

## MINUTES

### FORT BEND COUNTY LEVEE IMPROVEMENT DISTRICT NO. 19

January 3, 2019

The Board of Directors ("Board") of Fort Bend County Levee Improvement District No. 19 ("LID 19") met in special session, open to the public, on January 3, 2019, at The Muller Law Group, PLLC, 202 Century Square Boulevard, Sugar Land, Texas 77478, outside the boundaries of the District, and the roll was called of the members of the Board:

James W. Green	President
Kalapi Sheth	Vice President
Radhika Iyer	Secretary
Dean Cooper	Assistant Vice President
John Arndt	Assistant Secretary

and all of the above were present except Director Iyer, thus constituting a quorum.

Also present at the meeting were: Jason Ward of Freese and Nichols, Inc. ("FNI"); Julie Kveton of Riverstone Homeowners Association; June Tang of Johnson Development; Jimmy Thompson of Levee Management Services, LLC; Rick Ramirez of the City of Sugar Land; Hilary Thibodeaux, Glen Ledet, and Laura Barnes of Aptim Environmental & Infrastructure, Inc.; Rohit Sankholkar, Girish Misra, Darrell Groves, and Jeffrey Anderson of Fort Bend County Levee Improvement District No. 15 ("LID 15"); Sujeeth Draksharam of Fort Bend County Levee Improvement District No. 14; Chad Hablinski of Costello, Inc.; Pamela Lightbody of AVANTA Services; and Nancy Carter, Kene Chinweze, and Tara Miles of The Muller Law Group, PLLC.

Ms. Carter distributed a discussion outline for the meeting, a copy of which is attached.

#### STEEP BANK CREEK PUMP STATION SHARED PROJECTS

##### EXPANSION OF PUMP STATION

Mr. Ward discussed FNI's proposed scope of work and budget, copies of which are attached, for the design of the Steep Bank Creek pump station expansion. The Board members of LID 19 and LID 15 discussed the necessity of the pump station expansion, regulatory requirements, and the proposed engineering costs.

The following people joined the meeting: Frank Hester and K. Balasubramanian of Fort Bend County Municipal Utility District No. 115 ("MUD 115"); Debby Coffman and Richard Sherrill of First Colony Levee Improvement District ("FC LID"); and Angie Lutz of Allen Boone Humphries Robinson LLP. All meeting attendees introduced themselves.

#### REGIONAL STEEP BANK CREEK WATERSHED PROJECT

Ms. Carter reviewed a map of the Steep Bank Creek regional watershed, a copy of which is attached.

## REPORT ON 2D MODELING AND COST SHARING AGREEMENT

Mr. Ledet reviewed a presentation explaining the process of the 2D modeling of the Steep Bank Creek regional watershed, discussed the potential benefits to the districts in the watershed, and provided an update on the status of LIDAR data collection currently in progress. The Board discussed the purpose and advantages of conducting the 2D modeling study. The directors of LID 15, LID 19, FC LID, or MUD 115 concurred in participating in sharing the costs of the 2D regional watershed modeling study. Ms. Carter restated that the cost of the study is \$285,000 plus \$100,000 for peer review, and she reviewed the proposed cost-sharing term sheet previously presented to the participating districts. Discussion ensued regarding the method of sharing the costs. Mr. Sherrill stated he was in favor of sharing the costs on a pro-rata basis based on acreage. Ms. Coffman said she was in favor of proceeding with the study. All present directors of LID 15, LID 19, FC LID, and MUD 115 agreed to Costello conducting a four-step peer review process of the study and requested that Costello provide a budget review at each of the four steps. Ms. Carter stated that she will work with Ms. Lutz to prepare a Cost Sharing Agreement for review by each district.

Mr. Hester, Mr. Balasubramanian, Mr. Sherrill, Ms. Coffman, and Ms. Lutz left the meeting.

## CONVENE IN EXECUTIVE SESSION PURSUANT TO SECTION 551.071, TEXAS GOVERNMENT CODE, TO DISCUSS PENDING OR CONTEMPLATED LITIGATION MATTERS RELATED TO DISTRICT FACILITIES OR HURRICANE HARVEY

The Board convened in Executive Session, and Director Green announced the date and time to be 11:14 a.m. on January 3, 2019. No action was taken regarding potential litigation.

## RECONVENE IN OPEN SESSION

The Board reconvened in regular session, and Director Green announced the date and time to be 11:36 a.m. on January 3, 2019.

## STEEP BANK CREEK F PUMP STATION EXPANSION (CONT'D)

Mr. Anderson of LID 15 moved to authorize FNI to proceed with preliminary design of the Steep Bank Creek pump station expansion, subject to approval of a Cost Sharing Agreement and holding the issuance of a Notice to Proceed until after receipt of Aptim's final Phase 3 report. Mr. Sankholkar of LID 15 seconded the motion, which carried by a majority vote of three. Mr. Misra opposed the motion.

## VEHICULAR ACCESS IMPROVEMENTS

Mr. Misra left the meeting.

The Boards of LID 15 and LID 19 discussed the proposed paving of the top of the levee with fiber reinforced concrete to improve vehicular access to the Steep Bank Creek pump station and the supplemental pumps housed adjacent to the Steep Bank Creek pump station. The Board discussed the proposed benefits of such paving and requested LID 15 to share in the costs. Mr. Green stated that the lowest bid received for onsite paving for the supplemental pumps was \$151,370 and that the estimated cost to pave the levee top from the pump station to LJ Parkway is

\$460,000. Following review and discussion, Mr. Sankholkar to share the costs of the onsite paving for the supplemental pumps (\$151,370) based on the relative ownership percentages set forth in the Supplemental Pumps Cost Sharing and Operating Agreement dated August 1, 2018, which sets forth a 27.3% share for LID 15. Mr. Groves seconded the motion, which passed by unanimous vote of present LID 15 directors. The Boards of LID 15 and LID 19 requested to further review and discuss the Maintenance Agreement for Regional Pump Station and the Supplemental Pumps Cost Sharing and Operating Agreement at their next Board meetings.

Director Arndt moved to award the contract for paving the top of the levee adjacent to the pump station to Division III Constructors, Inc., in the amount of \$151,370. Director Sheth seconded the motion, which passed unanimously.

There being no further business to come before the Board, the Board concurred to adjourn the meeting.



A handwritten signature in blue ink, appearing to read "Puhl", is written over a horizontal line.

Secretary, Board of Directors

LIST OF ATTACHMENTS TO MINUTES

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discussion outline .....	1
FNI's proposed scope of work and budget.....	1
map of the Steep Bank Creek regional watershed.....	1

Any documents referenced in these minutes and not attached herein are retained in the District's official records in accordance with the District's Record Management Program and are available upon request.

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LID 15/19, FCLID, MUD 115 Regional Meeting  
January 3, 2019  
9:30 a.m.

Overview

- Introductions
- Brief review of watershed
- Brief review of Harvey circumstances
- Discuss overall goals for regional project
  - General goal: improve flood resiliency in the entire watershed

Technical

- Review of current 1D (ICPR) Model
- 1D (ICPR) vs 2D (HEC-HMS/RAS) Model

Next Steps (if the group concurs to proceed with modeling):

- scope of modeling project and deliverables
- proposed cost-sharing methodology (acreage)
- peer review costs and procedures

Long Term Issues

- Identify more specific goals for regional project
  - Specific coincident rain event? 500-year? Harvey? Assumed duration?
  - What level of risk avoidance (i.e. avoid all structural flooding? Ensure streets are all passable during a specific rain event?)
- Identify concerns for construction/operation of a regional facility
  - What is the appropriate cost-sharing basis?
    - Acreage?
    - Assessed Valuation?
    - Actuarial risk analysis?
  - Who/how to select engineer for design of project?
    - Engineering peer review process?
  - Who/how to manage scope & costs?
    - By contract?
    - Separate governing body with representation by each LID?
    - Request FB County Drainage District own & operate (with operating costs to be shared by the participants)?
  - Financial Limitations
    - Bonding authority/capacity?
    - Federal vs. state funds
- Process for fleshing out the above

LID 15/19 Joint Meeting  
January 3, 2019  
8:30 a.m.

Steep Bank Creek Pump Station – Expansion

- Review APTIM Phase 1 Review findings
- Review selection process for FNI
- Current status
  - FNI has submitted a preliminary engineering estimate
    - Phase 1 – Preliminary Design
    - Phase 2 – Final Design
    - Phase 3 – Construction Phase Services
    - Phase 4 – Preparation of Operation and Maintenance Manual and Transition to Operator
- Next Steps
  - Review & approval of overall engineering estimate
  - Authorization for Master Service Agreement & Phase 1 Work Authorization
  - Cost Sharing Agreement for Project (engineering and construction)

Steep Bank Creek Pump Station – Site Paving and Secondary Access

- Site Paving
  - To facilitate staging and operation of temporary pumps
  - Approximate Cost: \$160,000
- Secondary Access
  - Fiber reinforced concrete on LID 19 levee top to provide vehicular access for operator during emergencies where LJ Parkway and Hagerson Rd. are impassable.
  - Approximate Cost: \$460,000

Potential Litigation – only if necessary

**Attachment 1 – Scope of Work**  
**Steep Bank Creek Pump Station Expansion**  
**Phase 1 – Preliminary Design**

Fort Bend County Levee Improvement District 19 (the District) has an existing stormwater pump station located near the outfall of Steep Bank Creek. The District intends to increase the firm capacity of this pump station to an assumed 120,000 gallons per minute (GPM) to meet current and future minimum requirements as set by Fort Bend County. This project will generally consist of the following:

- A new 60,000 GPM intake and pump station on Steep Bank Creek or modifications to the existing intake and pump station to provide a firm capacity of 120,000 GPM.
- Structural, architectural, mechanical, plumbing, and site civil design.
- Electrical design to support the pump station, including transformers, switchgear, motor controllers, motors, and other systems at the pump station. Backup power alternatives will be reviewed and incorporated.
- Controls, instrumentation, communications, and security design.
- Piping design to connect to the existing discharge piping or a new outlet through the levee.

It is anticipated that the project will be executed in 3 phases:

1. Phase 1 – Preliminary Design
2. Phase 2 – Final Design
3. Phase 3 – Construction Phase Services

This Scope of Work is for Phase 1 – Preliminary Design. The purpose of this phase is to develop and analyze alternatives, select the preferred alternative, and develop the design of the preliminary layouts of the pump station, piping, and electrical improvements. Phase 1 will include preliminary design of the pump station, geotechnical exploration and analysis, and surveying. The scopes of work for Phases 2 and 3 will be determined at a later date.

**I. BASIC SERVICES**

**A. PROJECT MANAGEMENT**

1. Conduct one (1) project kickoff meeting to discuss project goals and schedule. Prepare and agenda and distribute meeting minutes.
2. Attend up to six (6) monthly progress meetings. Prepare agendas and distribute meeting minutes.
3. Prepare a project schedule and provide monthly updates.
4. Prepare monthly project summaries including work performed in the past 30 days, work to be performed in the next 30 days, project milestones, and project financial status. Submit updated project schedule and project summary with each invoice.
5. Participate in one (1) public outreach meeting.

*Deliverables:*

- *Meeting minutes for all in-person meetings within 5 business days of the meeting*

- *Project schedule in .pdf format*
- *Monthly status reports with each invoice.*

## **B. ALTERNATIVES ANALYSIS**

1. Collect and review existing data associated with the pump station. Review previous studies and reports and any other documents associated with the project.
2. Review pump-type alternatives (vertical lineshaft, submersible, and vertical submersible).
3. Develop up to two (2) alternatives for the pump station expansion. Alternatives will be based on an assumed firm flow rate of 120,000 GPM. Final capacity will be determined as part of the H&H evaluation. Options include replacing the existing pumps and new pumps adjacent to the existing structure. The alternate for the new pumps will include provisions for expansion.
4. Prepare preliminary layouts for each alternative.
5. Electrical Alternatives
  - a. Determine preliminary power needs
  - b. Coordinate with CenterPoint on required service upgrades
  - c. Develop back-up power alternatives including replacing the existing generator, adding additional generator(s), and installing engine-driven pumps.
6. Develop an Opinion of Probable Construction Cost (OPCC) and Life Cycle Cost Analysis (LCCA) for each alternative.
7. Conduct a workshop with stakeholders to determine selection criteria and rank the alternatives based on the criteria.
8. Prepare a technical memorandum summarizing the alternatives analysis and selected alternatives.

### Deliverables:

- *Meeting minutes for all in-person meetings within 5 business days of the meeting*
- *Alternatives Analysis Technical Memorandum within 60 days of notice to proceed*

## **C. HYDROLOGY AND HYDRAULIC EVALUATION**

1. Perform a field visit, review existing data including system design plans and calculations, and applicable regulations.
2. Cursory review ICPR4.0 model prepared by APTIM and compare model input against available data, including surveyed control structures as specified in Section II.A, surveyed slab elevations, available 2014 LiDAR, and other best available information. FNI will coordinate with APTIM on review findings, and APTIM will address comments.
3. Using the updated ICPR4.0 model that represents Steep Bank Creek, FNI will evaluate various alternatives combining increases to pump station capacity and modifications to system storage needed to meet current and upcoming regulatory requirements. Alternatives will be coordinated with the pump station design team.
4. Perform an internal QC review of the models representing the alternatives.



5. APTIM will be provided the opportunity of reviewing the model representing the alternatives evaluated. FNI will address any findings from the QC reviews and finalize hydraulic models for the alternatives.
6. Prepare a technical memorandum summarizing the results of the alternatives.

Deliverables:

- *Technical memorandum with findings from review of ICPR4.0 model*
- *Technical memorandum with findings from the alternative analysis*
- *ICPR4.0 models for the alternative analysis*

**D. PRELIMINARY DESIGN**

1. Prepare layouts of the selected alternative based on the sizing determined as part of the H&H evaluation.
2. Develop piping and valve layout.
3. Prepare preliminary site layout, including roads, parking and paving, and lighting.
4. Develop layout for site utilities, including water, wastewater, and telecommunications. Coordinate with utilities to determine connection requirements.
5. Determine power load requirements
  - a. Determine power loads based upon the pump type and layout results of the Alternatives Analysis.
  - b. Evaluate starter types (across-the-line, soft starter, variable frequency drive). Evaluate parallel transformers and main-tie-main arrangement.
  - c. Develop a one-line diagram.
  - d. Develop and electrical room floor plan and equipment layout.
6. Prepare a preliminary level OPCC reflecting the selections made during the Alternatives Analysis and Preliminary Design.
7. Review procurement strategy options including pre-purchase of equipment, traditional bidding, competitive sealed proposals, and construction manager at risk. Provide a recommendation on procurement process.
8. Develop a schedule for Final Design and Construction.
9. Prepare a draft Preliminary Design Report detailing the findings of the activities performed in the Preliminary Design phase.
10. Conduct a Preliminary Design Report (PDR) comment review meeting with project stakeholders.
11. Incorporate comments received and submit a final Preliminary Design Report. Present report and findings to the Board of Directors at a regular board meeting.

Deliverables:

- *Draft Preliminary Design Report (PDR) within 60 days of selecting the preferred alternative and selection of the pump station flow rate.*
- *Final Preliminary Design Report within 2 weeks of receipt of comments on the Draft PDR.*

## **II. SPECIAL SERVICES**

### **A. TOPOGRAPHIC SURVEY**

1. Perform topographic survey of the pump station area, including the existing intake structure, gravity outfall structure, and levee.
2. Obtain top-of-slab elevations for six (6) homes to be determined by the hydraulic modeling teams. The District will secure right of entry for the survey.
3. Obtain upstream, downstream, and controlling elevations for detention pond outfalls, restrictions, and road crossings along Steep Bank Creek, up to six (6) locations total, for ICPR model verification.

### **B. GEOTECHNICAL ENGINEERING**

1. Perform up to three (3) geotechnical borings – two (2) at 60 feet deep and one (1) at 100 feet deep. Measure and record groundwater levels at time of drilling and 24 hours after completion.
2. Perform laboratory testing to include soil classification, unconsolidated undrained triaxial testing, and soil dispersion potential testing.
3. Install one (1) piezometer and monitor water levels monthly for up to six (6) months.
4. Prepare a geotechnical data report summarizing results of the borings and laboratory testing.
5. Review geotechnical data report and provide recommendations to pump station design team on geotechnical parameters.

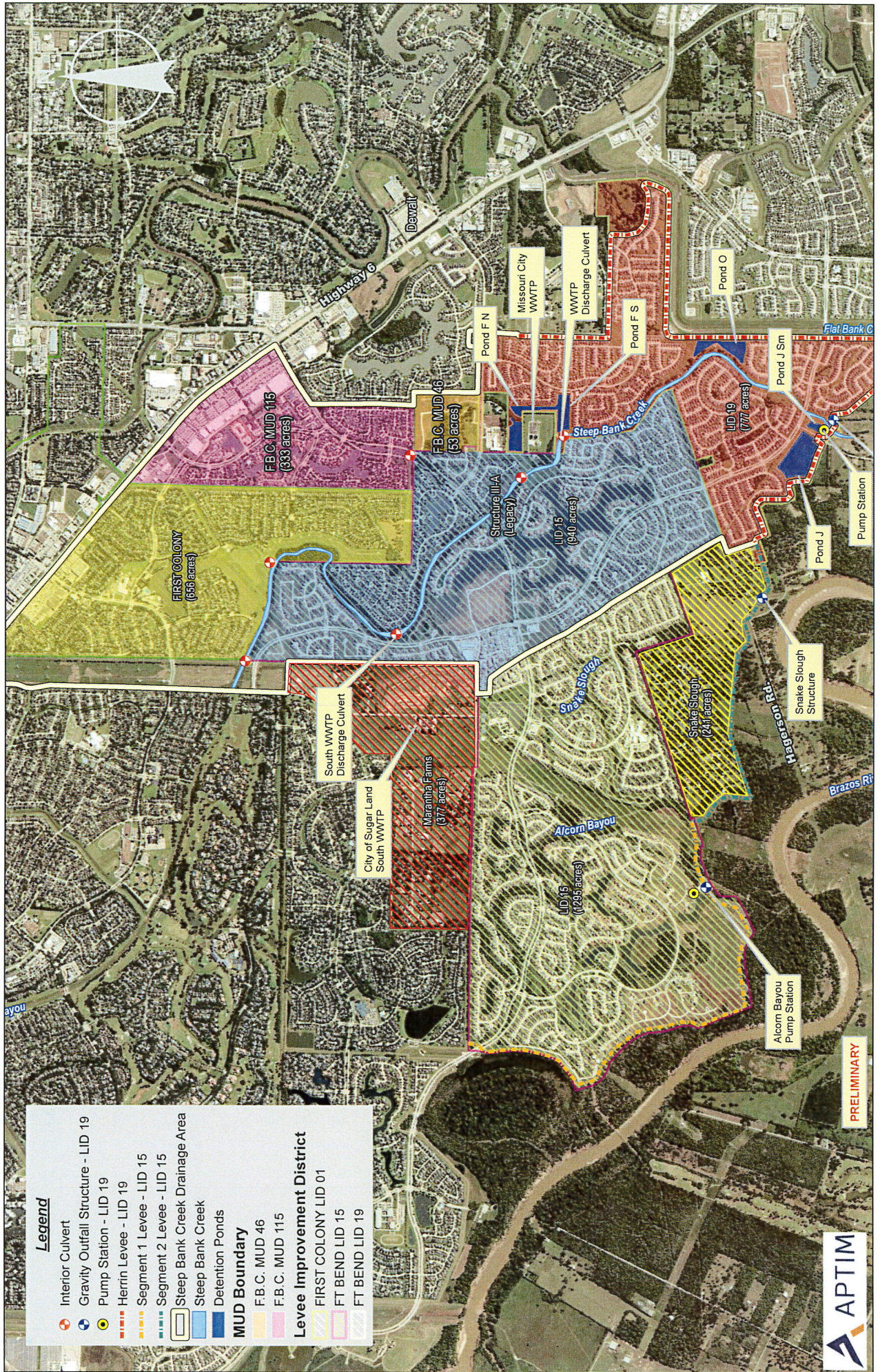
### **C. INTAKE HYDRAULICS REVIEW**

1. Review intake alternatives for conformance to HI standards.
2. Conduct one (1) workshop with the District to review hydraulics of the intake alternatives.

Steep Bank Creek Pump Station - Estimated Engineering Fee Breakdown

	Work Order No. 1 Preliminary Design 5 Months	Work Order No. 2 Final Design & Bid 7 months	Work Order No. 3 Construction 12 months
<b>Basic Services:</b>			
A. Project Management	\$ 25,500		
B. Alternatives Analysis	\$ 49,000		
C. Hydrology and Hydraulics Evaluation	\$ 43,000		
D. Preliminary Design	\$ 79,500		
E. Final Design	\$ 325,000	\$ 325,000 *	
F. Bid Phase	\$ 20,000	\$ 20,000	
G. Constuction Phase (General Rep.)	\$ 100,000		\$ 100,000 *
<b>Total Basic Services</b>	<b>\$ 642,000</b>		
<b>Special Services:</b>			
A. Topographic Survey	\$ 16,000	\$ 16,000	
B. Geotechnical Engineering	\$ 28,000	\$ 28,000	
C. Intake Hydraulics Review	\$ 9,000	\$ 9,000	
D. Intake Physical Modeling	\$ 50,000	\$ 50,000	
<b>Total Special Services</b>	<b>\$ 103,000</b>		
<b>Total Engineering Fee (estimated)*</b>	<b>\$ 745,000</b>	<b>\$ 250,000</b>	<b>\$ 395,000</b>
<b>Additional Services:</b>			
Construction Management (RPR)	\$ 360,000		\$ 360,000 *
Material Testing During Construction	\$ 50,000		\$ 50,000
<b>Total w/ Construction Management</b>	<b>\$ 1,155,000</b>		<b>\$ 510,000</b>

\*Engineer Fees are based on an OPCC of \$4M and can be used for budget numbers. Final Design and Construction Phase budgets will be negotiated after the Preliminary Design phase.



**Legend**

- Interior Culvert
  - Gravity Outfall Structure - LID 19
  - Pump Station - LID 19
  - Herrin Levee - LID 19
  - Segment 1 Levee - LID 15
  - Segment 2 Levee - LID 15
  - Steep Bank Creek Drainage Area
  - Steep Bank Creek
  - Detention Ponds
- MUD Boundary**
- F.B.C. MUD 46
  - F.B.C. MUD 115
- Levee Improvement District**
- FIRST COLONY LID 01
  - FT BEND LID 15
  - FT BEND LID 19