's mission to advocate for policies that foster economic growth, enhance quality of life, and support the unique needs of their coastal community.

The trip consisted of teams that advocated for the issues of importance to the Galveston County community including workforce development, coastal resilience, Infrastructure, maritime training, property tax revenue, land use regulations, Pelican Island Bridge replacement, insurance, water supply and power generation, and restaurants and small businesses.

Galveston County Day in Austin was sponsored by Bolivar Peninsula Chamber of Commerce, Friendswood Chamber of Commerce, Galveston Regional Chamber of Com-



Galveston Regional Chamber of Commerce, League City Regional Chamber of Commerce, Texas City- La Marque Chamber of Commerce, and BAHEP on the Capitol steps.

merce, Hitchcock Chamber of Commerce, League City Regional Chamber of Commerce, Santa Fe Chamber of Commerce, and Texas City - La Marque Chamber of Commerce.

Citizens For Space Exploration

Bay Area Houston Economic Partnership President, Brian Freedman, Vice President, Mark Mitchell, and Director of Bay-Tech and Aerospace Marketing Manager, Kim Morris, traveled to Washington D.C. on March 11, 2025, for the Citizens for Space Exploration (CSE) Freshmen Mem-

ber Trip. This event provided an opportunity for space industry advocates to meet with lawmakers and promote policies supporting space exploration.

The CSE delegation pushed for continued funding for NASA's missions, such as the International Space Station, and raised awareness about the importance of supporting the Human Space Exploration Program.; they also demonstrated the benefits of space exploration, including advancements in healthcare, scientific research, technology, and fostering future leaders in fields like engineering, physics, and

mathematics.

In May, CSE teams will return for the 33rd annual Citizens for Space Exploration trip to further advocate for human space exploration and human space flight in Washington, D.C.

Space Day Texas 2025

March 25-2025, marked the bi-annual Space Day Texas Event at the Texas State Capitol celebrating a new age of Texas space exploration. BAHEP President, Brian Freedman, Aerospace Marketing Manager, Kim Morris, Space Alliance Technology Outreach Program (SATOP) Director, Bob Payne, and the SATOP team traveled alongside NASA, aerospace companies, and higher education institutions to showcase the latest in Texas space innovation through educational displays.

Space Day Texas brings together organizations from across the state through interactive exhibits, installations, and a variety of events including the Artemis Moon Tree Ceremony, Ice Cream Social at The Legislative Conference Center, and Q&As with the



(L to R) BAHEP President Brian Freedman, Norm Knight, Acting JSC Deputy Center Director, Reid Wiseman, Artemis II astronaut, Steve Koerner, Acting JSC Center Director, Arturo Sanchez, NASA JSC External Relations, Tim Kopra, CEO, Starlab Space at Space Day Texas.

Artemis II crew. The trip highlighted innovative space technology, educational and training programs, virtual reality simulations on the moon, and how to become more involved in the future of space exploration in Texas.

BAHEP organized five teams consisting of twenty members of the BAHEP Aerospace Advisory Committee to hold scheduled meetings with key elected officials to advocate for the commercial space industry in Texas as well as highlighting the positive impact to the state's economy as the industry continues to grow.

BAHEP's SATOP team staffed a BAHEP exhibit inside the Capitol building where they showcased how they are supporting space industry growth by connecting small businesses to FREE technical assistance.

Ryan Walsh Talks "Hosting the World" at BAHEP General Membership Meeting

The new CEO of the Harris County-Houston Sports Authority, Ryan Walsh, gave the Hosting the World presentation at the Bay Area Houston Economic Partnership's General Membership Meeting on April 3, 2025, at the new

Great Wolf Lodge Water Park and Resort located in Webster, Texas.

In this new role, Walsh will collaborate with partners in the city, county, and with Houston's professional sports teams. Together with the Sports Authority Board, he aims to elevate the area's world-class venues to remain competitive in the constantly changing sports landscape and drive economic impact through high-profile events. Walsh's vision for the Sports Authority is to find innovative ways to increase financial contributions to the maintenance and development of sports facilities.

Alongside 3 host countries, and 16 host cities, the Harris County-Houston Sports Authority plans to leverage the power from the FIFA World Cup to expand access and economic impact across the region.

Ryan Walsh answered questions from major stake holders in the Bay Area Houston Region stating, "Part of what makes the Houston region great are the amenities all over the region, including those in the Bay Area. We will be highlighting and promoting these amenities and work with you all to continue to promote these as we have millions of people traveling to our city."

Key Leaders Meet for Galveston County Economic Developers Luncheon

Bay Area Houston Economic Partnership hosted Galveston County Regional Economic Developers for



Key stake holders at the Galveston County Regional Economic Developers Luncheon at the BAHEP offices.

the bi-monthly luncheon on April 10, 2025. This event gathers regional stakeholders to discuss the vitality and future of Galveston County's economic landscape.

BAHEP Vice President, Mark Mitchell, kicked off the luncheon with welcoming remarks, setting the tone for an engaging discussion, while BAHEP President, Brian Freedman, provided attendees with an overview of upcoming organizational initiatives and projects.

The event featured guest speaker, Barry Ferguson, the Vice President of Wycoff Development and Construction, LLC, who delivered a presentation highlighting Wycoff Development's legacy and its commitment to regional growth. Ferguson explained the importance of understanding the specific needs of cities and counties within a region, and how tailored strategies can lead to sustainable development.

Ferguson displayed Wycoff's expertise in attracting new business, eliminating common pitfalls, fostering strategic partnerships, and contributing to consistent growth planning. His insights emphasized the value of collaboration and partnership between the public and private sectors in shaping economically resilient communities.



The Harris County - Houston Sports Authority CEO, Ryan Walsh, and Bay Area Houston Economic Partnership President, Brian Freedman.

Space Alliance Technology Outreach Program

S A T O P

SPACE ALLIANCE TECHNOLOGY OUTREACH PROGRAM

What is SATOP?

The Space Alliance Technology Outreach Program is a state-funded program, designed to assist Texas small businesses (100% FREE of charge) overcome product development challenges. Our network of alliance partners speeds the transfer of aerospace knowledge. Administered by the Bay Area Houston Economic Partnership (BAHEP), we enable small businesses to grow and strengthen the Texas economy by facilitating the development of new and improved products.

Mission Statement

Our mission is to foster job creation, support new products for market, and overall stimulate the economy in the state of Texas. We accept requests for technical assistance from entrepreneurs and small businesses who face challenges in prototyping and product development. Through a network of alliance partner volunteers, SATOP translates aerospace industry expertise into practical solutions to advance innovation and boost the Texas economy.

SATOP Attends Houston Methodist Innovation TechHub

SATOPs Technical Specialist, Dr. Lissa Blackert, attended the Houston Methodist Innovation TechHub event at the Ion on January 16, 2025. The Houston Methodist Innovation TechHub explored innovative



(L to R) SATOP Intern, Drucilla Rovito, President and CEO of Houston Minority Supplier Development Council Ingrid M. Robinson, IACCGH Executive Director, Jagdip Ahluwalia, Small Business Series Attendee, and SATOP Project Specialist Troy Morris at the IACCGH Small Business Series.

ideas and provided a networking opportunity for Houston area professionals interested in healthcare innovations.

The featured speaker at the event was Dr. Evan D. Collins, an Orthopedic Surgeon, Chief of the Houston Methodist Hand & Upper Extremity Center, and Innovator in-Residency for the Houston Methodist Center for Innovation. Dr. Collins spoke about changing management when adopting new innovations.

Dr. Blackert spoke with many professionals, including Murat Uralkan, Director of Innovation at Houston Methodist Center for Innovation, on collaboration opportunities to support startups and small businesses in the Bay Area Houston region.

SATOP Kicks Off Collaborations with TAMU's EPICS

SATOPs Technical Specialist Dr. Lissa Blackert and Project Specialist Intern Drucilla Rovito travelled to Texas A & M University (TAMU) at College Station on January 17, 2025, to kick off SATOPs participation with Engineering Projects in Community Service (EPICS) class.

EPICS is a program at TAMU that provides second year engineering students with the opportunity to participate in an interdisciplinary team effort to apply engineering principles to solve open ended problems that will have a societal impact. Dr. Blackert and Rovito presented project requests from small businesses that sought help through SATOP at the start of the semester. Each project that presented was selected by the EPICS class.



Texas A & M University Students and Faculty at the EPICS mid-semester presentations.



SATOP Intern and Project Specialist, Drucilla Rovito, pictured at IACCGH Shell USA Women in Business.

Indo-American Chamber of Commerce of Greater Houston Small Business Series

SATOP attended the Indo-American Chamber of Commerce of Greater Houston (IACCGH) Small Business Series featuring the Houston Minority Supplier Development Council (HMSDC) on February 11, 2025, at Elite Restaurant in Sugar Land. Ingrid M. Robinson, President and CEO of Houston Minority Supplier Development Council shared valuable expertise on empowering minority-owned businesses.

SATOP Presents at Houston Inventors Association

SATOP's Program Manager, Andrew Thueme, and Technical Specialist, Dr. Lissa Blackert, presented at the Houston Inventors Association (HIA) on February 12, 2025. Blackert and Thueme spoke to many inventors and entrepreneurs looking for solutions to their technical challenges.

HIA is one of the largest inventors groups in America. They host monthly meetings featuring guest speakers who share their knowledge, resources, and much more for the purpose of helping entrepreneurs and inventors with their

next steps in pursuing an idea, concept, or design.

SATOP Attends Houston Minority Supplier Development Council 2025 Annual Meeting

After connecting with speaker Ingrid Robinson at the IACCGH Small Business Series, SATOP Program Manager Andrew Thueme and Project Intern Drucilla Rovito attended the Houston Minority Supplier Development Council's (HMSDC) annual meeting on February 19, 2025. The event overviewed the incredible opportunity becoming a member is for minority small business development in Houston, including introductions to large companies for potential partnership. Following the presentations, Thueme and Rovito networked with entrepreneurs and small businesses to discuss the SATOP program and how it could be a resource to



SATOP Project Specialists, Marcela Barton, alongside participants at the Houston East End Small Business RESOURCE Fair.

the minority business enterprises.

SATOP Presents at the Brownsville Lunch and Learn

SATOP's Associate Project Specialist, Marcela Barton, paneled the Brownsville Community Improvement Corporation's (BCIC) Lunch and Learn on February 19, 2025. Over 15 small business owners and entrepreneurs attended the event either in-person or virtually. Barton had robust discussions with many attendees about their ideas and products.

BCIC, an economic development organization located in Brownsville, Tx, serves as the regional representative for SATOP in the South Texas and Rio Grande Valley areas. BCIC markets the SATOP program to their small business community and refers qualifiable projects to the program.

SATOP Attends East End Small Business Resource Fair

SATOP's Associate Project Specialist Marcela Barton staffed a booth at the East End Small Business Resource Fair hosted by Baker Ripley on February 25, 2025. The event brings together a diverse array of organizations dedicated to supporting local businesses in the Houston region, specifically Harris County. Over 50 people attended the event throughout the morning, with over 25 people visiting the SATOP booth. Barton spoke to many small businesses and aspiring inventors with innovative ideas and products.

SATOP Participates in JSC SBC's Spring Conference

SATOP Project Specialist, Troy Morris, and Associate Project Specialist, Marcela Barton, exhibited a booth at the Johnson Space Center (JSC) Small Business Council's (SBC) Spring Conference. This event was held at the Lone Star Flight Museum on March 31, 2025. The conference featured a matchmaking event where small

businesses had the opportunity to network and discuss future collaboration opportunities.

The JSC SBC Spring Conference is held annually with the goal of strengthening communication between small businesses, contractors, and the technical community to maximize the value and impact of the small business community. SATOP representatives showcased how the program connects small businesses with professional expertise for FREE technical assistance to overcome product development challenges.

Membership

Bay Area Houston Economic Partnership owes much of its success to the active participation of its members. Following is a current list of BAHEP members.

Acadian Ambulance Service	BMW-MINI OF CLEAR LAKE	Del Papa Distributing Company
ADACEN	The Boeing Company	Deloitte
AECOM	Booz Allen Hamilton	Department of Economic Equity and Opportunity (DEEO)
Aegis Aerospace, Inc.	Bowers & Sadler, LLP	Devereux Advanced Behavioral Health
Aerodyne Industries	The Bridge Over Troubled Waters, Inc.	Dickinson ISD
The Aerospace Corporation	Brockway Commercial	DKK Consulting
AeroSys, LLC	Burns & McDonnell	DK's Dustbusters, Inc.
AEXA Aerospace, LLC	Callan Marine	Draper Laboratory
American Institute of Aeronautics and Astronautics	Capital Bank - Pasadena	DRDA, PLLC
Airbus U.S. Space & Defense, Inc.	Clear Creek Independent School District	eCon USA LLC
All Points Logistics, LLC	CDS Community Development Strategies	Economic Alliance Houston Port Region
Alvin Community College	CenterPoint Energy	Elizabeth Smith Life and Health
Amentum	Charles Schwab & Co.	Energy Architecture, Inc.
American Acryl	Chemical Process and Production, Inc.	Environmental Science and Engineering (ESE) Partners
American Center for Manufacturing & Innovation (ACMI)	CHI St. Luke's Health Patients Medical Center	The Exploration Company US LLC
AMOCO Federal Credit Union	Cimarron	Express Employment Professionals
ARES Corporation	City of Clear Lake Shores	The Eye Clinic of Texas
Arrow Science and Technology, LLC	City of Deer Park	Family Promise of Clear Creek
Aspell Services, Inc.	City of Dickinson	Family Service Center / The Center for Mental Health
AssuredPartners	City of El Lago	Fast Signs - Clear Lake
Astrion	City of Friendswood	Fertitta Chevrolet
AVERA Companies	City of Hitchcock	Fogo de Chao Friendswood, LLC
Avison Young	City of Houston	Friendswood Chamber of Commerce
Axiom Manufacturing Systems, LLC	City of Houston, Houston Airport System	Friendswood ISD
Axiom Space, Inc.	City of Kemah	Frost Bank
Ayrshire Corporation	City of La Marque	Galaxy Tek Hires
b1 Bank	City of La Porte	Galveston - Texas City Pilots
Bay Area Coastal Protection Alliance	City of League City	Galveston Bay Foundation
Bay Area Commercial Real Estate Network (BACREN)	City of Morgan's Point	Galveston County
Barita Law Firm, PLLC	City of Nassau Bay	Galveston County Health District
Barrios Technology	City of Pasadena	Galveston County Small Business Development Center
Bastion Technologies, Inc.	City of Santa Fe	Galveston Daily News
Battleship Texas Foundation	City of Seabrook	Galveston Economic Development Partnership
Bay Area Council on Drugs & Alcohol	City of Taylor Lake Village	Galveston ISD
Bay Area Habitat for Humanity	City of Texas City	Galveston Regional Chamber of Commerce
Bay Area Houston Ballet & Theatre	City of Webster	Gannett Fleming TranSystems
Bay Area Houston Magazine	Clark Construction LLC	GB Tech, Inc.
Bay Area Houston Transportation Partnership (BAYTRAN)	CLC Properties	GEO Consultants Corporation
Bay Area Turning Point, Inc.	Clear Lake Area Chamber of Commerce	GeoControl Systems, Inc.
Bay Oaks Country Club	Clear Lake City Water Authority	Global Business Management Consultants
Baybrook Mall - Brookfield Properties	College of the Mainland	Great Wolf Lodge
Baylor College of Medicine Center for Space Medicine	Collins Aerospace	Greater Houston Partnership
Bay Area Houston Advanced Technology Consortium	Comcast Business	Green Appraisal, LLC
Beacon Federal Credit Union	Communities In Schools - Bay Area, Inc.	Greer, Herz & Adams, LLP
Bernard J. Roan Law Office	Community Health Network (MYCHN)	Gregg & Gregg, P.C.
Bilmar Consulting, LLC	Community Impact Newspaper	Griffin Communications Group
	Courtyard By Marriott Houston NASA/Nassau Bay	Griffin Partners, Inc.
	Coventry Development Corporation - Houston	Group 1 Automotive, Inc.
	Craig Technologies	Gulf Coast Authority
	Criss Cross Commercial Group	Gulf Coast Educators Federal Credit Union
	Crown Castle	Gulf Coast Limestone, Inc.
	Cyber One Solutions, LLC	
	CYFOR Technologies, LLC	
	Cypress Bay Subdivision/Marina Bay Village	
	Dave & Busters / Main Event	

Gulf Coast Protection District (GCPD)	Lone Star Flight Museum	Shriners Children's Texas
Gulf Coast Workforce Board	Mackinnon and Partners	Sierra Space
Ham, Langston & Brezina, LLP	Manhattan Construction Company	Sophic Synergistics
Harris County	Marsten Consulting	South Belt Ellington Leader
Haute Flowers & Events	Max Space	South Belt-Ellington Chamber of Commerce
HCA Houston Healthcare Clear Lake	McCorkle Insurance Services, LLC	South Shore Harbour Resort & Conference Ctr.
HCA Houston Healthcare Southeast	Meador Staffing Services, Inc.	Southwest Airlines Company
Health and Safety Council	Media Riders, Inc.	Space Center Houston
HIGHER Up Texas	Medistar Corporation	Space City Films, Inc.
Highpoint Insurance Group, LLC	Memorial Hermann Southeast Hospital	SSCI Environmental & Consulting Services
Hilton Houston NASA Clear Lake	Mercedes-Benz of Clear Lake	Star Service, Inc.
Hitchcock Chamber of Commerce	Merrill Lynch	Steel Frederick Group, LLC
Hitchcock ISD	Metis Technology Services Inc.	Stellar Bank
Home Bank	Minuteman Press - Bay Area	Strata Systems
HomeTown Bank, N. A.	Moody Bank	Successful Events
Honeywell Aerospace Technologies	MORI Associates, Inc.	Summit Management Group
Houston Association for Space and Science Education	MRC The Crossings	TABI, LLC
Houston Association of Realtors	MRI Technologies	Tannos Development Group, LLC
Houston First Corporation	MRM Proposal Solutions	TDECU
Houston Methodist Clear Lake Hospital	NASA Alumni League - JSC Chapter	TechTrans International (TTI)
Houston Pilots	NASA Johnson Space Center	Teledyne Brown Engineering
Houston Precision Fasteners	Navarro Insurance Group	Terracon Consultants, Inc.
ILC Dover	New Horizon Strategies, LLC	Texas A&M University at Galveston
IMA Financial Group	Northrop Grumman Corporation	Texas Boutique Realty / H-Town Living
ImageNet Consulting	Novium LTD	Texas Chiropractic College
Implemetrics, Inc.	Oceaneering Space Systems, Inc.	Texas City ISD
Innovative Lifting, LLC	One Stop Tents & Events	The Alliance for Youth & Families
International SOS-Government Medical Services	Outreach Strategists LLC	tommy's Restaurant Oyster Bar
Intuitive Machines, LLC	PAE	Transwestern
J&P Technologies	Pasadena Economic Development Corporation	TXU Energy
J. A. Billipp Company	Pasadena Independent School District	UHCL Center -Economic Development & Research
Jacob White Construction	Pasadena Texas Chamber of Commerce	Unbound Now Houston
JC2 Technologies, LLC	Paterson Consulting Partners LLC/PCP	United Airlines
JES Tech	Digital	United Equities, Inc. (Clear Lake Center LP)
JMK5 Holdings, LLC	Payne's Plants	Universal Weather and Aviation, Inc.
Joiner Architects, Inc.	PBK	Universities Space Research Association-USRA
Kaneka North America LLC	Pearland Economic Development Corporation	University of Houston-Clear Lake
KBR	Peraton	The University of Texas MD Anderson Cancer Center
Keller Williams Realty Clear Lake	Perry's Restaurant Group	UTMB Health
Kemah Boardwalk	Port Houston	V2X
Kindred Hospital Clear Lake	Québec Delegation in Houston	Vedo Systems
Kulr Technology Group	Qwaltec, Inc.	Venus Aerospace
Kuraray America, Inc.	Radiant Energy Partners	Voyager Space
La Porte - Bayshore Chamber of Commerce	The Ray Tax Group	W. Derrell Curry - Savills, Inc.
La Porte Independent School District	Rhodium Scientific	Watchdog Site Surveillance LLC
Lakewood Yacht Club	RHP Wealth Management	WDHB, Inc.
League City Regional Chamber of Commerce	Rice University, Space Institute	Welcome Group, LLC
Leidos	Robinette & Company Caterers, Inc.	Wellby Financial
Levi Benton & Associates, PLLC	Rothe Development, Inc.	Wells Fargo - Commercial Bank
Lewis Jewelers	Rutledge Commercial Real Estate	Wells Fargo - Private Bank
Lexus of Clear Lake	S&K Global Solutions	Wings Over Houston Air Show
Lighthouse Video Surveillance	Sage Commercial Group, LLC	Wycoff Development & Construction, LLC
Lockheed Martin Space Systems Company	San Jacinto College District	YMCA of Greater Houston
Lockridge Packaging, LLC	Santa Fe Chamber of Commerce	Young Industries Group
Lockwood, Andrews & Newnam, Inc.	Santa Fe ISD	Zann Commercial Brokerage, Inc.
Logical Innovations, Inc.	Schaumburg & Polk, Inc.	
	Science Applications International Corporation (SAIC)	
	Sea Star Base Galveston	



**CLEAR LAKE SHORES DEER PARK DICKINSON EL LAGO
FRIENDSWOOD HITCHCOCK HOUSTON KEMAH LA MARQUE
LA PORTE LEAGUE CITY MORGAN'S POINT NASSAU BAY
PASADENA SANTA FE SEABROOK TEXAS CITY
TAYLOR LAKE VILLAGE WEBSTER**

**Bay Area Houston
Economic Partnership**

1150 Gemini Street
Suite #: 1050
P.O. Box 58724
Houston, Texas 77258-8724
Phone: 832.536.3255

Web: www.bayareahouston.com
E-mail: info@bayareahouston.com
Facebook: BayAreaHoustonEcon

The Bay Area Houston Economic Partnership, BAHEP, is a member-driven organization that provides the leadership to stimulate regional economic development and employment. Utilizing a collaborative committee structure, we engage more than 320 investor companies, business professionals, local governments, and educational institutions in southeast Texas to bring about prosperity and a high quality of life for the 1.5 million people who live and work in the region. Our members include business partners, 19 member cities, Galveston County, Harris county, the Houston Airport System, and Port Houston.

Bay Area Houston Economic Partnership sincerely thanks Harris County Precinct 2, Port Houston, the Houston Airport System, CenterPoint Energy, Southwest Airlines, and United Airlines for their continued support of BAHEP's work for the region.



Walmart Takes Flight With Drone Delivery Expansion to Five New Cities, Redefining Fast, Flexible Retail

Key Insights

- With the expansion of ultra-fast drone delivery to Atlanta, Charlotte, Houston, Orlando and Tampa, Walmart is the first retailer to scale drone delivery across five states.
- With over 150,000 successful drone deliveries since 2021, this expansion underscores Walmart's commitment to reshaping the future of fast and flexible retail.

June 5, 2025 4 Min. Read [Business](#) [Press Center](#)



BENTONVILLE, Ark., June 5, 2025 — Walmart is taking convenience to new heights — and new speeds — with the expansion of its drone delivery service. Now, millions of customers in Atlanta, Charlotte, Houston, Orlando and Tampa will enjoy the convenience of receiving their orders in just minutes — making Walmart the first retailer to scale drone delivery across five states: Arkansas, Florida, Georgia, North Carolina and Texas. This rapid expansion reinforces Walmart's leadership in tech-enabled retail, bringing the future of shopping to even more customers — right from the sky, faster than ever before.

"As we look ahead, drone delivery will remain a key part of our commitment to redefining retail. We're pushing the boundaries of convenience to better serve our customers, making shopping faster and easier than ever before," said Greg Cathey, senior vice president of Walmart U.S. Transformation and Innovation. "This expansion of our drone delivery service marks a significant milestone in that journey. As the first retailer to scale drone delivery, Walmart is once again demonstrating its commitment to leveraging technology to enhance our delivery offerings with a focus on speed."

[Press Center](#)

[Images \(4\)](#) - 2.2 MB



[Videos \(1\)](#) - 4.1 MB



[View Press Center](#)



Next-level convenience, delivered to more customers in minutes

The new drone service will launch at 100 stores, building on the existing operations in Northwest Arkansas and Dallas-Fort Worth. Through an agreement with established drone provider Wing, Walmart can deliver a faster, more efficient service to even more customers — ensuring they get what they need, when they need it, in a way that's both safe and sustainable. Wing operates within FAA guidelines, flying their drones Beyond Visual Line of Sight (BVLOS) up to a 6-mile aircraft range from the store.

"This is real drone delivery at scale," said Adam Woodworth, CEO of Wing. "People all around the Dallas-Fort Worth metroplex have made drone delivery part of their normal shopping habits over the past year. Now we're excited to share this ultra-fast delivery experience with millions more people across many more U.S. cities."

Customers in Atlanta, Charlotte, Houston, Orlando and Tampa can sign up on Wing's website to be notified when drone delivery becomes available in their area by visiting wing.com/walmart.

Dallas-Fort Worth customers can check their eligibility for service today at wing.com/dfw.



From first flight to full speed ahead

Since launching drone delivery in 2021, Walmart has completed more than 150,000 deliveries within minutes. With the expansion, the company is set to make shopping even more convenient for its shoppers — offering thousands of products delivered directly to their door, faster than ever — in 30 minutes or less.

As Walmart grows its footprint in these new cities, customers can utilize one of the retailer's fastest delivery options for everything from groceries to health and wellness products to household essentials, all powered by drone technology. Customers are using drone delivery for key ingredients they may have forgotten during their weekly grocery trip or for urgent care items, such as OTC cold/flu medicine, baby formula and COVID tests. Among the most frequently delivered products:

- Fresh fruit, including bananas, lemons and limes
- Great Value eggs
- Ice cream
- Pet food



Customers and communities continue to welcome Walmart's expanding drone delivery operations in Dallas-Fort Worth. Earlier this year, Zipline launched its first-ever P2 drone site at Walmart stores in Mesquite and Waxahachie, Texas, offering a delivery experience that's quieter than the average delivery truck.

Drone delivery is just one of the many ways Walmart is accelerating convenience by offering faster, more efficient delivery options. With choices like Express Delivery (as soon as 30 minutes), Late-Night Delivery, and InHome Delivery (right to the refrigerator), Walmart is setting a new standard for speed and flexibility in retail. This milestone marks a major leap for the retail industry and underscores our commitment to innovative, time-saving solutions that make customers' lives easier, faster and more convenient.

About Walmart

Walmart Inc. (NYSE: WMT) is a people-led, tech-powered omnichannel retailer helping people save money and live better — anytime and anywhere — in stores, online, and through their mobile devices. Each week, approximately 270 million customers and members visit more than 10,750 stores and numerous eCommerce websites in 19 countries. With fiscal year 2025 revenue of \$681 billion, Walmart employs approximately 2.1 million associates worldwide. Walmart continues to be a leader in sustainability, corporate philanthropy, and employment opportunity. Additional information about Walmart can be found by visiting corporate.walmart.com, on Facebook at facebook.com/walmart, on X (formerly known as Twitter) at twitter.com/walmart, and on LinkedIn at linkedin.com/company/walmart.

Walmart

[Privacy & Security](#) | [Fraud](#) | [Walmart California Consumer Privacy Act Notice](#) | [California Supply Chains Act](#) | [Contact](#) | [Policies](#) | [Terms of Use](#) | [Recalls](#) | [Your Privacy Choices](#)

Walmart U.S. **Sam's Club** **Walmart International**

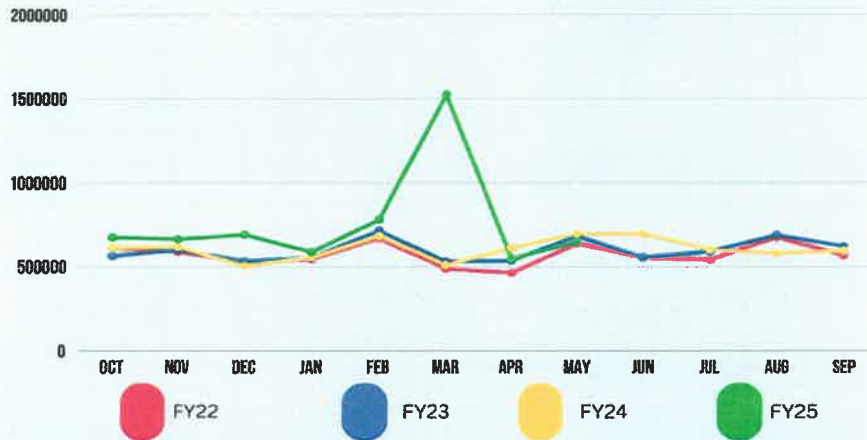


WMT \$95.80 ↓ 1.52

Stock pricing delayed by 20 minutes.

© 2025 Walmart Inc. All Rights Reserved.

SALES TAX REVENUE



	2021-22	2022-23	2023-24	2024-25	Variance	% Change
Oct	614,387	564,989	615,789	675,021	59,232	9%
Nov	591,122	601,617	619,862	663,539	43,677	7%
Dec	531,587	534,367	507,167	691,472	184,305	36%
Jan	546,590	553,612	556,087	588,022	31,935	5%
Feb	672,968	715,843	684,276	780,118	95,842	14%
Mar	488,951	533,386	511,172	1,524,252	1,013,079	198%
Apr	465,157	538,045	613,321	549,469	-63,852	-10%
May	638,759	682,998	698,196	658,272	-39,924	-6%
Jun	556,317	557,247	695,669			
Jul	545,362	591,396	601,266			
Aug	676,212	688,897	579,960			
Sept	568,161	622,050	595,534			
Total	<u>6,895,574</u>	<u>7,184,447</u>	<u>4,805,870</u>	<u>6,130,166</u>	<u>1,324,296</u>	<u>28%</u>

Total Sales Tax - City portion \$ 493,704.25

Total Sales Tax - EDC portion \$ 164,568.08

Note: It was cautioned to the Finance Director that even though payments released by the Comptroller are not precluded from future audit review and potential deallocation there is always a possibility that the payment could be deallocated if the taxpayer is audited, even though the payment was held for a month.

Public Relations Specialist Report

Board Meeting June 17, 2025

- Facebook: 2,000+ people follow the LMEDC Facebook page.
- New Shine On Video: All-Star Dugout Batting Cages
- Upcoming Shine on Videos: HOTWORX is interested in doing a video; we just need to pick a date to film. I'm trying to set a date with Sid's Grooming & More. I contacted Velocity and Building Blocks Academy to see if they would be interested in having a video done.
- Worked with the city PR team to get our latest Shine On Video on the city's YouTube page. As well as our Shine On Video landing page on our website.
- Working on the Summer 2025 edition of Inside La Marque.
- Mayor Bell's Small Business Series will be on Monday, August 11 at the Library. The topic will be "Google My Business Pages and SEOs" with Wendell Jordan from Jordan Marketing Consultants.
- Comcast commercials are currently on air and will continue through July 2025. The Half Season Astros commercials started in March and will continue until September 2025.
- iHeart Media streaming radio and Spanish ads have begun and will continue through June 2025.
- I attended the Ribbon Cutting for HOTWORX on Thursday, May 15, and helped take photos of the event. I shared these photos with the owner and the TCLM Chamber.
- I attended State Farm Ken Ross's surprise birthday office gathering on Thursday, May 15.
- I attended the city's Hurricane Huddle event on Saturday, May 17. I had a table set up and brought promotional items, Hurricane Preparedness information, and Spring Inside La Marque magazines to hand out to attendees.

- I helped HOTWORX promote their Grand Opening on Saturday, June 7 by sending out the flyer to city employees and sharing their event information on Facebook.
- I attended the Galveston County SBDC 40th Anniversary and TCLM Chamber Business of the Month celebration with Alex on Wednesday, May 21.
- Helped Hangry Joe's with promoting their business. I made a "Thank You Educators" promotional flyer to post on Facebook to help draw business to them this summer.
- Helped Jason Ellison, Development Services, create their PowerPoint Presentation for the Small Business Summit.
- Continued to help the TCLM Chamber promote the Small Business Summit event on Wednesday, May 28. I helped create a few promotional flyers for this event, including a save-the-date flyer and an official event flyer. I also boosted the event on Facebook a few times to help get the word out.
 - On Wednesday, May 28, I spoke at this event. Despite the heavy rain/bad weather that day, we had about 20 individuals attend this event. I spoke at this event, going last, I was able to share about the current happenings around the City of La Marque, such as new and coming soon businesses, where to find properties for sale or lease, TxDOT information, EDC Grant information, and the role I play as the PR Specialist for the EDC.
- We met with Tonya Spangler from Gulfway Plaza on Wednesday, June 4. She let us know updates on businesses in the plaza. Also helping Tonya update the Gulway Plaza retail flyer with Retail Strategies.
- Also on Wednesday, June 4, Alex and I had the opportunity to meet with the new owners of A to Z Fence. We let them know about the possibility of doing a new Shine on La Marque video. We also let them know about the TCLM Chamber and their upcoming events.
- I will be helping Agatha with the city and their table at the TCLM Chamber Business Showcase event from 4-6pm on Wednesday, June 11.

Fiscal Year 2025

Vendor	Description	Estimated Budgeted Amount (\$150,000)	Encumbrance	Actual Expenditures
Comcast	TV Commercials	\$ 25,000.00	\$ 25,000.00	\$ 16,498.00
Facebook	Facebook Boosts	\$ 7,000.00	\$ 5,000.00	\$ 837.94
Texas City ISD	Yearbook Ad	\$ 150.00	\$ 150.00	\$ 150.00
Due North - Trade & Industry	Online Advertisement	\$ 3,500.00	\$ 3,500.00	\$ 3,500.00
Galveston Daily News	Chamber Directory Ad	\$ 2,032.22	\$ 2,032.22	\$ 2,032.22
Galveston Daily News	1/2 page ad Progress Edition	\$ 750.38	\$ 750.38	\$ 750.38
Galveston Daily News	\$2 Challenge Sponsorship	\$ 5,000.00	\$ 5,000.00	\$ 5,175.00
Galveston Daily News	6-Month Ad Jan-June 2025	\$ 5,071.50	\$ 4,709.26	\$ 4,006.99
Galveston Daily News	Remaining 2024 6-Month Ad	\$ 3,054.63	\$ 3,125.40	\$ 3,125.40
Bennett Printing	Printing of Inside La Marque 4 Issues	\$ 25,000.00	\$ 19,425.00	\$ 12,950.00
Bennett Printing	Marketing Cards	\$ 305.00	\$ 305.00	\$ 339.00
4Imprint	Promotional Items	\$ 4,000.00	\$ 1,224.66	\$ 1,224.66
Houston Business Journal	HBJ Advertising	\$ 17,500.00	\$ 17,500.00	\$ 11,500.00
BAYHEB	Booth Share at ICSC	\$ 500.00	\$ 336.20	\$ 336.20
iHeart Radio	Radio Spots	\$ 6,000.00	\$ 6,000.00	\$ 6,000.00
iHeart Radio	Radio Spots (Spanish)	\$ 3,000.00	\$ 3,000.00	\$ 3,000.00
Expansion Solutions (Cornett Publishing)	1/2 page ad & Online Button	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00
Canva	Annual Subscription	\$ 119.99	\$ 119.99	\$ 119.00
Constant Contact	Annual Subscription	\$ 108.00	\$ 107.40	\$ 107.40
Issuu	Annual Subscription Flipbook	\$ 252.00	\$ 252.00	\$ 252.00
Comcast	MLB Half Season PKG	\$ 4,800.00	\$ 4,800.00	\$ 778.00
Galveston Daily News	6-Month Ad July-Dec. 2025	\$ 5,071.50	\$ 4,709.26	
BAYHEB	Aerial Map Advertisement	\$ 750.00		
CityBook	Houston City Book 1 Page Ad	\$ 1,000.00		
Comcast	Commercial Production (2026)	\$ -		
Comcast	MLB ESPN 2 (Spanish)	\$ 6,000.00		
TOTAL		\$ 128,465.22	\$ 109,546.77	\$ 75,187.19

Advertising & Promotional Budget - \$150,000

Notes

Mosquito Spraying Report- June 2025

<u>Date</u>	<u>Street</u>	<u>District</u>
6/17/2025	Brockleigh St.	B
6/17/2025	Downey St.	C
6/17/2025	Fleming St.	B
6/17/2025	Garrett St.	B
6/17/2025	Harlton St.	B
6/17/2025	Kirby Dr.	A
6/17/2025	Lawndale St.	B
6/17/2025	Moss St.	B
6/17/2025	Newman Rd.	B
6/17/2025	Partridge St.	B
6/17/2025	Pessara St.	C
6/17/2025	Rosewood St.	B
6/17/2025	Volney St.	B
6/17/2025	Walnut St.	A
6/17/2025	Williams Dr.	B
6/19/2025	Borondo	B
6/19/2025	Clover Bend Dr.	B
6/19/2025	Clark Dr.	B
6/19/2025	Edgewood St.	B
6/19/2025	Duroux Rd.	B
6/19/2025	Fairwood Rd.	B
6/19/2025	Irada St.	C
6/19/2025	Lazy Ln.	B
6/19/2025	Perthius	B
6/19/2025	Rose Ln.	B
6/19/2025	Westward Ave.	B
6/19/2025	Corben St.	C
6/19/2025	Fannin St.	C
6/19/2025	Florence St.	C
6/19/2025	Lake Rd.	C
6/19/2025	Maxwell St.	C
6/19/2025	May St.	C
6/19/2025	Trinity St.	C
6/19/2025	Woodland St.	C
6/22/2025	1st Ave.	D
6/22/2025	4th Ave.	D
6/22/2025	5th Ave.	D
6/22/2025	Franlee St.	D
6/22/2025	Lee Dr.	D
6/22/2025	Martin Luther King Blvd	D
6/22/2025	Nanlee St.	D

6/22/2025	Orange St.	D
6/22/2025	Plum St.	D
6/22/2025	Prune St.	D
6/22/2025	Ruslee St.	D
6/22/2025	Sarlee Dr.	D
6/22/2025	Banana St.	D
6/22/2025	Meyer St.	D
6/26/2025	Bellview St.	A
6/26/2025	Bernice St.	A
6/26/2025	Boss St.	A
6/26/2025	Jackson St.	A
6/26/2025	Kansas St.	A
6/26/2025	Lake Park Dr.	A
6/26/2025	Lilac St.	A
6/26/2025	Pirtle St.	A
6/26/2025	Rosalee St	A.
6/26/2025	Robbie St.	D
6/26/2025	Stonewall St.	A
6/26/2025	Veronica St.	A
6/29/2025	Amato St.	D
6/29/2025	Chestnut St.	D
6/29/2025	Chip St.	D
6/29/2025	Cypress St.	D
6/29/2025	Elaine St.	D
6/29/2025	Eleanor St.	D
6/29/2025	Elm Dr.	D
6/29/2025	Grafton Dr.	D
6/29/2025	Hackberry St.	D
6/29/2025	Holly St.	D
6/29/2025	Horseshoe Bend	D
6/29/2025	Industrial St.	D
6/29/2025	Lyric Ln.	D
6/29/2025	Murial St.	D
6/29/2025	Rosedale St.	D
6/29/2025	Shady Ln.	D
6/29/2025	Spruce St.	D
6/29/2025	Stubbs St.	D
6/29/2025	Retema St.	D
6/29/2025	Westerlage St.	D
6/29/2025	Winnie St.	D

City of La Marque Compiled Storm Water Work- 2024 and 2025

2024 Total Linear Feet (Channels Cleaned)

District A	1,460 ft
District B	500 ft
District C	957 ft
District D	561 ft
Total	3,478 ft

Total Linear Feet (Culverts Cleaned)

District A	5,416 ft
District B	3,592 ft
District C	5,278 ft
District D	13,001
Total	27,287 ft

Total Linear Feet (Ditches Regraded)

District A	0
District B	600 ft
District C	0
District D	0
Total	600 ft

2025 (To Date) Total Linear Feet (Channels Cleaned)

District A	5,135 ft	
District B	15,056 ft	
District C	2,773 ft	
District D	9,644 ft	
Total	32,608 ft	837% increase from 2024 to current 2025

Total Linear Feet (Culverts Cleaned)

District A	8,814 ft	
District B	1,362 ft	
District C	17,880 ft	
District D	28,178 ft	
Total	56,234 ft	106% increase from 2024 to current 2025

Total Linear Feet (Ditches Regraded)

District A	3,487 ft	
District B	0	
District C	4,778 ft	
District D	15,917 ft	
Total	24,182 ft	3,930% increase from 2024 to current 2025

Channel Cleaning 2024

Date	Address	Linear FT	District
240730	1408 W Houston	70	C
240827	618 Laurel	22	D
240827	12th & Prune	18	D
240827	620 Studio	31	D
240827	1500 Municipal	20	D
240903	1409 W Houston	57	C
240909	1119 Lake	45	A
240909	515 Grafton	60	D
240909	410 Elaine	30	D
240909	2008 12th	85	C
240909	1404 Duroux	25	C
240909	2105 Jeridona	70	C
240912	12th & Orange	300	C
240917	Stonewall	800	A
240927	102 Longdrige	180	C
240927	2901 Cedar	480	A
240927	1407 Foreman	80	C
241007	Westward I45 SBFR	200	B
241009	2602 Lake Road	135	A
241009	1616 Hawthorne	80	D
241009	Grafton	300	D
241104	2014 Edna	90	C
241231	2626 Woodland	300	B

Total Linear Feet (Channels Cleaned)

District A	1,460 ft
District B	500 ft
District C	957 ft
District D	561 ft
Total	3,478 ft

Culvert Cleaning 2024

Date	Address	Linear Feet	District
240723	2914 & 2916 Katherine	18	A
240725	Cherry	15	D
240802	515 Grafton	17	D
240805	436 Elmo	10	D
240805	435 Elmo	17	D
240807	423 Grafton	20	D
240808	1404 W Houston	24	C
240808	801 Hathaway	25	D
240814	Garrett	600	B
240815	503 Ross	56	D
240815	2228 Boss	23	A
240815	Westward & Ashley	10	B
240815	Robbie	34	D
240819	Chimney Corners & L	8	D
240819	Sunset	6	D
240819	Carolyn & Fm 1765	13	D
240819	Stonewall & Lake	13	A
240828	1612 Laurel	9	D
240829	1808 Main	1	B
240816	W Camp Circle	40	A
240817	407 Volney	15	B
240817	801 Volney	17	B
240817	4013 Prairie	22	B
240817	Prairie	15	B
240820	1304 Rhodora	15	D
240820	28 Clover Bend	45	B
240820	3207 Taylor	25	A
240820	Taylor & Vauthier	100	A
240820	4109 Prairie	77	B
240821	Duroux - West Side	30	B
240821	1302 Redbud	64	C
240821	1913 Bogatto	18	C
240822	3912 McKinney	25	A
240822	812 Hudler	30	D
240826	1318 Rhodora	900	D
240826	5002 Lawndale	50	B
240826	5010 Lawndale	50	B
240829	Austin (1303,1406,1408	400	C
240829	2105 Irene	28	C
240829	Crockett	1031	C
240829	1506 W Crockett	168	C

240903	1409 W Houston	27	C
240904	Austin	50	C
240904	Grafton - South side	70	D
240904	2609 Stonewall	50	A
240904	MLK	100	D
240904	Robbie (north side)	200	D
240904	Ave D & 2nd	70	D
240904	1304 Rhodora	40	D
240903	1106 Cora	23	D
240911	5010 Lawndale	45	B
240911	4010 Prairie	20	B
240911	1716-1726 Hawthorne	120	D
240911	2207 Howell	85	D
240911	611 Oak	400	D
240912	2322 Westward	130	B
240912	1103 Cora	83	D
240912	425 Beech	40	C
240912	1014 Maple	33	D
240912	931 Laurel	220	D
240912	Orange St	600	D
240917	1115 Volney	200	B
240917	Vauthier	300	B
240917	Perthuis & Perthuis Fa	400	B
240918	403 Elmo	47	D
240918	8 Broadmoor	120	D
240917	7 Broadmoor	120	D
240919	2 Coronado Circle	800	D
240919	Kenneth	800	A
240919	1103 Cora	90	D
240919	1813 Dalian	60	C
240919	2405 Downey	100	C
240926	2609 Stonewall	20	A
240926	1304 Rhodora	80	D
240926	Ave D & 2nd	120	D
240926	2705 Katherine	60	A
240926	1402 Duroux	35	B
240926	1900 Palm St	40	C
240927	400 Grafton	100	D
240927	3201 Taylor	300	A
240927	3131 Taylor	300	A
240927	708 Grafton	58	D
240927	2219 Scott	42	D
241001	Kenneth	400	A
241001	Foreman	700	D

241003	1326 Foreman	100	D
241003	Winding Way	300	D
241003	404 Robbie	160	D
241003	2405 Downey	96	C
241003	1813 Dalian	200	C
241007	708 Grafton	90	D
241008	Margot	925	A
241008	1900 Palm St	180	C
241011	2219 Palm	72	C
241011	2450 Duroux	60	B
241011	1606 Hawthorne	170	D
241011	3007 Jefferson	220	A
241012	1409 W Houston	80	C
241012	103 Plum	41	D
241012	101 Plum	150	D
241012	2221-2222 Clark	300	B
241012	2120 Oaklawn	50	C
241012	Poplar & 4th	100	C
241012	2224-2226 Clark	300	B
241016	917 Cedar	80	D
241016	2004 Oaklawn	158	C
241016	1203 Bowie	70	C
241016	1304 Austin	40	C
241016	2106 - 2409 Magnolia	200	C
241017	1003 Laurel	90	D
241017	219 Laurel	90	D
241029	417 Edgar	75	A
241105	104 S Harlton	160	B
241106	2111 Howell	200	D
241112	528 Elmo	70	D
241112	625 Benson	20	D
241112	824 Laurel	130	D
241113	104 S Harlton	70	B
241113	106 S Harlton	70	B
241113	2111 Howell	70	C
241119	Eriksson	80	C
241120	Austin (1303,1406,1408)	400	C
241120	1504 Houston	100	C
241120	Albert	300	A
241119	7 Dowling Circle	100	C
241122	Harlton	500	B
241125	421 Edgar	200	A
241125	420 Edgar	200	A
241125	1303 Redbud	400	D

241125	1309 Redbud	400	D
241126	Hudler	150	D
241126	2105 Jeridona	70	B
241126	2626 Woodland	35	C
241211	10th Ave	400	D
241211	Orange St	400	D
241212	Orange & 10th	1600	D
241216	916 Hudler	80	D
241216	1016 Bayou	134	D
241216	730 Grafton	68	D
241216	506 Azalea	200	D
241216	212 Ave b	100	D
241216	120 Honeysuckle	90	D
241217	1909 Carter	27	D
241217	1503 Sylvia	55	C
241217	1620 Oleander	92	C
241217	404 Poplar	115	C
241218	Kansas	1000	A
241219	1012 Larcom	45	D
241219	511 Prune	60	D
241219	1213 Montgomery	57	D
241219	Norman St	745	C
241220	509 Honeysuckle	70	D
241220	311 Ross	69	D
241220	239 Beatrice	70	D
241221	2607 - 2609 Stonewall	80	A
241221	513-517 Prune	300	D
241223	Yupon	200	D
241223	502 Elmo	6	D
241223	3037 Jefferson	87	A
241223	1201 Kansas	97	A
241230	409 Honeysuckle	280	D
241230	407 Honeysuckle	280	D
241230	2807 Crockett	90	C
241230	Scott St	178	D
241231	400 Elaine	62	D
241231	411 Chip	88	D
241231	2714 John	22	A
241231	1520 Newman	36	A
241231	2018 Bogatto	100	C

Total Linear Feet (Culverts Cleaned)

District A 5,416 ft
District B 3,592 ft

District C	5,278 ft
District D	13,001
<i>Total</i>	<i>27,287 ft</i>

Ditch Regrading 2024

Date	Adress	Linear Feet	District
241122	Harlton	300	B
241123	Harlton	300	B

Total Linear Feet (Ditches Regraded)

District A 0

District B 600 ft

District C 0

District D 0

Total 600 ft

City of La Marque Stormwater Report- January 2025

Channels Cleaned

<u>Date</u>	<u>Address</u>	<u>Linear FT</u>	<u>District</u>
250104	1109 Walker	200	B
250128	Boss	3200	A
250206	Austin	200	C

Total Linear Feet (Channels Cleaned)

District A	3,200 ft
District B	200 ft
District C	200 ft
District D	0
Total	3,600 ft

Culverts Cleaned

<u>Date</u>	<u>Address</u>	<u>Linear FT</u>	<u>District</u>
250104	916 Hudler	50	D
250104	234 Franlee	127	D
250104	2435 Florence	73	C
250104	916 Hudler	50	D
250104	234 Franlee	127	D
250104	1109 Walker	200	B
250104	1019 Sycamore	156	D
250108	819 Maple	60	D
250108	169 Lee	93	D
250108	207 Prune	116	D
250108	840 Holly	72	D
250108	831 Holly	120	D
250113	400 Elaine/Elaine	1000	D
250114	Chimney Corners	80	D
250114	601 Sunset	400	D
250114	711 Texas Ave	53	D
250114	Foreman	100	D
250114	2115 Lonestar	97	C
250114	169 Lee	77	D
250118	313 Ave B	510	D
250118	Kansas	214	A
250125	1716 Roslee	107	A
250124	1320 Laura	50	D
250127	Maple	107	D

250128	2400 Boss	800	A
--------	-----------	-----	---

Total Linear Feet (Culverts Cleaned)

District A	1,014 ft
District B	200 ft
District C	170 ft
District D	3,348 ft
<i>Total</i>	<i>4,732 ft</i>

City of La Marque Stormwater Report- February 2025

Channels Cleaned

<u>Date</u>	<u>Address</u>	<u>Linear FT</u>	<u>District</u>
250206	Austin	200	C
250212	Austin	200	C

Total Linear Feet (Channels Cleaned)

District A	0
District B	0
District C	400 ft
District D	0
Total	400 ft

Culverts Cleaned

<u>Date</u>	<u>Address</u>	<u>Linear FT</u>	<u>District</u>
250203	Magnolia	200	C
250203	Ross & Maple	106	D
250203	Yupon	327	D
250204	Patricia & Westward	120/250	A.B
250204	Magnolia	300	C
250204	N Houston	88	C
250204	Austin	114	C
250205	Azalea (506,512,515)	287	D
250205	503 Boss	92	A
250205	2115 Lonestar	100	C
250206	1817 Scott	126	D
250212	Dalian	200	C
250212	Austin	400	C
250215	1713 Maple	122	D
250215	3703 McKinney	192	A
250217	1605 Austin	400	C
250217	1609 Austin	400	C
250217	1611 Austin	400	C
250217	1704 Austin	400	C
250218	Porter	420	A
250218	Albert	172	A
250218	Boss	113	A
250224	1705 Austin	87	C
250226	Grafton	200	D
250203	Magnolia	200	C
250203	Ross & Maple	106	D

250203	Yupon	327	D
250204	Patricia & Westward	50/310	A,B
250204	Magnolia	300	C
250204	N Houston	88	C
250204	Austin	114	C
250205	Azalea (506,512,515)	287	D
250205	503 Boss	92	A
250205	2115 Lonestar	100	C
250206	1817 Scott	126	D

Total Linear Feet (Culverts Cleaned)

District A	1,251 ft
District B	560 ft
District C	3,891 ft
District D	2,014 ft
Total	7,716 ft

Ditches Regraded

<u>Date</u>	<u>Address</u>	<u>Linear FT</u>	<u>District</u>
250206	2501 Magnolia	100	C
250206	2503 Magnolia	150	C
250206	2505 Magnolia	100	C
250210	Austin	400	C
250219	1709 Austin	324	C
250219	1803 Austin	324	C
250220	Austin	310	C
250224	1705 Austin	87	C
250226	Grafton	400	D

Total Linear Feet (Ditches Regraded)

District A	0
District B	0
District C	1,795 ft
District D	400 ft
Total	1,195 ft

City of La Marque Stormwater Report- March 2025

Culverts Cleaned

<u>Date</u>	<u>Address</u>	<u>Linear FT</u>	<u>District</u>
250301	427 Grafton	90	D
250301	431 Grafton	186	D
250305	423 Grafton	324	D
250306	Grafton	460	D
250313	Union	200	A
250317	Eleanor and Grafton	320	D
250317	Union	55	A
250318	613 Ave B	200	D
250318	617 Ave B	200	D
250318	106 Longridge	108	D
250318	Colorado	82	C
250318	Preston	178	A
250318	304 Edgar	67	A
250319	Beech	1558	C
250319	Walnut	305	C
250320	Crockett	2263	C
250321	317 Cherry	103	D
250321	2028 Kansas	156	A
250326	Union	3507	A
250331	Longridge	4024	D

Total Linear Feet (Culverts Cleaned)

District A	4,163 ft
District B	0
District C	4,208 ft
District D	6,015 ft
Total	14,386 ft

Ditches Regraded

<u>Date</u>	<u>Address</u>	<u>Linear FT</u>	<u>District</u>
250301	427 and 431 Grafton	276	D
250305	371 and 423 Grafton	790	D
250310	Edna	600	C
250311	Edna, Little and Erikson	250	C
250312	Estate, Duroux, Union	1220	C
250324	Union	945	A
250325	Union	1540	A
250331	Longridge	4024	D

Total Linear Feet (Ditches Regraded)

District A	2,485 ft
District B	0
District C	2,070 ft
District D	5,090 ft
<i>Total</i>	9,645 ft

City of La Marque Stormwater Report- April 2025

Channels Cleaned

<u>Date</u>	<u>Address</u>	<u>Linear FT</u>	<u>District</u>
250417	Westward	1600	B
250418	Westward	1600	B
250416	Westward	500	B
250421	Westward	960	B
250422	Westward	960	B
250423	Pine Forrest	700	B
250423	Pine Shadow	650	B
250423	Merry	400	C
250423	Melody	250	C
250423	Crockett	300	C
250423	Magnolia	450	C
250423	Foreman	260	A
250424	Westward	960	B
250425	Westward	960	B
250429	Westward	800	B

Total Linear Feet (Channels Cleaned)

District A	260 ft
District B	10,690 ft
District C	1,400 ft
District D	0
<i>Total</i>	12,350 ft

Culverts Cleaned

<u>Date</u>	<u>Address</u>	<u>Linear FT</u>	<u>District</u>
250409	Plum & 11th	135	D
250409	1107 Cora	122	D
250409	2318 Thompson	172	A
250402	Delmar & Laurel	175	D
250407	Longridge	940	D
250408	Longridge	940	D
250409	Longridge	470	D
250409	400 Elaine	107	D
250409	517 Elmo	333	D
250410	1030 Azalea	2250	D
250410	1409 Houston	400	C
250414	420 Edgar	200	A
250414	517 Ave B	100	B

250414	1101-1109 W Camp Circle	423	A
250415	Demolay & 2nd	300	D
250415	101-103 Plum	382	D
250415	1107 W Camp Circle	207	A
250415	1504 W Houston	513	C
250415	Ave D & 2nd	100	D
250415	2nd St	586	D
250421	Cora	302	D
250421	2229 Clark	302	B

Total Linear Feet (Culverts Cleaned)

District A	1002 ft
District B	402 ft
District C	913 ft
District D	7,672 ft
<i>Total</i>	9,989 ft

City of La Marque Stormwater Report- May 2025

Channels Cleaned

<u>Date</u>	<u>Address</u>	<u>Linear FT</u>	<u>District</u>
250501	Hawthorne& Prune,Cherry & Maple, Holman & Honeysuckle, 1st	1250	D
250502	Westward	800	B
250505	10th & 11th St	450	D
250506	Edgewood, 2411 Oaklawn, Ross, Austin	300	C
250506	Bayou, Cedar, Camp Circle,Yupon, Westward	800	A
250507	Ross, Rhodora, Ross Ext, Robbie, 11th, 12th	650	D
250506	2nd, Yupon, Benson, Estates	750	D
250512	Westward	300	B
250513	Westward	1516	B
250514	Cora St	2800	D
250515	Cora St	800	D
250528	N Houston	221	C
250528	1030 Azalea Court	1402	D
250528	404 Chip	300	D

Total Linear Feet (Channels Cleaned)

District A	800 ft
District B	2616 ft
District C	521 ft
District D	8402 ft
<i>Total</i>	12,339 ft

Culverts Cleaned

<u>Date</u>	<u>Address</u>	<u>Linear FT</u>	<u>District</u>
250506	1900 Palm	90	D
250506	2315 Thompson	85	A
250506	2610 S Crockett	30	C
250509	1704 Austin	30	C
250509	304 Edgar	35	A
250512	1005 W Camp Circle	20	A
250512	Ross & Elaine	50	D
250519	Cora	680	D
250521	Cora	414	D
250522	1105 Cora	261	D
250522	1107 Cora	137	D
250522	1109 Cora	400	D
250522	1111 Cora	324	D
250522	1113 Cora	254	D

250522	1115 A & B Cora	600	D
250527	Cora	2016	D
250528	603 Azalea	100	D
250528	1920 Oaklawn	400	C
250528	707 Rosedale	1001	D
250528	826 Chestnut	90	D
250529	Shady Lane	45	D
250529	Maple	120	D
250529	Studio	310	D

Total Linear Feet (Culverts Cleaned)

District A	140 ft
District B	0
District C	460 ft
District D	6,892 ft
<i>Total</i>	7,492 ft

City of La Marque Stormwater Report- June 2025

Channels Cleaned

<u>Date</u>	<u>Address</u>	<u>Linear FT</u>	<u>District</u>
250602	Westward	1000	B
250604	Westward	550	B
250605	2405 Downey	100	C
250611	Kenneth	800	A
250612	2219 Palm	72	C
250616	2111 Howell	200	D
250605	417 Edgar	75	A
250618	Eriksson	80	C
250618	Laurel	1042	D

Total Linear Feet (Channels Cleaned)

District A	875 ft
District B	1,550 ft
District C	252 ft
District D	1,242 ft
Total	3,919 ft

Culverts Cleaned

<u>Date</u>	<u>Address</u>	<u>Linear FT</u>	<u>District</u>
250602	Broadmoor & Laurel	447	D
250602	1328 Rhodora	112	D
250604	Union (Left)	1164	A
250604	Bowie & Magnolia	1579	C
250609	1412 Foreman	103	D
250609	2610 Cedar	248	D
250609	Lamar & Magnolia	698	C
250616	Lamar & Magnolia	1261	C
250616	Bowie & Magnolia	700	C
250618	Azalea	4000	C
250623	604 Ross	426	D
250623	1416 Duroux	200	B
250623	1005 W Camp Circle	80	A
250623	627 Rosedale	94	D
250630	704 Grafton	807	D

Total Linear Feet (Culverts Cleaned)

District A	1,244 ft
------------	----------

District B	200 ft
District C	8,238 ft
District D	2,237 ft
<i>Total</i>	11,919 ft

Ditches Regraded

<u>Date</u>	<u>Address</u>	<u>Linear FT</u>	<u>District</u>
250616	Azalea Court	2100	D
250617	Azalea Court	5502	D
250619	Laurel	1021	D
250620	Laurel	800	D
250623	1030 Azalea Court	1004	D

Total Linear Feet (Ditches Regraded)

District A	0
District B	0
District C	0
District D	10,427 ft
<i>Total</i>	10,427 ft



CITY COUNCIL AGENDA FORM

Meeting Date: July 14, 2025

Prepared by: Shannon Breau

Department: Public Works

Agenda Item: 9.V.

Reviewed by:

AGENDA ITEM DESCRIPTION:

STAFF BRIEFING:

The Mahan Park Boat Ramp Improvements project, funded through a TPWD Planning Grant, has reached physical completion. Construction has concluded, and the contractor has submitted Pay Application #10—the final pay request.

While the ramp appears complete, two critical steps remain before the facility can legally open to the public:

- 1. Final Payment and Project Release**

The contractor must receive payment for Pay Application #10. Once this is processed, the contractor will officially release the project as complete, transferring full responsibility and control to the City.

- 2. Windstorm Certification**

As part of the project scope, shade canopies were installed. These require windstorm certification by a licensed structural engineer to comply with Texas coastal building standards. The City is currently awaiting completion of this certification process.

Why this matters:

Opening the boat ramp before these steps are finalized would violate legal and safety requirements. The windstorm certification is necessary for structural safety and insurance purposes. Additionally, the final payment must be made to validate project completion and ensure compliance with grant closeout procedures. Premature use of the ramp could put the City at risk of liability and impact future grant funding eligibility.

Once both items are complete, the City will be in a position to officially open the boat ramp for public use.

HISTORY:

This is a Texas Parks and Wildlife Department (TPWD) grant-funded project.

FISCAL IMPACT:

This project has a 75% federal share and a 25% city match.

TPWD Share- \$73,682

City Match- \$24,560

Total Project Cost- \$98,242



CITY COUNCIL AGENDA FORM

Meeting Date: July 14, 2025
Prepared by: _____
Department: Administration

Agenda Item: 9.VII.
Reviewed by: _____

AGENDA ITEM DESCRIPTION:

STAFF BRIEFING:

HISTORY:

FISCAL IMPACT: