

AGENDA

CITY OF PEARLAND ♦ CITY COUNCIL

March 10, 2014

7:30 p.m.

MAYOR
Tom Reid

Greg Hill
Mayor Pro-Tem
Position No. 5

COUNCIL MEMBERS

Tony Carbone
Position No. 1

Scott Sherman
Position No. 2



Susan Sherrouse
Position No. 3

Keith Ordeneaux
Position No. 4

Jon R. Branson
Assistant City Manager

Clay Pearson
City Manager

Mike Hodge
Assistant City Manager

Darrin Coker
City Attorney

Young Lorfing
City Secretary

In accordance with the Texas Open Meeting Act the Agenda is posted for public information, at all times, for at least 72 hours preceding the scheduled time of the meeting on the bulletin board located at the front entrance of the City Hall, 3519 Liberty Drive.

AGENDA – OF A REGULAR MEETING OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, TO BE HELD ON MONDAY, MARCH 10, 2014, AT 7:30 P.M., IN THE COUNCIL CHAMBERS, CITY HALL, 3519 LIBERTY DRIVE, PEARLAND, TEXAS.

- I. CALL TO ORDER**
- II. INVOCATION AND THE PLEDGE OF ALLEGIANCE TO THE UNITED STATES OF AMERICA FLAG AND TEXAS FLAG**
- III. RECOGNITIONS AND AWARDS**
- IV. CITIZEN COMMENTS:**
- V. DOCKETED PUBLIC HEARING: NONE**
- VI. CONSENT AGENDA:**

ALL ITEMS LISTED UNDER THE “CONSENT AGENDA” ARE CONSIDERED TO BE ROUTINE AND REQUIRE LITTLE OR NO DELIBERATION BY THE CITY COUNCIL. THESE ITEMS WILL BE ENACTED/APPROVED BY ONE MOTION UNLESS A COUNCILMEMBER REQUESTS SEPARATE ACTION ON AN ITEM, IN WHICH EVENT THE ITEM WILL BE REMOVED FROM THE CONSENT AGENDA AND CONSIDERED BY SEPARATE ACTION (IX. MATTERS REMOVED FROM CONSENT AGENDA). APPROVAL OF THE CONSENT AGENDA ENACTS THE ITEMS OF LEGISLATION.

- A. CONSIDERATION AND POSSIBLE ACTION – APPROVAL OF MINUTES:**
 - 1. Minutes of the February 24, 2014, Regular Meeting, held at 7:30 p.m.
- VII. MATTERS REMOVED FROM CONSENT AGENDA**
- VIII. NEW BUSINESS:**
 - 1. CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-26 – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AUTHORIZING A SEISMIC TESTING PERMIT. *Mr. Jon R. Branson, Interim City Manager.***
 - 2. CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-23 – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO ENTER INTO INTERLOCAL AGREEMENTS WITH THE LOWER KIRBY MUNICIPAL MANAGEMENT DISTRICT AND PEARLAND MUNICIPAL MANAGEMENT DISTRICT NO. 1. *Mr. Matt Buchanan, President Economic Development Corporation.***

3. **CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-27**– A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, CONVEYING A SPECIAL WARRANTY DEED TO THE LOWER KIRBY MUNICIPAL MANAGEMENT DISTRICT AND PEARLAND MUNICIPAL MANAGEMENT DISTRICT No.1 FOR USE AS A REGIONAL DETENTION POND.
Mr. Matt Buchanan, President Economic Development Corporation.
4. **CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-24** – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO ENTER INTO FINANCING AGREEMENTS WITH THE LOWER KIRBY MUNICIPAL MANAGEMENT DISTRICT AND PEARLAND MUNICIPAL MANAGEMENT DISTRICT NO. 1.
Mr. Matt Buchanan, President Economic Development Corporation.
5. **CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-25** – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO ENTER INTO FINANCE LETTER AGREEMENTS WITH THE LOWER KIRBY MUNICIPAL MANAGEMENT DISTRICT AND PEARLAND MUNICIPAL MANAGEMENT DISTRICT NO. 1, AND AN ENGINEERING SERVICES CONTRACT WITH LJA ENGINEERING ASSOCIATED WITH REGIONAL DETENTION FACILITIES. *Mr. Matt Buchanan, President Economic Development Corporation.*
6. **CONSIDERATION AND POSSIBLE ACTION – FIRST READING OF ORDINANCE NO. 532-5** – AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AMENDING ORDINANCE NO. 532, THE *FLOOD HAZARD PREVENTION* ORDINANCE; PROVIDING A PENALTY FOR VIOLATION; HAVING A SAVINGS CLAUSE, A REPEALER CLAUSE, A SEVERABILITY CLAUSE; PROVIDING FOR CODIFICATION, PUBLICATION AND AN EFFECTIVE DATE. *Mr. Jon R. Branson, Interim City Manager.*
7. **CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-18** – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO ENTER INTO A DEVELOPMENT AGREEMENT ASSOCIATED WITH HUGHES RANCH ROAD PROJECT.
Mr. Jon R. Branson, Interim City Manager.
8. **CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-21** – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, CONVEYING AN EASEMENT FOR CERTAIN ELECTRIC UTILITIES. *Mr. Jon R. Branson, Interim City Manager.*

9. **CONSIDERATION AND POSSIBLE ACTION – FIRST READING OF ORDINANCE NO. 943-21** – AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AMENDING FIGURE 7.2, THOROUGHFARE PLAN, OF THE CITY’S COMPREHENSIVE PLAN AS A GUIDE FOR PRESERVING A SENSE OF COMMUNITY, ATTRACTIVENESS AND SAFETY IN PEARLAND; CONTAINING A SAVINGS CLAUSE, A SEVERABILITY CLAUSE, AND A REPEALER CLAUSE; PROVIDING FOR AN EFFECTIVE DATE AND FOR CODIFICATION. *Mr. Jon R. Branson, Interim City Manager.*

10. **CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-22** – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, APPROVING A BOND ORDER OF BRAZORIA COUNTY MUNICIPAL UTILITY DISTRICT NO. 6 AUTHORIZING THE ISSUANCE OF APPROXIMATELY \$8,175,000 UNLIMITED TAX REFUNDING BONDS, SERIES 2014. *Mr. Darrin Coker, City Attorney.*

OTHER BUSINESS: NONE.

EXECUTIVE SESSION UNDER TEXAS GOVERNMENT CODE

1. **SECTION 551.087 – REGARDING CONSULTATIONS WITH CITY ATTORNEY** – REGARDING ECONOMIC DEVELOPMENT NEGOTIATIONS. *Mr. Jon R. Branson, Interim City Manager.*

2. **SECTION 551.071 – REGARDING CONSULTATIONS WITH CITY ATTORNEY** – REGARDING POTENTIAL LITIGATION ASSOCIATED WITH COLE’S FLEA MARKET. *Mr. Darrin Coker, City Attorney.*

NEW BUSINESS CONTINUED:

11. **CONSIDERATION AND POSSIBLE ACTION** – REGARDING ECONOMIC DEVELOPMENT NEGOTIATIONS. *City Council.*

12. **CONSIDERATION AND POSSIBLE ACTION** – REGARDING POTENTIAL LITIGATION ASSOCIATED WITH COLE’S FLEA MARKET. *City Council.*

IV. ADJOURNMENT

This site is accessible to disabled individuals. For special assistance, please call Young Lorfing at 281-652-1840 prior to the meeting so that appropriate arrangements can be made.

Consent Agenda Item A

**A. CONSIDERATION AND POSSIBLE ACTION – APPROVAL
OF MINUTES:**

Minutes of the February 24, 2014, Regular Meeting, held at 7:30
p.m.

MINUTES OF A REGULAR MEETING OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, HELD ON MONDAY, FEBRUARY 24, 2014, AT 7:30 P.M., IN THE COUNCIL CHAMBERS, CITY HALL, 3519 LIBERTY DRIVE, PEARLAND, TEXAS.

Mayor Reid called the meeting to order at 7:45 p.m. with the following present:

Mayor	Tom Reid
Mayor Pro-Tem	Greg Hill
Councilmember	Tony Carbone
Councilmember	Scott Sherman
Councilmember	Susan Sherrouse
Councilmember	Keith Ordeneaux
Interim City Manager	Jon Branson
City Attorney	Darrin Coker
City Secretary	Young Lorfing

Others in attendance: Claire Bogard Director of Finance; J.C. Doyle Police Chief; Trent Epperson Director of Engineering and Capital Projects; Mike Hodge Assistant City Manager; Vance Riley Fire Chief; Eric Wilson Public Works Director; Bob Pearce Purchasing Officer; Joel Hardy Grants Coordinator; John Knight Information Technology Manager; Bobby Pennington Budget Officer.

The invocation was given by Councilmember Sherrouse and the Pledge of Allegiance was led by Police Chief J.C. Doyle.

RECOGNITIONS AND AWARDS:

Mayor Reid and Mayor Pro-Tem Hill awarded a certificate of recognition to David A. Hernandez III, for his appointment by Congressman Pete Olsen to attend the prestigious United States Military Academy at West Point.

CITIZEN COMMENTS: None.

DOCKETED PUBLIC HEARING: None.

CONSENT AGENDA:

Councilmember Sherman asked that Consent Agenda Item B be removed from the Consent Agenda for further discussion.

A. CONSIDERATION AND POSSIBLE ACTION – APPROVAL OF MINUTES:

1. Minutes of the February 10, 2014, Regular Meeting, held at 7:30 p.m.

- B. CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-15** – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, RENEWING A UNIT SUPPLY CONTRACT FOR TRAFFIC SIGNAL HEADS AND COMPONENTS.
Mr. Jon Branson, Interim City Manager.
- C. CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-16** – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AWARDED A BID FOR THE RENTAL OF ROAD MAINTENANCE EQUIPMENT. *Mr. Jon Branson, Interim City Manager.*
- D. CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-14** – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AWARDED A BID FOR THE PURCHASE OF STABILIZED ROAD MATERIALS. *Mr. Jon Branson, Interim City Manager.*
- E. CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-17** – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, APPROVING CONTINUED PARTICIPATION IN THE CRIMINAL JUSTICE DIVISION - GENERAL VICTIM ASSISTANCE DIRECT SERVICES GRANT PROGRAM.
Mr. Jon Branson, Interim City Manager.

Councilmember Carbone made the motion, seconded by Councilmember Sherman, to adopt Consent Agenda Items A through E with the exception of item B, as presented on the Consent Agenda.

Voting “Aye” Councilmembers Carbone, Sherman, Hill, Ordeneaux, and Sherrouse.

Voting “No” None.

Motion Passed 5 to 0.

MATTERS REMOVED FROM CONSENT AGENDA

As requested by Councilmember Sherman Consent Agenda Item B was removed for further discussion.

- B. CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-15** – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, RENEWING A UNIT SUPPLY CONTRACT FOR TRAFFIC SIGNAL HEADS AND COMPONENTS.
Mr. Jon Branson, Interim City Manager.

Interim City Manager Jon Branson reported based on the most recent citizen survey, the top concern related to traffic was congestion at intersections. In order to alleviate that concern, Traffic Operations is undertaking a flashing yellow left-turn arrow program in order to ease some of the traffic congestion at approved intersections over the next three (3) years. This purchase will allow the City to directly address the stated citizenry concern of traffic congestion at major intersections.

Discussion ensued between Council and Purchasing Officer Bob Pearce regarding the discrepancy between the dollar amount.

Voting "Aye" Councilmembers Sherrouse, Ordeneaux, Hill, Sherman, and Carbone.

Voting "No" None.

Motion Passed 5 to 0.

NEW BUSINESS:

COUNCIL ACTION – RESOLUTION NO. R2014-19 – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO ENTER INTO A TAX ABATEMENT AGREEMENT. *Mr. Darrin Coker, City Attorney.*

Councilmember Sherman made the motion, seconded by Mayor Pro-Tem Hill, to approve Resolution No. R2014-19.

Interim City Manager Jon Branson reported Council is being asked to approve the tax abatement agreement with Amertux Exterior, LLC.

Voting "Aye" Councilmembers Carbone, Sherman, Hill, Ordeneaux, and Sherrouse.

Voting "No" None.

Motion Passed 5 to 0.

COUNCIL ACTION – RESOLUTION NO. R2014-13 – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AUTHORIZING A CONTRACT FOR ENGINEERING SERVICES ASSOCIATED WITH THE KIRBY DRIVE EXPANSION PROJECT. *Mr. Jon Branson, Interim City Manager.*

Mayor Pro-Tem Hill made the motion, seconded by Councilmember Ordeneaux, to approve Resolution No. R2014-13.

Interim City Manager Jon Branson reported Staff recommends that Council approve the Resolution awarding a professional services contract to Dannenbaum Engineering, Corporation for the Kirby Drive Expansion project in the amount of \$269,031.

Discussion ensued between Council and Assistant City Manager Mike Hodge regarding the project timeline.

Voting "Aye" Councilmembers Sherrouse, Ordeneaux, Hill, Sherman, and Carbone.

Voting "No" None.

Motion Passed 5 to 0.

COUNCIL ACTION – RESOLUTION NO. R2014-12 – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO ENTER INTO A FACILITIES EXTENSION AGREEMENT WITH CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC.

Mr. Trent Epperson, Director of Engineering and Capital Projects.

Councilmember Ordeneaux made the motion, seconded by Councilmember Sherrouse, to approve Resolution No. R2014-12.

Interim City Manager Jon Branson reported Council is being asked to enter into a Facilities Extension Agreement with Center Point Energy in the amount of \$61,700.

Discussion ensued between Council and Interim City Manager Jon Branson regarding the electrical service for the adjacent church and the four live oak heritage trees.

Voting "Aye" Councilmembers Hill, Ordeneaux, and Sherrouse.

Voting "No" Councilmembers Carbone and Sherman.

Motion Passed 3 to 2.

COUNCIL ACTION – RESOLUTION NO. R2014-20 – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO PARTICIPATE IN AN INTERLOCAL COOPERATIVE PRICING ARRANGEMENT WITH THE HOUSTON-GALVESTON AREA COUNCIL (HGAC) FOR THE PURCHASE OF A PIERCE QUANTUM PUMPER TRUCK. *Mr. Jon Branson, Interim City Manager.*

Councilmember Sherrouse made the motion, seconded by Councilmember Carbone, to approve Resolution No. R2014-20.

Interim City Manager Jon Branson reported Staff recommends approval of this Resolution to purchase one (1) Pierce Quantum pumper truck from Siddons-Martin Emergency Group in the total amount of \$574,049 via the Houston-Galveston Area Council (H-GAC) cooperative purchasing contract.

Discussion ensued between Council and Director of Fire Services Vance Riley regarding the pumper controls and the best deal on the disposal of two (2) pumper trucks.

Voting "Aye" Councilmembers Sherrouse, Ordeneaux, Hill, Sherman, and Carbone.

Voting "No" None.

Motion Passed 5 to 0.

OTHER BUSINESS: None.

ADJOURNMENT

Meeting was adjourned at 8:20 p.m.

Minutes approved as submitted and/or corrected this the ____ day of _____, A.D., 2014.

Tom Reid
Mayor

ATTEST:

Young Lorfing, TRMC
City Secretary

New Business Item No. 1

1. **CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-26** – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AUTHORIZING A SEISMIC TESTING PERMIT.
Mr. Jon R. Branson, Interim City Manager.

**AGENDA REQUEST
BUSINESS OF THE CITY COUNCIL
CITY OF PEARLAND, TEXAS**

AGENDA OF: 3-10-2014	ITEM NO.: Resolution No. R2014-26
DATE SUBMITTED: 2-28-2014	DEPARTMENT OF ORIGIN:
PREPARED BY: Darrin Coker	PRESENTOR: Eric Wilson
REVIEWED BY: NA	REVIEW DATE: NA
SUBJECT: Seismic Testing Application	
EXHIBITS: R2014-26 ; Application	
EXPENDITURE REQUIRED: AMOUNT AVAILABLE: ACCOUNT NO.:	AMOUNT BUDGETED: PROJECT NO.:
ADDITIONAL APPROPRIATION REQUIRED: ACCOUNT NO.:	
PROJECT NO.:	
To be completed by Department:	
<input type="checkbox"/> Finance <input checked="" type="checkbox"/> Legal <input type="checkbox"/> Ordinance <input checked="" type="checkbox"/> Resolution	

EXECUTIVE SUMMARY

In 2013 the City Council approved a seismic testing permit for Denbury Onshore to allow testing to be performed in the SH 35 vicinity south of Dixie Farm Road. Denbury is now seeking a permit to expand the testing foot print. The applicant has provided necessary documentation (methodology and location of testing, insurance, bonds, and traffic control plans) to the Public Works Department for review. After reviewing the information, the Public Works Director has concluded that the applicant should be allowed to proceed with testing.

Attached for your review is an application with a site map that shows the proposed testing area and the City's water lines. Denbury will not do any seismic testing within 125' of the City's water lines. Per the City's ordinance, they will be required to provide notice to all property owners within 400' of charge tests and within 125' of vibroseis testing. All City infrastructure subjected to peak particle velocities greater than 0.35 inches per second shall have pre and post testing inspections paid for by the applicant. In addition, property owners with the aforementioned radii will be entitled to pre and post test inspections. The applicant will notify all residents in writing at least 10 days prior to testing; has already posted a performance bond in the amount of \$100,000; and has obtained insurance as required by the City ordinance.

RESOLUTION NO. R2014-26

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND,
TEXAS, AUTHORIZING A SEISMIC TESTING PERMIT.**

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS:

Section 1. That Denbury Onshore has applied for a Seismic Testing Permit for the area covered by Exhibit "A" attached hereto.

Section 2. That Denbury Onshore has complied with the requirements of the City Seismic Testing Ordinance.

Section 3. That the City Council hereby approves a Seismic Testing Permit for Denbury Onshore.

PASSED, APPROVED and ADOPTED this the _____ day of _____,
A.D., 2014.

TOM REID
MAYOR

ATTEST:

YOUNG LORFING, TRMC
CITY SECRETARY

APPROVED AS TO FORM:

DARRIN M. COKER
CITY ATTORNEY



February 18, 2014

City of Pearland
Attn: Eric Wilson, Public Works Director
3501 E. Orange St.
Pearland, TX 77581

Subject: 2014 Hastings 4D. VSP Seismic Permit Request

Dear Mr. Wilson,

On behalf of our Client, Denbury Onshore, LLC, (DRI), RAS, LLC submits this Letter of Request to begin the seismic permit application pursuant to the terms and conditions set forth in Pearland City Ordinance No. 716-1, Section 21-101, see below information:

- 1- Name of Applicant: Denbury Onshore, LLC
- 2- Address of Applicant: 5320 Legacy Drive
Plano, TX 75024
- 3- Types of Sources: Pendolite 2.2 lb/ 5 lb charges and Vibroseis
- 4- Map of Testing Area: See attached map and worksheet of City of Pearland parcels of property/streets.
- 5- Traffic Control Plan: Vibroseis operations will be escorted by Local Police and paid by Denbury.
- 6- Certificate of Insurance: See attached COI
- 7- Pearland Seismic Bond: See attached Bond

Please note the seismic operations being requested this year are the exact same seismic foot-print that was successfully conducted in the summer of 2013. Subject to City Council approval, Denbury will be conducting seismic operations in the 2nd Quarter and 4th Quarter of 2014 with the same seismic foot-print.

All questions regarding this Seismic Permit Application should be directed to Gary W. Stewart, permit operations manager for Denbury Onshore, LLC.

With regards,

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

Gary Stewart,
Permit Mgr. for Denbury Onshore, LLC
Cell 601-757-3009
Email gstewart@ras-us.com



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
04/15/2013

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 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 Marsh USA Inc. 1000 Main Street, Suite 3000 Houston, TX 77002 014302-Cas-13/14	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS:																				
	<table border="1"> <tr> <th colspan="2">INSURER(S) AFFORDING COVERAGE</th> <th>NAIC #</th> </tr> <tr> <td>INSURER A: Zurich American Insurance Co</td> <td></td> <td>16535</td> </tr> <tr> <td>INSURER B: American Guarantee & Liability Ins Co</td> <td></td> <td>26247</td> </tr> <tr> <td>INSURER C:</td> <td></td> <td></td> </tr> <tr> <td>INSURER D:</td> <td></td> <td></td> </tr> <tr> <td>INSURER E:</td> <td></td> <td></td> </tr> <tr> <td>INSURER F:</td> <td></td> <td></td> </tr> </table>	INSURER(S) AFFORDING COVERAGE		NAIC #	INSURER A: Zurich American Insurance Co		16535	INSURER B: American Guarantee & Liability Ins Co		26247	INSURER C:			INSURER D:			INSURER E:			INSURER F:	
INSURER(S) AFFORDING COVERAGE		NAIC #																			
INSURER A: Zurich American Insurance Co		16535																			
INSURER B: American Guarantee & Liability Ins Co		26247																			
INSURER C:																					
INSURER D:																					
INSURER E:																					
INSURER F:																					
INSURED Denbury Onshore, LLC 5320 Legacy Drive Plano, TX 75024																					

COVERAGES **CERTIFICATE NUMBER:** HOU-001811930-06 **REVISION NUMBER:** 7

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 INSR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOC		GLO9242578-01	04/01/2013	04/01/2014	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 500,000 MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COM/POP AGG \$ 2,000,000 \$
A	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input checked="" type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS		BAP9242576-01	04/01/2013	04/01/2014	COMBINED SINGLE LIMIT (Ea accident) \$ 2,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
B	<input checked="" type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$		AUC 9242673-01	04/01/2013	04/01/2014	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000 \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) <input type="checkbox"/> Y <input checked="" type="checkbox"/> N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A	WC9242579-01	04/01/2013	04/01/2014	<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER 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 (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER

CANCELLATION

City of Pearland Attn: Public Works Director - Danny Cameron 3519 Liberty Dr. Pearland, TX 77581	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 of Marsh USA Inc. Andrew F. Steptowe
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RLI Insurance Company
 8 Greenway Plaza, Ste 400
 Houston, TX 77046
 Phone: (713) 961-1300 Fax: (713) 961-0285

CONTINUATION CERTIFICATE

RLI Insurance Company hereby continues in
 force Bond No. RLB0013875, effective June 16, 2011 briefly described as

SEISMIC PERFORMANCE BOND

bound unto the PEARLAND, TEXAS

on behalf of DENBURY ONSHORE, LLC

in the sum of \$ 100,000.00 Dollars, for the term beginning June 16, 2013

and ending June 16, 2014, subject to all the covenants and conditions of the original bond, or any
 riders issued to the bond referenced above.

This Continuation Certificate is executed upon the express condition that the Surety's liability shall not be
 cumulative, and shall be limited at all times by the amount of the penalty stated in the bond, or by any riders
 issued amending the penalty of the bond. All other conditions and terms to remain as originally written or
 previously amended by rider.

Dated this 18th day of March, 2013.

DENBURY ONSHORE, LLC

Principal
 By: 
Robert L. Cornelius - SR VP - CO2 Operations
 (Print Name/Title)

RLI Insurance Company
8 Greenway Plaza, Ste 400
Houston, TX 77046

Surety
 By: 
Jason F. Kilpatrick - Attorney in Fact

THIS "Continuation Certificate" MUST BE FILED WITH THE ABOVE OBLIGEE.



RLI Insurance Company
 P.O. Box 3967
 Peoria, IL 61612-3967
 Phone: (309) 692-1000 Fax: (309) 683-1610

POWER OF ATTORNEY
RLI Insurance Company

RLB0013875

Know All Men by These Presents:

That the RLI Insurance Company, a corporation organized and existing under the laws of the State of Illinois, and authorized and licensed to do business in all states and the District of Columbia does hereby make, constitute and appoint:

Robbie Duxbury, Jason T. Kilpatrick

in the City of Houston, State of Texas, as Attorney in Fact, with full power and authority hereby conferred upon him/her to sign, execute, acknowledge and deliver for and on their behalf as Surety and as their act and deed, all of the following classes of documents to-wit:

\$ 100,000.00

Indemnity, Surety and Undertakings that may be desired by contract, or may be given in any action or proceeding in any court of law or equity, policies indemnifying employers against loss or damage caused by the misconduct of their employees; official, bail and surety and fidelity bonds. Indemnify in all cases where indemnity may be lawfully given; and with full power and authority to execute consents and waivers to modify or change or extend any bond or document executed for this Company, and to compromise and settle any and all claims or demands made or existing against said Company.

RLI Insurance Company further certifies that the following is a true and exact copy of a Resolution adopted by the Board of Directors of RLI Insurance Company, and now in force to-wit:

"All bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, any Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or Agents who shall have authority to issue bonds, policies or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile."

IN WITNESS WHEREOF, RLI Insurance Company has caused these presents to be executed by its Vice President with its corporate seals affixed this 18th day of March, 2013.

ATTEST:

Cynthia S. Dohm Assistant Secretary



RLI Insurance Company

By: Vice President

State of Illinois }
 County of Peoria } SS

On this 18th day of March, 2013 before me, a Notary Public, personally appeared Roy C. Die and Cynthia S. Dohm, who being by me duly sworn, acknowledged that they signed the above Power of Attorney as Vice President and Assistant Secretary, respectively, of said RLI Insurance Company, and acknowledged said instrument to be the voluntary act and deed of said corporation.

Jacqueline M. Bockler Notary Public



Copy of 2011 Bond



RLB0013875

RLI Surety
A Division of RLI Insurance Company

POWER OF ATTORNEY

RLI Insurance Company

Know All Men by These Presents:

That the RLI INSURANCE COMPANY, a corporation organized and existing under the laws of the State of Illinois, and authorized and licensed to do business in all states and the District of Columbia does hereby make, constitute and appoint: ROBBIE DUXBURY in the City of HOUSTON, State of TEXAS, as Attorney-in-Fact, with full power and authority hereby conferred upon him to sign, execute, acknowledge and deliver for and on its behalf as Surety and as its act and deed, all of the following classes of documents to-wit:

\$100,000.00

Indemnity, Surety and Undertakings that may be desired by contract, or may be given in any action or proceeding in any court of law or equity; policies indemnifying employers against loss or damage caused by the misconduct of their employees; official, bail and surety and fidelity bonds. Indemnity in all cases where indemnity may be lawfully given; and with full power and authority to execute consents and waivers to modify or change or extend any bond or document executed for this Company, and to compromise and settle any and all claims or demands made or existing against said Company.

The RLI INSURANCE COMPANY further certifies that the following is a true and exact copy of a Resolution adopted by the Board of Directors of RLI Insurance Company, and now in force to-wit:

"All bonds, policies, undertakings, Powers of Attorney, or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, any Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys-in-Fact or Agents who shall have authority to issue bonds, policies, or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers-of-Attorney, or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile."

(Blue shaded areas above indicate authenticity)

IN WITNESS WHEREOF, the RLI Insurance Company has caused these presents to be executed by its PRESIDENT with its corporate seal affixed this

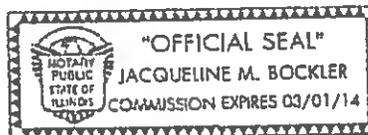
ATTEST:
Jean M. Stephenson
CORPORATE SECRETARY
State of Illinois)
County of Peoria) SS



Michael J. Stone
PRESIDENT
RLI INSURANCE COMPANY
SEAL

On this 16 day of June 2011 before me, a Notary Public, personally appeared Michael J. Stone and Jean M. Stephenson, who being by me duly sworn, acknowledged that they signed the above Power of Attorney as President and Corporate Secretary, respectively, of the said RLI INSURANCE COMPANY, and acknowledged said instrument to be the voluntary act and deed of said corporation.

Jacqueline M. Bockler
Notary Public



RECEIVED

APR 24 2013

SPA027 (03/11)

Copy of 2011 Bond

BOND NO. RLB0013875

SEISMIC PERFORMANCE BOND

KNOW ALL BY THESE PRESENTS, That we, Denbury Onshore, LLC as Principal, and the RLI Insurance Company, an Illinois corporation, as Surety, are held and firmly bound unto City of Pearland, Attention: Public Works Director, 3519 Liberty Drive, Pearland, TX 77581, as Obligee, in the sum of One Hundred Thousand and No/100 Dollars (~~\$100,000.00~~) for which sum, well and truly to be paid, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has been or is about to be granted a permit, by the Obligee, to conduct geophysical/seismic operations. This bond shall provide, but not be limited to, the following condition: there shall be recoverable by the City, jointly and severally from the principal and surety, any and all damages, loss or costs suffered by the City in connection with e applicant's geophysical operations within the City. The Principal shall restore, as its own costs, damages to city-owned lands or rights-of-way used in its operations to the original condition (but not betterment), in excess of normal maintenance (normal maintenance cost shall be the sole responsibility of the City) just prior to the testing operations

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT if the Principal shall well and truly comply with Ordinance No. 716-1, and conduct business in conformity therewith, then this obligation to be void; otherwise to remain in full force and effect; in no event shall the liability hereunder exceed the penal sum hereof.

PROVIDED AND SUBJECT TO THE CONDITIONS PRECEDENT:

1. The term of this bond shall be for a period of two years, from June 16, 2011 to June 16, 2013.
2. Any claim must be presented in writing to RLI Insurance Company to the attention of Greg E. Chilson, 8 Greenway Plaza, Suite 400, Houston, Texas 77046.
3. Surety shall have no obligation to the Principal, the Obligee or any other person or entity for any loss suffered by the Principal, the Obligee or any other person or entity by reason of acts or omissions which are or could be covered by the Obligee's or the Principal's general liability insurance, products liability insurance, completed operations insurance or any other insurance.
4. No right or action shall accrue under this Bond to or for the use or benefit of anyone other than the named Obligee.
5. It is hereby understood and agreed that this bond may not be canceled by the surety company until sixty (60) days after receipt by the city, by registered mail or written notice, of such intent to cancel or not to renew.

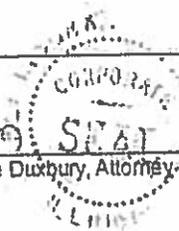
IN WITNESS WHEREOF, the above bound parties have executed this instrument under their several seals this 16th day of June, 2011, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative pursuant to authority of its governing body.

Denbury Onshore, LLC Principal

By [Signature]
SR.VP - CO2 Operations

RLI Insurance Company
8 Greenway Plaza, Suite 400
Houston, TX 77046

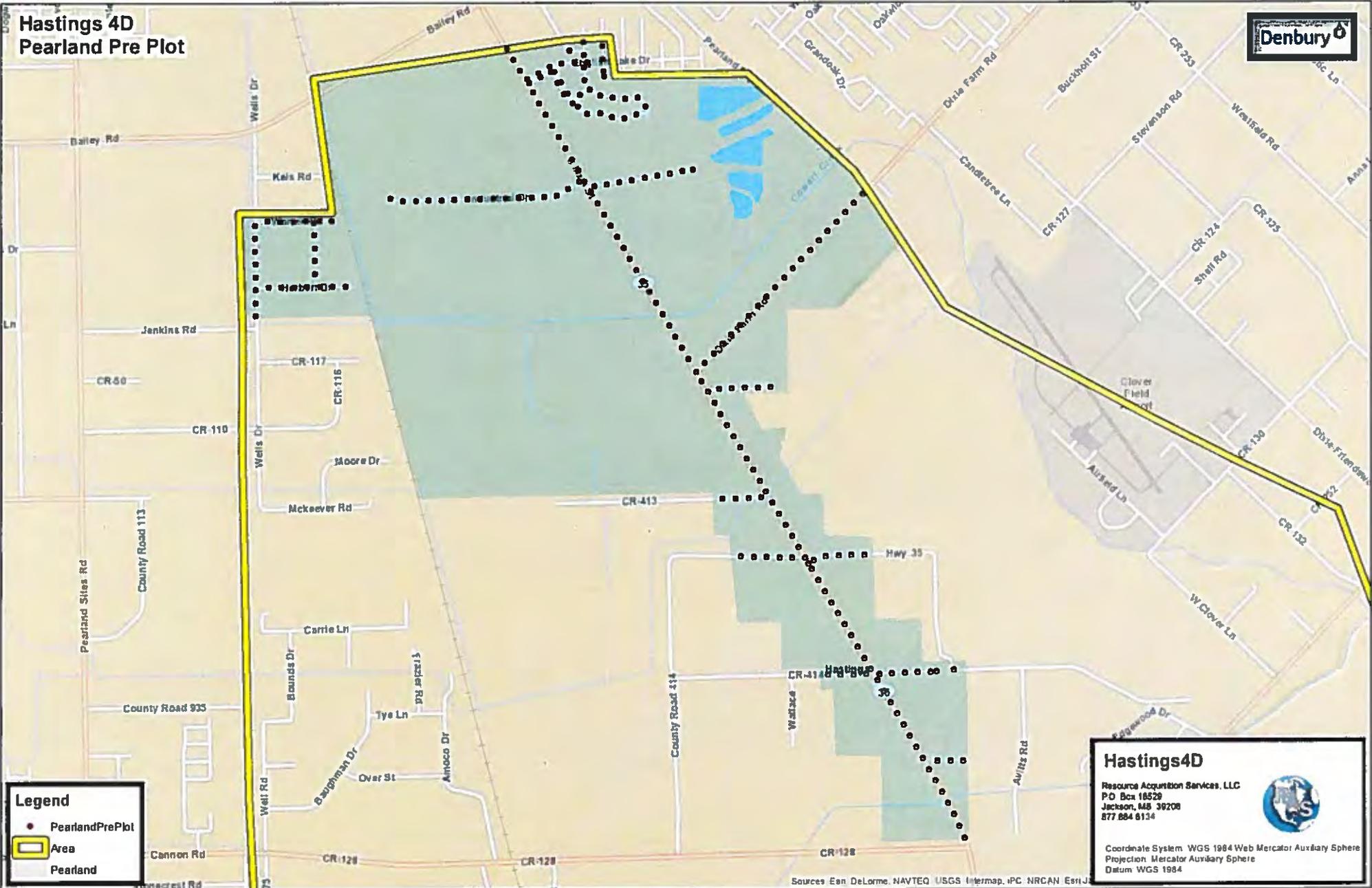
By [Signature] Surety
Robbie Duxbury, Attorney-in-Fact



RECEIVED

APR 24 2013

**Hastings 4D
Pearland Pre Plot**



Legend

- Pearl and Pre Plot
- Area
- Pearl and Pre Plot

Hastings4D

Resource Acquisition Services, LLC
 P.O. Box 18529
 Jackson, MS 39208
 877 884 6134

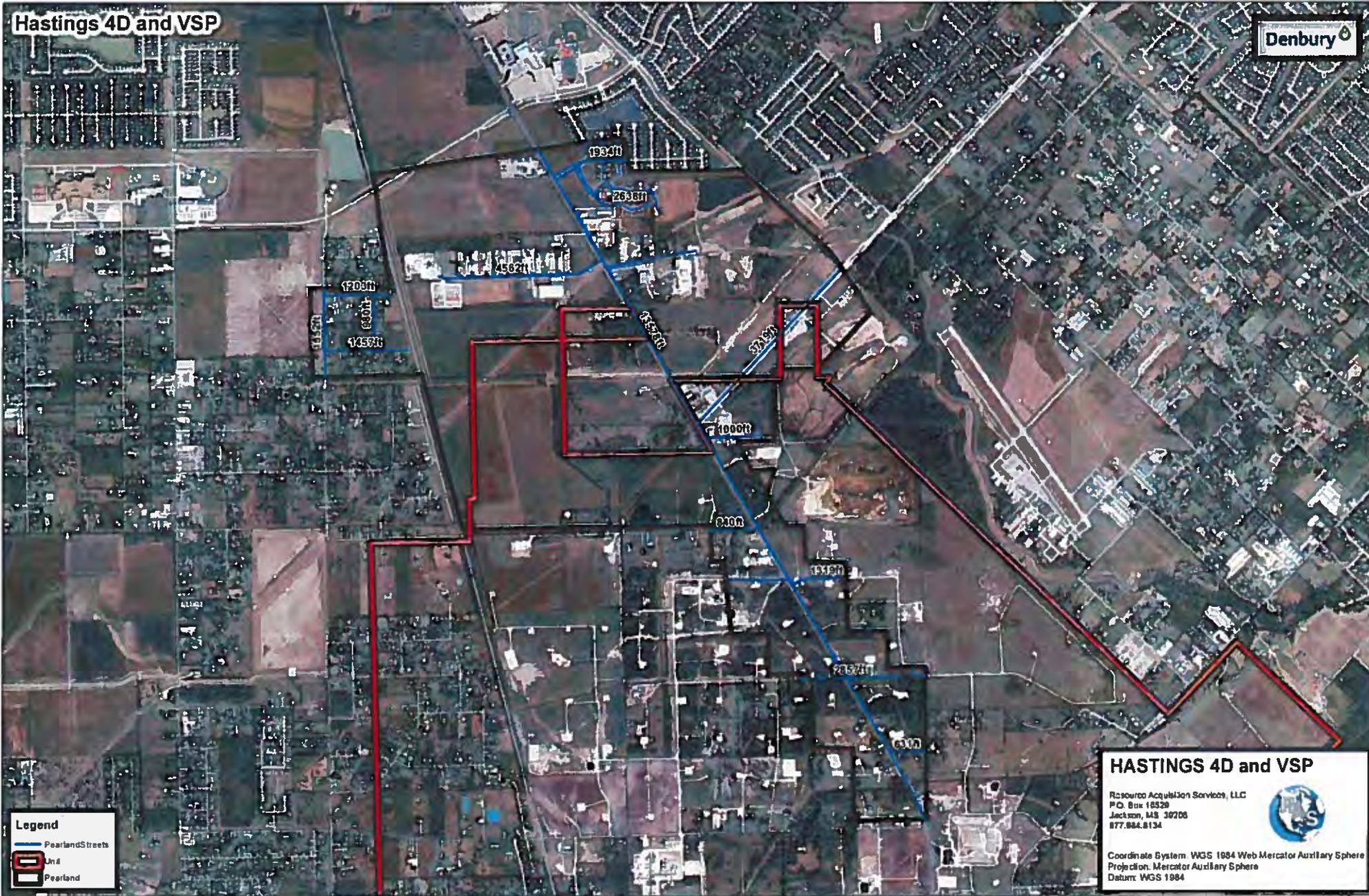
Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
 Projection: Mercator Auxiliary Sphere
 Datum: WGS 1984

Sources: Ean DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri, J...

Pearland, TX Schedule of Roads (vibe and geophones)

Street Name	Linear Feet	Linear Miles
S Main St	13578.11387	2.571612476
Dixie Farm Rd	3719.037934	0.704363245
Avitts Rd	630.6669052	0.11944449
Hwy 35	1318.731137	0.249759685
CR-413	840.4660642	0.159179179
CR-414	2856.555316	0.541014264
Denbury Oilfield Rd?	999.6983147	0.189336802
Industrial Dr	4562.349839	0.864081409
Canyon Lake Dr	388.6878237	0.073615118
Austin Lake Ct	659.8452575	0.124970693
Somerville Lake Ct	592.0526586	0.112131185
English Lake Dr	1933.853092	0.366260055
Village Dr	1415.938065	0.268170088
Villages Of Towne Lk	2638.348406	0.499687198
Mckeever Rd	1552.032197	0.293945492
Herbert Dr	1457.18438	0.27598189
Williams St	979.9211302	0.185591123
Warren Rd	1202.659188	0.227776361
Total	41326.14158	7.826920754

Hastings 4D and VSP



Legend

- Pearl and VSP Streets
- Unit
- Pearl and

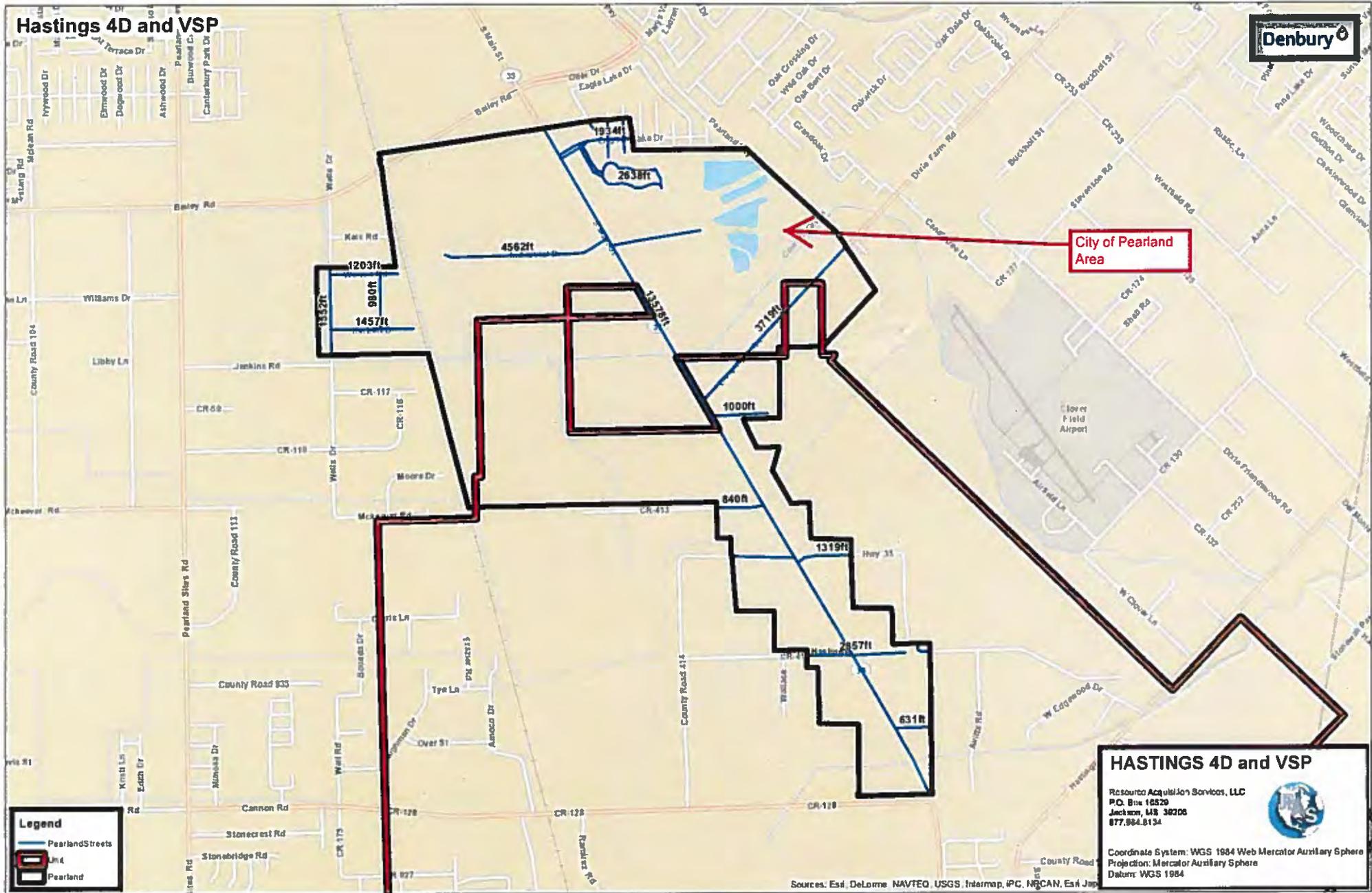
HASTINGS 4D and VSP

Resource Acquisition Services, LLC
P.O. Box 18529
Jackson, MS 39206
877.984.8134



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984

Hastings 4D and VSP



City of Pearland Area

Legend

- Pearland Streets
- City of Pearland Area
- Pearland

HASTINGS 4D and VSP

Resource Acquisition Services, LLC
 P.O. Box 16829
 Jackson, MS 39206
 877.984.8134

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
 Projection: Mercator Auxiliary Sphere
 Datum: WGS 1984

Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan

Seismic Notice to Pearland/Brazoria County, TX Residents or Business Owners in the vicinity of a 4 mile path of Highway 35 S, from just South of Pearland High School to the Intersection of Hwy 35 and Moore Rd in Brazoria County, TX.

Denbury Onshore, LLC is providing this Seismic Notice to area citizens as compliance with the Pearland City Ordinance 716-1 that governs directives in conducting a geophysical survey in the Pearland, Texas City Limits along with Brazoria County Seismic requirements.

The survey is scheduled to begin approximately in March 2014 and to conclude approximately in April 2014, this will be followed by a repeat seismic survey in the 4th Quarter of 2014.

The survey is being conducted to map the subsurface of the permitted Pearland and Brazoria County area. Vibe trucks and monitoring devices will be used to obtain the seismic data. All work, equipment, and monitoring devices will be limited to city road right-of-ways, utility easements, and/or permitted property.

For more information on Denbury's seismic operations, please call (877) 884-8134 to speak with a Denbury seismic agent.



CLASSIFIED AD PROOF / RECEIPT



Advertiser: **ACCOUNTS PAYABLE
RAS, LLC
PO BOX 16529
JACKSON, MS 39236**

Account #: **289141**
Phone: **(601) 919-9905**

Purchase Order# :

Order #: **316763**
Tagline: **Seismic Notice to Pe**
Color:
Position:
Proof:

Total Ad Cost: **\$1,564.00**

Payments:
CC **MC** **0690**
\$1,564.00

Balance Due: **\$0.00**

Account Executive: **Susan Curr
(281) 378-1025
scurr@hcnonline.com**

Publications: 1BA-Bay Area Citizen, 1DP-Deer Park Broadcaster, 1FJ-Friendswood Journal, 1PC-Pasadena Citizen, 1PJ-Pearland Journal, 1XCL-hcn.
classifieds

Start Date	Stop Date	No. of Insertions	Version	Class	Color	Ad Size	Total Size	Price
02/20/14	03/13/14	24	12345-1	2065	Process	3 x 4.0	12.0	\$1,564.00

02/18/14 10:29 AM

Seismic Notice to Pearland/Brazoria County, TX Residents or Business Owners in the vicinity of a 4 mile path of Highway 35 S, from just South of Pearland High School to the Intersection of Hwy 35 and Moore Rd in Brazoria County, TX.

Denbury Onshore, LLC is providing this Seismic Notice to area citizens as compliance with the Pearland City Ordinance 716-1 that governs directives in conducting a geophysical survey in the Pearland, Texas City Limits along with Brazoria County Seismic requirements.

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For more information on Denbury's seismic operations, please call (877) 884-8134 to speak with a Denbury seismic agent.
PF 02/20,02/27, 03/06, 03/13, 03/20, 03/27

TRUE WATERMARK PAPER HOLD TO LIGHT TO VIEW HEAT SENSITIVE RED IMAGE DISAPPEARS WITH HEAT

6405

**RAS DENBURY ONSHORE LLC
OPERATIONS ACCOUNT**

PO BOX 16529
JACKSON, MS 39236-6529

DATE 2-18-14

85-27-653

PAY TO THE ORDER OF City of Pearl and

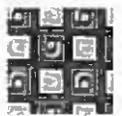
\$ 1,500.00

Fifteen hundred & 00/100

DOLLARS

FOR  **Trustmark**
National Bank
Seaside Apt Fee





⑈006405⑈ ⑆065300279⑆ ⑆0161920400⑈

Details on back Security Features



Fw: Denbury Seismic Request

Eric Wilson

to:

Darrin Coker

02/28/2014 10:45 AM

Cc:

Michael Leech, Sherry Bowlin

Hide Details

From: Eric Wilson/COP

To: Darrin Coker/COP@ci.pearland.tx.us,

Cc: Michael Leech/COP@ci.pearland.tx.us, Sherry Bowlin/COP@ci.pearland.tx.us

10 Attachments

-  Prior year seismic testing paperwork.pdf
-  Current year seismic documents.pdf
-  City of Pearland Fee Tracts.xlsx
-  Hastings4D-COP.pdf
-  Hastings4D-COP-Street.pdf
-  Denbury Seismic Areas 50P_48P_47P.pdf
-  Denbury Seismic Area 100W.pdf
-  Denbury Seismic Area 7_11_40P_730_732_735_739.pdf
-  Denbury Seismic Area 27.pdf
-  Denbury Seismic Area 14.pdf

Darrin,

The Public Works Department approve the seismic testing permit as requested. Please proceed with agenda request formulation. Hard copies of the application will be delivered to you today.

Thanks,

Eric

Eric K. Wilson
Public Works Director
City of Pearland, Texas

The highest courage is to dare to be yourself in the face of adversity. Choosing right over wrong, ethics over convenience, and truth over popularity... These are the choices that measure your life. Travel the path of integrity without looking back, for there is never a wrong time to do the right thing.

----- Forwarded by Eric Wilson/COP on 02/28/2014 10:32 AM -----

From: Sherry Bowlin/COP
To: Eric Wilson/COP@ci.pearland.tx.us, Michael Leech/COP@ci.pearland.tx.us
Date: 02/28/2014 10:02 AM
Subject: Fw: Denbury Seismic Request

Eric,

Attached are all related documents for this year's seismic testing request by Denbury Onshore. For convenience, I've also attached is a full set the documents used for this request last year including a copy of the prior resolution and agenda request.

Denbury Onshore has requested additional sites this year. Research was done by Huey in GIS and a few areas have AC pipe and are noted below. The Water & Sewer division has conducted a visual survey and found no problems. Mike Leech has reviewed their paperwork as noted below. Requesting your approval to send all paperwork to Darren Coker for agenda preparation.

Sherry Bowlin
Office Supervisor
Public Works Department
City of Pearland
281-652-1901

----- Forwarded by Sherry Bowlin/COP on 02/28/2014 08:46 AM -----

From: Michael Leech/COP
To: Sherry Bowlin/COP@ci.pearland.tx.us,
Cc: Eric Wilson/COP@ci.pearland.tx.us
Date: 02/26/2014 04:22 PM
Subject: Re: Fw: Denbury Seismic Request

It appears to me that the only areas with AC lines are areas 47P and 14 shown in the attached exhibits. Both total less than 5 total acres in size. To that end and in light of the insurance and bonding information, I recommend that we proceed.

Eric, please let us know if you have any thoughts on this.

Michael Leech
Assistant Director of Public Works
City of Pearland
mleech@ci.pearland.tx.us
Office: 281-652-1914
Cell: 713-775-4051
Fax: 281-652-1710

From: Sherry Bowlin/COP
To: Michael Leech/COP@ci.pearland.tx.us, Eric Wilson/COP@ci.pearland.tx.us
Date: 02/26/2014 03:59 PM
Subject: Fw: Denbury Seismic Request

Huey searched GIS and we do have some AC line. See attachments. Do you have any reservations on sending this forward to council?

Thanks.

Sherry Bowlin
Office Supervisor
Public Works Department
City of Pearland
281-652-1901

----- Forwarded by Sherry Bowlin/COP on 02/26/2014 03:59 PM -----

From: Huey Washington/COP
To: Sherry Bowlin/COP@ci.pearland.tx.us
Cc: Gary McMullin/COP@ci.pearland.tx.us, Les Saberniak/COP@ci.pearland.tx.us
Date: 02/26/2014 11:22 AM
Subject: Re: Fw: Denbury Seismic Request

Huey Washington
GPS Specialist
City of Pearland
281-652-1931

From: Sherry Bowlin/COP
To: Les Saberniak/COP@ci.pearland.tx.us, Huey Washington/COP@ci.pearland.tx.us
Cc: Michael Leech/COP@ci.pearland.tx.us, Kimberly Hall/COP@ci.pearland.tx.us, Eric Wilson/COP@ci.pearland.tx.us
Date: 02/26/2014 09:22 AM
Subject: Fw: Denbury Seismic Request

Les and Huey,

The seismic testing company is expanding their foot print for testing this year. The attachments show the new areas as blue boxes. Eric would like to send someone with institutional knowledge of the water/sewer lines to these locations to make sure that they would not be negatively impacted by the test. In particular, he wants to know if there are AC water lines or clay tile sewer lines in the area.

Huey,

Would you have that information in GIS? We need this today or tomorrow early to meet the deadline.

Les,

Can you also assign one of your guys to verify this today or tomorrow?

Thanks.

Sherry Bowlin
Office Supervisor
Public Works Department
City of Pearland
281-652-1901

----- Forwarded by Sherry Bowlin/COP on 02/26/2014 09:17 AM -----

From: "G.W. Stewart" <gstewart@ras-us.com>
To: Eric_Wilson/COP@ci.pearland.tx.us, sbowlin@ci.pearland.tx.us, Trevor Richards <trevor.richards@denbury.com>, "tlee3fish@aol.com" <tlee3fish@aol.com>
Date: 02/21/2014 06:56 AM
Subject: Denbury Seismic Request

Mr. Wilson,

Good morning, have a great Friday!

Denbury is requesting to add a few fee tracts owned by the City of Pearland to its seismic permit application. We would like to utilize the tracts for monitoring and vibing operations along with the city ROW's.

Attached is a schedule of the tracts with maps for your review. We have obtained the ownership information from the Brazoria Tax Appraisal District.

If you have any additional questions or directions concerning this request, please give me a call on the below cell phone or contact me via this email.

Thanks again for your assistance in our requests,

Gary

--
G.W. Stewart
PO Box 16529
Jackson, MS 39236
Office 601-919-9905
Cell 601-757-3009
Fax 601-510-9946

New Business Item No. 2

- 2. CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-23** – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO ENTER INTO INTERLOCAL AGREEMENTS WITH THE LOWER KIRBY MUNICIPAL MANAGEMENT DISTRICT AND PEARLAND MUNICIPAL MANAGEMENT DISTRICT NO. 1.
Mr. Matt Buchanan, President Economic Development Corporation.

**AGENDA REQUEST
BUSINESS OF THE CITY COUNCIL
CITY OF PEARLAND, TEXAS**

AGENDA OF: 03/10/2014	ITEM NO.: Resolution No. R2014-23
DATE SUBMITTED: 03/04/2014	DEPT. OF ORIGIN: PEDC
PREPARED BY: Matt Buchanan	PRESENTOR: Matt Buchanan
REVIEWED BY: Coker/Hodge	REVIEW DATE: March 5, 2014
SUBJECT: Lower Kirby Summary and Interlocal Agreements with LKMMD and PMMD No. 1	
EXHIBITS: 1: R2014-23; 2: Interlocal Agreement between City of Pearland and LKMMD; 3: Interlocal Agreement between City of Pearland and PMMD No. 1	
FUNDING: <input type="checkbox"/> Grant <input type="checkbox"/> Developer/Other <input type="checkbox"/> Cash <input type="checkbox"/> Bonds To Be Sold <input type="checkbox"/> Bonds- Sold <input type="checkbox"/> L/P – Sold <input type="checkbox"/> L/P – To Be Sold	
EXPENDITURE REQUIRED: AMOUNT AVAILABLE: ACCOUNT NO.: ADDITIONAL APPROPRIATION REQUIRED: ACCOUNT NO.: PROJECT NO.:	AMOUNT BUDGETED: PROJECT NO.:
To be completed by Department: <div style="display: flex; justify-content: space-around;"> Finance Legal Ordinance Resolution </div>	

EXECUTIVE SUMMARY

One of the priorities of the Lower Kirby Urban Center Master Plan, the Pearland 20/20 Strategic Plan, and a City Council goal is the implementation of regional detention for the Lower Kirby area. The purpose of regional detention is to create a more attractive urban development, reclaim land from the 100 year flood plain and increase property values needed to pay for infrastructure. A regional approach will prevent each property owner from having to provide individual on site detention allowing for drainage areas that become amenities.

One of the first steps taken by the City to facilitate regional detention was the purchase of the existing large borrow pit on the south side of the District in November 2010 that will be utilized as the detention pond. The City hired LJA Engineering in 2012 to conduct a drainage design and impact analysis for the necessary improvements and to begin a discussion with Texas Department of Transportation (TXDOT) to utilize their existing drainage ditch for conveyance. The ditch runs north and south parallel to State Highway 288 and will convey water from the eastern 467 acres of the District to the detention pond before it outfalls into Clear Creek.

The Lower Kirby Municipal Management District (LKMMMD) and the Pearland Municipal Management District No. 1 (PMMD#1) on February 6, 2014 adopted a master drainage plan for the implementation and enforcement of regional detention that established rules, regulations and fees. The regional detention will be developed and utilized by both the LKMMMD and the PMMD#1. The PMMD#1 master drainage plan will be for the entire 127 acres of the District and the LKMMMD master drainage plan is a first phase that will provide regional detention for 340 acres of the District.

The Districts entered into a cost sharing and implementation agreement to cooperate on the regional detention system. The total cost of this phase of the regional detention system is estimated at approximately \$16M that will be split between the two Districts at 72.3% for LKMMMD and 27.7% for PMMD#1. Based on this cost sharing, the LKMMMD will charge \$34,495 per acre foot and PMMD#1 will charge \$37,047 per acre foot. Thirty percent of the fee will be a pro-rata participation fee paid by the developer and the remaining seventy percent will be reimbursed to the developer when funds are available from the District.

The City and District have been working with TXDOT on an agreement between the Districts and TXDOT to utilize their ditch. We received a letter of no objection from TXDOT for the Drainage Design and Impact Analysis Report last year. We are meeting with TXDOT now to get a final agreement.

We have four resolutions for City Council's consideration regarding the financing of infrastructure and the development of regional detention in the Lower Kirby area. The resolutions are as follows:

1- Interlocal Agreements (R2014-23) with LKMMMD and PMMD#1

The Districts and the City will continue to work together to accomplish the facilitation and implementation of regional detention. The City will undertake the following on behalf of both Districts: administration of the plan, including plan review, the collection of the Districts' plan review fees, and acquisition of right of way necessary right of way for the implementation of the plan. Cost of acquisition of land shall be paid by the City with reimbursement from the Districts. The plan review fees will be established by the Districts and collected and retained by the City to compensate for the review. The one year agreement shall be automatically renewed annually and may be cancelled by either party with 30 days written notice.

2- Financing Agreements (R2014-24) with LKMMMD and PMMD#1

This agreement outlines the process by which the City and Districts will work together to finance infrastructure in the Districts. The Lower Kirby Master Plan completed an infrastructure framework and phasing plan that identified the major drainage and roadway improvements necessary to facilitate development. The Plan identified an estimated cost of \$48M in priority construction projects that include drainage, water, sanitary sewer, streets, underground electricity, traffic items, sidewalks and streetscape.

The City and Districts will agree, on a case by case basis, for the City to provide advance funding to the Districts in order to facilitate development. When the City and Districts agree to a specific project they will enter into a "Letter Agreement" for each individual project prior to funding, design and construction of improvements. PEDC could also finance projects directly with the Districts but more than likely would finance projects through the City. The District will

repay the advance funding through the sale of bonds when the assessed valuation of the District make it economically feasible.

3- Financing Letter Agreements (R2014-25) with LKMMD and PMMD#1

The following financing letter agreements are included in the resolution for Council's consideration. The first two letters are for costs the City has already incurred. It has been proposed that the City continue to reinvest funds received from the Districts back into infrastructure of the Districts. The letters are as follows:

- 1- Conveyance of the Regional Detention Pond - This will reimburse the City for acquisition of the regional detention pond site including related expenses. The total reimbursement request is estimated at \$1,900,000 and the LKMMD will pay 72.3% and PMMD#1 will pay 27.7% of the eligible cost reimbursed. It is not anticipated that the City will recover 100% of the total cost. Both Districts will consider this letter agreement at their next meetings.
- 2- Master Drainage Plan – Design and Impact Analysis (July 2013) – This will reimburse the City for the \$127,410 the City has spent on Master Drainage Plan. The LKMMD will pay 72.3% and PMMD#1 will pay 27.7%. These expenditures were approved by both Districts' Board of Directors on February 6, 2014.
- 3- Preliminary Engineering Report & Phase I Design – To begin the first phase of improvements it will be necessary to conduct a preliminary engineering report and design the first phase of the project. Attached to this letter agreement is a proposal with LJA Engineering for \$183,031 for Council's consideration. The LKMMD will pay 72.3% and PMMD#1 will pay 27.7%. The letter agreement will be considered by both Districts at their next meeting.

The next step will be for additional letter agreements for the construction of the first phase of regional detention improvements. Both Amerlux and MHI will be the first developments to utilize the regional detention system so we need to move quickly to complete the PER and Phase I design so we can begin construction. In addition we are also working on the reconstruction of Hooper Road with MHI and the LKMMD that will also require letter agreements between the District and the City.

4- Conveyance of Ownership of the Regional Detention Pond – Special Warranty Deed (R2014- 27)

To allow developers to be reimbursed for the cost of the regional detention system, the Districts need to own the detention pond. The City will maintain an easement across the entire property for municipal facilities that may be developed in the future. The deed also has a reversionary clause in which the property will revert back to the City if the Districts do not enter into an agreement with TXDOT for use of their drainage ditch or if for any reason the property ceases to be used for regional detention.

RECOMMENDED ACTION

Consideration and approval of a resolution approving Interlocal Agreements with the Lower Kirby Municipal Management District and the Pearland Municipal Management District No. 1 and authorizing the City Manager to execute the agreements.

RESOLUTION NO. R2014-23

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO ENTER INTO INTERLOCAL AGREEMENTS WITH THE LOWER KIRBY MUNICIPAL MANAGEMENT DISTRICT AND PEARLAND MUNICIPAL MANAGEMENT DISTRICT NO. 1.

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS:

Section 1. That certain Interlocal Agreements by and between the City of Pearland, the Lower Kirby Municipal Management District and Pearland Municipal Management District No. 1, copies of which are attached hereto as Exhibits "A" and "B" and made a part hereof for all purposes, are hereby authorized and approved.

Section 2. That the City Manager or his designee is hereby authorized to execute and the City Secretary to attest Interlocal Agreements with the Lower Kirby Municipal Management District and Pearland Municipal Management District No. 1.

PASSED, APPROVED and ADOPTED this the _____ day of _____,
A.D., 2014.

TOM REID
MAYOR

ATTEST:

YOUNG LORFING, TRMC
CITY SECRETARY

APPROVED AS TO FORM:

DARRIN M. COKER
CITY ATTORNEY

**INTERLOCAL AGREEMENT BETWEEN
CITY OF PEARLAND, TEXAS AND LOWER KIRBY PEARLAND MANAGEMENT
DISTRICT
FOR ADMINISTRATION OF THE
MASTER DRAINAGE PLAN**

This Interlocal Agreement (the "Agreement") is made and entered into pursuant to Texas Government Code, Chapter 791, by the City of Pearland, Texas, (the "City"), and Pearland Municipal Management District No. 1, (the "District"), as of _____, 2014 (the "Effective Date").

The District and Lower Kirby Pearland Management District each have adopted a Master Drainage Plan to regulate and implement a system of regional drainage and detention to drain the land within the respective boundaries.

The District is undertaking the implementation of its Master Drainage Plan (the "Plan") to provide the regional drainage, including detention, for the property located within the District in order to facilitate regional drainage and detention within the City limits.

The District is in the process of acquiring and constructing improvements in conjunction with the City and Lower Kirby Pearland Management District ("LKP") to facilitate the administration of the Plan. The District, LKP, and the City will work together to accomplish the facilitation and implementation of the Plan.

The District has determined that it is in the best interest to engage the City to perform certain functions related to the administration of the Plan on behalf of the District.

The City and the District enter this Agreement to establish terms and conditions whereby the District engages the City to perform the following related to the administration of the Plan. The City will undertake the following on behalf of the District: administration of the Plan, including plan review, the collection of plan review fees, and acquisition of right of way necessary for the implementation of the Plan.

For and in consideration of the mutual obligations and benefits to be derived under this Agreement, the City and the District agree as follows.

AGREEMENT

1. The District shall establish reasonable and necessary fees and charges that will be charged to developers, businesses, and landowners within the District ("plan review fee") for the Plan adopted by the District related to drainage

facilities and detention required. The plan review fee will be required at the time of submission of development or building plans to the City.

2. The plan review fee shall be collected by the City in order to compensate the City for the performance of the review necessary to determine compliance with the Plan. The City shall collect and retain all of the plan review fees established in the Plan on behalf of the District on an ongoing basis as development occurs within the District during the term of this Agreement.
3. The City shall perform the following actions on behalf of the District:
 - a. Drainage plans and specifications shall be submitted to determine compliance with the Plan. The City shall perform this review to ensure compliance with the standards and regulations adopted pursuant to the Plan by the District.
 - b. The City shall acquire any and all right of way necessary for the implementation of the Plan. All costs of acquisition of the land shall be paid by the City. Reimbursement for such land acquisition shall be provided in the Financing Agreement between the District and the City.
4. The parties recognize that the District is in the corporate limits of the City and the City has Engineering Design Criteria related to drainage (the "Criteria"). To the extent of a conflict between the City's Criteria and the Plan as regards property in the District, the Plan controls.
5. The term of this Agreement shall commence on the Effective Date and continue for one (1) year and then shall continue to be automatically renewed annually for each succeeding year. The District or the City may cancel this Agreement at any time upon thirty (30) days written notice.
6. This Agreement is the entire Agreement between the City and the District related to administration of the Master Drainage Plan and no modification of this Agreement shall be binding on either party unless reduced to writing and signed by both.
7. This Agreement shall not be assignable by either party without the prior written consent of the other party.

[EXECUTION PAGE FOLLOWS]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in multiple copies, each of equal dignity, as of the date and year set forth on the first page hereof.

PEARLAND MUNICIPAL MANAGEMENT
DISTRICT NO. 1

By: *Jaide D. Loyell*
President, Board of Directors

ATTEST:

By: *Alvin Doherty*
Secretary, Board of Directors

(SEAL)



City of Pearland, Texas

By: _____
City Manager, City of Pearland

**INTERLOCAL AGREEMENT BETWEEN
CITY OF PEARLAND, TEXAS AND LOWER KIRBY PEARLAND MANAGEMENT
DISTRICT
FOR ADMINISTRATION OF PHASE 1 OF THE
MASTER DRAINAGE PLAN**

This Interlocal Agreement (the "Agreement") is made and entered into pursuant to Texas Government Code, Chapter 791, by the City of Pearland, Texas, (the "City"), and Lower Kirby Pearland Management District, (the "District"), as of _____, 2014 (the "Effective Date").

The District and Pearland Municipal Management District Number 1 each have adopted a Master Drainage Plan to regulate and implement a system of regional drainage and detention to drain the land within the respective boundaries.

The District is undertaking the implementation of Phase 1 of its Master Drainage Plan (the "Plan") to provide the first phase of regional drainage, including detention, for the property located within the District in order to facilitate regional drainage and detention within the City limits.

The District is in the process of acquiring and constructing improvements in conjunction with the City and Pearland Municipal Management District No. 1 ("MMD1") to facilitate the administration of Phase 1 of the Plan. The District, MMD1, and the City will work together to accomplish the facilitation and implementation of Phase 1 of the Plan.

The District has determined that it is in the best interest to engage the City to perform certain functions related to the administration of the Plan on behalf of the District.

The City and the District enter this Agreement to establish terms and conditions whereby the District engages the City to perform the following related to the administration of Phase 1 of the Plan. The City will undertake the following on behalf of the District: administration of Phase 1 of the Plan, including plan review, the collection of plan review fees, and acquisition of right of way necessary for the implementation of Phase 1 of the Plan.

For and in consideration of the mutual obligations and benefits to be derived under this Agreement, the City and the District agree as follows.

AGREEMENT

1. The District shall establish reasonable and necessary fees and charges that will be charged to developers, businesses, and landowners within the District

("plan review fee") for Phase 1 of the Plan adopted by the District related to drainage facilities and detention required. The plan review fee will be required at the time of submission of development or building plans to the City.

2. The plan review fee for Phase 1 shall be collected by the City in order to compensate the City for the performance of the review necessary to determine compliance with Phase 1 of the Plan. The City shall collect and retain all of the plan review fees established in the Plan for Phase 1 on behalf of the District on an ongoing basis as development occurs within the District during the term of this Agreement.
3. The City shall perform the following actions on behalf of the District:
 - a. Drainage plans and specifications shall be submitted to determine compliance with Phase 1 of the Plan. The City shall perform this review to ensure compliance with the standards and regulations adopted pursuant to Phase 1 of the Plan by the District.
 - b. The City shall acquire any and all right of way necessary for the implementation of the Plan. All costs of acquisition of the land shall be paid by the City. Reimbursement for such land acquisition shall be provided in the Financing Agreement between the District and the City.
4. The parties recognize that the District is in the corporate limits of the City and the City has Engineering Design Criteria related to drainage (the "Criteria"). To the extent of a conflict between the City's Criteria and the Plan as regards property in the District, the Plan controls.
5. The term of this Agreement shall commence on the Effective Date and continue for one (1) year and then shall continue to be automatically renewed annually for each succeeding year. The District or the City may cancel this Agreement at any time upon thirty (30) days written notice.
6. This Agreement is the entire Agreement between the City and the District related to administration of Phase 1 of the Master Drainage Plan and no modification of this Agreement shall be binding on either party unless reduced to writing and signed by both.
7. This Agreement shall not be assignable by either party without the prior written consent of the other party.

[EXECUTION PAGE FOLLOWS]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in multiple copies, each of equal dignity, as of the date and year set forth on the first page hereof.

LOWER KIRBY PEARLAND MANAGEMENT DISTRICT

By: 
President, Board of Directors

ATTEST:

By: 
Secretary, Board of Directors

(SEAL)



City of Pearland, Texas

By: _____
City Manager, City of Pearland

New Business Item No. 3

3. **CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-27**– A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, CONVEYING A SPECIAL WARRANTY DEED TO THE LOWER KIRBY MUNICIPAL MANAGEMENT DISTRICT AND PEARLAND MUNICIPAL MANAGEMENT DISTRICT No.1 FOR USE AS A REGIONAL DETENTION POND. *Mr. Matt Buchanan, President Economic Development Corporation.*

**AGENDA REQUEST
BUSINESS OF THE CITY COUNCIL
CITY OF PEARLAND, TEXAS**

AGENDA OF: 03/10/2014	ITEM NO.: Resolution No. R2014-27
DATE SUBMITTED: 03/04/2014	DEPT. OF ORIGIN: PEDC
PREPARED BY: Matt Buchanan	PRESENTOR: Matt Buchanan
REVIEWED BY: Coker/Hodge	REVIEW DATE: March 5, 2014
SUBJECT: Lower Kirby – Convey Special Warranty Deed to LKMMD and PMMD No. 1	
EXHIBITS: 1: R2014-27; 2: Special Warranty Deed; 3: Aerial	
FUNDING: <input type="checkbox"/> Grant <input type="checkbox"/> Developer/Other <input type="checkbox"/> Cash <input type="checkbox"/> Bonds To Be Sold <input type="checkbox"/> Bonds- Sold <input type="checkbox"/> L/P – Sold <input type="checkbox"/> L/P – To Be Sold	
EXPENDITURE REQUIRED: AMOUNT AVAILABLE: ACCOUNT NO.: ADDITIONAL APPROPRIATION REQUIRED: ACCOUNT NO.: PROJECT NO.:	AMOUNT BUDGETED: PROJECT NO.:
To be completed by Department: <div style="display: flex; justify-content: space-around;"> Finance Legal Ordinance Resolution </div>	

EXECUTIVE SUMMARY

See Lower Kirby Interlocal Agreements agenda request for summary.

RECOMMENDED ACTION

Consideration and approval of a resolution authorizing the conveyance of City owned property to the Lower Kirby Management District and the Pearland Municipal Management District No. 1 and authorizing the City Manager to execute the special warranty deed.

RESOLUTION NO. R2014-27

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, CONVEYING A SPECIAL WARRANTY DEED TO THE LOWER KIRBY MUNICIPAL MANAGEMENT DISTRICT AND PEARLAND MUNICIPAL MANAGEMENT DISTRICT No.1 FOR USE AS A REGIONAL DETENTION POND.

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS:

Section 1. That certain Special Warranty Deed attached hereto as Exhibit "A" and made a part hereof for all purposes, is hereby conveyed to the Lower Kirby Municipal Management District and Pearland Municipal Management District No.1.

PASSED, APPROVED, AND ADOPTED this _____ day of _____, A.D., 2014.

TOM REID
MAYOR

ATTEST:

YOUNG LORFING, TRMC
CITY SECRETARY

APPROVED AS TO FORM:

DARRIN M. COKER
CITY ATTORNEY

SPECIAL WARRANTY DEED

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER

THE STATE OF TEXAS §
 § KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF _____ §

THAT, the **CITY OF PEARLAND, TEXAS**, a municipal body politic and corporate ("Grantor"), for and in consideration of the sum of TEN AND NO/100 DOLLARS (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, has GRANTED, BARGAINED, SOLD and CONVEYED, and by these presents does GRANT, BARGAIN, SELL and CONVEY unto **LOWER KIRBY PEARLAND MANAGEMENT DISTRICT**, a political subdivision of the State of Texas, and **PEARLAND MANAGEMENT DISTRICT NO.1**, a political subdivision of the State of Texas, their successors and assigns (collectively, "Grantees"), that certain tract of land located in _____ County, Texas, more particularly described in **Exhibit A** attached hereto and incorporated herein for all purposes, together with all rights, titles, and interests appurtenant thereto and improvements situated thereon (collectively, the "Property").

This Special Warranty Deed is executed by Grantor and accepted by Grantees subject to the terms, conditions and provisions hereof and further subject to all easements, conditions, restrictions, covenants, mineral or royalty interests, mineral reservations, surface waivers, utility conveyances, liens, encumbrances, regulations or orders of municipal and/or other governmental authorities, if any, or other matters of record in _____ County, Texas, to the extent the same are validly existing and applicable to the Property (collectively, the "Permitted Encumbrances").

Grantor hereby reserves for itself, its successors and assigns, a non-exclusive easement (the "Easement") upon, over, across, along, under, and through the Property for use for the construction, installation, maintenance, repair, and operation of facilities to serve the public (the "Municipal Facilities"), as Grantor may from time to time require. Grantor may construct, install, maintain, repair, and operate the Facilities upon, over, across, along, under, and through the Property, and may enter upon the Property to engage in such activities as may be reasonably necessary, requisite, convenient, or appropriate in connection therewith; provided, however, that,

notwithstanding anything to the contrary set forth herein, (i) Grantor must give Grantees written notice prior to any entry onto the Property, (ii) Grantor, at its sole cost and expense, shall maintain any Municipal Facilities constructed by Grantor on the Property, and (iii) Grantor's use of the Property shall not in any way interfere with the use of the Property for drainage and detention purposes.

TO HAVE AND TO HOLD the Property, together with all and singular the rights and appurtenances thereunto in anywise belonging, unto Grantees, their successors and assigns, forever, and Grantor does hereby bind itself, its successors and assigns, to WARRANT AND FOREVER DEFEND, all and singular the title to the Property unto Grantees, their successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof, by, through, and under Grantor, but not otherwise, subject only to the Permitted Encumbrances and the Easement retained hereinabove.

Grantees intend to develop a regional detention facility on the Property benefitting Grantor and Grantees ("Regional Detention Facility"); provided, however, Grantor and Grantees acknowledge that the development of the Property as a Regional Detention Facility is contingent upon Grantor entering into an agreement with the Texas Department of Transportation ("TxDOT") authorizing Grantor's use of that certain ditch owned and operated by TxDOT, and which is more particularly described on **Exhibit B** attached hereto and incorporated herein for all purposes (the "TxDOT Ditch") as part of the Regional Detention Facility. If (i) Grantor and TxDOT fail to enter into an agreement permitting use of the TxDOT Ditch for regional detention purposes by _____, or (ii) the Property ceases to be used for a Regional Detention Facility for _____ (___) consecutive months, then, in either such event, title to the Property shall automatically revert to Grantor.

Grantees' address is: 3200 Southwest Freeway, Suite 2600, Houston, Texas 77027.

[Signature pages follow this page.]

EXECUTED this _____ day of _____, 2014.

GRANTOR:

CITY OF PEARLAND, TEXAS

By: _____

Name: _____

Title: _____

THE STATE OF TEXAS §

§

COUNTY OF _____ §

This instrument was acknowledged before me on the ____ day of _____, 2014, by _____, _____ of the CITY OF PEARLAND, TEXAS, a _____, on behalf of said _____.

Notary Public, State of Texas

(NOTARY SEAL)

PEARLAND MANAGEMENT DISTRICT
NO. 1

By: _____
Name: _____
Title: _____

ATTEST:

By: _____
Name: _____
Title: _____

THE STATE OF TEXAS §
 §
COUNTY OF FORT BEND §

This instrument was acknowledged before me on the _____ day of _____, 2014, by _____, _____, and _____, of the Board of Directors of PEARLAND MANAGEMENT DISTRICT NO. 1, a political subdivision of the State of Texas, on behalf of said political subdivision.

Notary Public, State of Texas

(NOTARY SEAL)

Attachments:

- Exhibit A - Description of Property
- Exhibit B - Description of TxDOT Ditch

After recording, please return to:

Jeanette Harris
Allen Boone Humphries Robinson LLP
3200 Southwest Freeway, Suite 2600
Houston, Texas 77027



CLUB CREEK

PEARLAND CITY LIMIT

Southdown Park

Exhibit "A"
Ordinance No. 1349

May 15, 2007
Job No. 1807-0804-201

DESCRIPTION OF
38.893 ACRES

Being 38.893 acres of land located in the W. W. Duprey & L. F. Roberts Survey, Abstract 1898, and the T.O.R.R. Co. Survey Section 4, Abstract 675, Harris County, Texas, more particularly being all of that certain called 39.003 acre tract conveyed to D'Vorah Hasheeve, et al, by Instrument of record in File No. R872025, Official Public Records, of Real Property, of said Harris County (H.C.O.P.R.R.P.), said 38.893 acre tract being more particularly described by metes and bounds as follows, all bearings referenced to the Texas State Plane Coordinate System, South Central Zone, NAD 83 (2001 adjustment);

D

BEGINNING at a 3/4-inch iron pipe found marking the northwest corner of said 39.003 acre tract, the northeast corner of that certain called 4.9553 acre tract conveyed to D'Vorah Hasheeve, et al, by Instrument of record in File No. Z437896, H.C.O.P.R.R.P., same being southwest corner of that certain called 10 acre tract conveyed to Richard B. Mayor, et al, by Instrument of record in File No. P187254, H.C.O.P.R.R.P. and on the common survey line of said W. W. Duprey & L. F. Roberts Survey and the James Hamilton Survey, Abstract 881;

Thence, with the north line of said 39.003 acre tract and with the said common survey line, North 87° 30' 21" East, at 1319.46 feet pass a found 5/8-inch iron rod with cap (unreadable) 0.90 feet left, and continuing with said north line and said common survey line at 2070.95 feet pass a found 1/2-inch iron rod and continuing with said north line and said common survey line in all a total distance of 2213.50 feet to the east corner of said 39.003 acre tract, same being on the centerline of Clear Creek and on the common county line of said Harris County and Brazoria County, from which a 1-inch iron pipe found on the westerly right-of-way line of State Highway No. 288 bears North 87° 30' 21" East, 779.74 feet;

Thence, with the easterly and southerly lines of said 39.003 acre tract, with said common county line and with the centerline meanders of said Clear Creek, the following forty-eight (48) courses:

- 1) South 45° 10' 37" West, 10.58 feet to a point for corner;

RF 075-36-2228



A CERTIFIED COPY

ATTEST: NOV 29 2010
BEVERLY B. KAUFMAN, County Clerk
Harris County, Texas

Maria De La Rosa Deputy
MARIA DE LA ROSA

38.893 acres

May 15, 2007
Job No. 1607-0804-201

- 2) South 58° 29' 23" West, 44.71 feet to a point for corner;
- 3) South 55° 34' 54" West, 112.00 feet to a point for corner;
- 4) South 48° 05' 34" West, 27.25 feet to a point for corner;
- 5) South 38° 57' 48" West, 47.84 feet to a point for corner;
- 6) South 05° 18' 16" West, 45.49 feet to a point for corner;
- 7) South 05° 20' 48" East, 29.15 feet to a point for corner;
- 8) South 01° 52' 41" East, 49.14 feet to a point for corner;
- 9) South 27° 33' 24" West, 40.14 feet to a point for corner;
- 10) South 54° 33' 24" West, 54.84 feet to a point for corner;
- 11) South 85° 02' 20" West, 90.12 feet to a point for corner;
- 12) South 47° 43' 02" West, 85.47 feet to a point for corner;
- 18) South 34° 49' 00" West, 64.63 feet to a point for corner;
- 14) South 39° 00' 45" West, 36.42 feet to a point for corner;
- 15) South 29° 10' 41" West, 63.14 feet to a point for corner;
- 16) South 27° 53' 39" West, 68.13 feet to a point for corner;
- 17) South 38° 20' 07" West, 52.72 feet to a point for corner;

Page 2 of 5

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ATTEST:
BEVERLY B. KAUFMAN, County Clerk
Harris County, Texas

Maria De Rosa
MARIÁ DE LA ROSA Deputy

38.883 acres

May 15, 2007
Job No. 1607-0804-201

- 18) South 45°16' 10" West, 42.32 feet to a point for corner;
- 19) South 41°48' 16" West, 54.51 feet to a point for corner;
- 20) South 75°01' 28" West, 60.72 feet to a point for corner;
- 21) South 57°41' 21" West, 67.02 feet to a point for corner;
- 22) South 44°21' 22" West, 69.66 feet to a point for corner;
- 23) South 38°35' 40" West, 108.25 feet to a point for corner;
- 24) South 33°58' 53" West, 65.62 feet to a point for corner;
- 25) South 48°55' 08" West, 61.67 feet to a point for corner;
- 26) South 41°31' 17" West, 69.67 feet to a point for corner;
- 27) South 32°54' 39" West, 102.65 feet to a point for corner;
- 28) South 16°28' 14" West, 60.84 feet to a point for corner;
- 29) South 73°05' 36" West, 51.32 feet to a point for corner;
- 30) North 89°09' 46" West, 19.23 feet to a point for corner;
- 31) North 73°02' 35" West, 57.30 feet to a point for corner;
- 32) South 79°16' 00" West, 31.44 feet to a point for corner;
- 33) North 78°35' 30" West, 110.35 feet to a point for corner;

Page 3 of 5

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ATTEST:
BEVERLY B. KAUFMAN, County Clerk
Harris County, Texas

Maria De La Rosa Deputy
MARIA DE LA ROSA

RP 075-36-2230

38.893 acres

May 15, 2007
Job No. 1807-0804-201

Thence, leaving said county line and said centerline and with the common line of said 39.009 and 4.9553 acre tracts and with said common survey line, North 02° 29' 33" West, at 78.27 feet pass a found 1/2-inch iron rod and continuing with said common line and said common survey line in all a total distance of 778.87 feet to the POINT OF BEGINNING and containing 38.893 acres of land.

LJA Engineering & Surveying, Inc.

Page 5 of 5

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ATTEST
BEVERLY B. KAUFMAN, County Clerk
Harris County, Texas

Maria De La Rosa Deputy
MARIA DE LA ROSA

RP 075-36-2232

New Business Item No. 4

4. **CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-24** – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO ENTER INTO FINANCING AGREEMENTS WITH THE LOWER KIRBY MUNICIPAL MANAGEMENT DISTRICT AND PEARLAND MUNICIPAL MANAGEMENT DISTRICT NO. 1.
Mr. Matt Buchanan, President Economic Development Corporation.

**AGENDA REQUEST
BUSINESS OF THE CITY COUNCIL
CITY OF PEARLAND, TEXAS**

AGENDA OF: 03/10/2014	ITEM NO.: Resolution No. R2014-24
DATE SUBMITTED: 03/04/2014	DEPT. OF ORIGIN: PEDC
PREPARED BY: Matt Buchanan	PRESENTOR: Matt Buchanan
REVIEWED BY: Coker/Hodge	REVIEW DATE: March 5, 2014
SUBJECT: Lower Kirby – Master Financing Agreements with LKMMD and PMMD No. 1	
EXHIBITS: 1: R2014-24; 2: Financing Agreement with LKMMD; 3: Financing Agreement with PMMD No. 1 / No attachments	
FUNDING: <input type="checkbox"/> Grant <input type="checkbox"/> Developer/Other <input type="checkbox"/> Cash <input type="checkbox"/> Bonds To Be Sold <input type="checkbox"/> Bonds- Sold <input type="checkbox"/> L/P – Sold <input type="checkbox"/> L/P – To Be Sold	
EXPENDITURE REQUIRED: AMOUNT AVAILABLE: ACCOUNT NO.: ADDITIONAL APPROPRIATION REQUIRED: ACCOUNT NO.: PROJECT NO.:	AMOUNT BUDGETED: PROJECT NO.:
To be completed by Department: <div style="display: flex; justify-content: space-around;"> Finance Legal Ordinance Resolution </div>	

EXECUTIVE SUMMARY

See Lower Kirby Interlocal Agreement agenda request for summary. The attachments for the Pearland Municipal Management District are identical to the Lower Kirby Municipal Management District and are not attached.

RECOMMENDED ACTION

Consideration and approval of a resolution approving the financing agreements with the Lower Kirby Municipal Management Distract and Pearland Municipal Management District No. 1 and authorizing the City Manager to execute the agreements.

RESOLUTION NO. R2014-24

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO ENTER INTO FINANCING AGREEMENTS WITH THE LOWER KIRBY MUNICIPAL MANAGEMENT DISTRICT AND PEARLAND MUNICIPAL MANAGEMENT DISTRICT NO. 1.

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS:

Section 1. That certain Financing Agreements by and between the City of Pearland, the Lower Kirby Municipal Management District and Pearland Municipal Management District No. 1, copies of which are attached hereto as Exhibits "A" and "B" and made a part hereof for all purposes, are hereby authorized and approved.

Section 2. That the City Manager or his designee is hereby authorized to execute and the City Secretary to attest Financing Agreements with the Lower Kirby Municipal Management District and Pearland Municipal Management District No. 1.

PASSED, APPROVED and ADOPTED this the _____ day of _____,
A.D., 2014.

TOM REID
MAYOR

ATTEST:

YOUNG LORFING, TRMC
CITY SECRETARY

APPROVED AS TO FORM:

DARRIN M. COKER
CITY ATTORNEY

FINANCING AGREEMENT

THIS FINANCING AGREEMENT (the "Agreement") is entered into as of the ____th day of _____, 2014 by and between LOWER KIRBY PEARLAND MANAGEMENT DISTRICT, a political subdivision of the State of Texas, organized pursuant to the provisions of Article XVI, Section 59 of the Texas Constitution, was duly created by Senate Bill 1984, 80th Texas Legislature, and codified as Chapter 3840, Texas Special District Local Laws Code (the "Act"), and Chapter 375 of the Texas Local Government Code, as amended (the "District") and THE CITY OF PEARLAND, TEXAS (the "City").

RECITALS

WHEREAS, the District was created by the Act and is organized for the purpose of promoting, developing, encouraging, and maintaining employment, commerce, transportation, housing, tourism, recreation, arts, entertainment, economic development, parking, infrastructure, safety, public welfare, and water, sewer, and drainage facilities to serve land and development within its boundaries; and

WHEREAS, pursuant to Section 375.096, Local Government Code, the District changed its name by resolution to the "Lower Kirby Pearland Management District," which change was effective March 13, 2012; and

WHEREAS, the District was authorized, at an election held on May 10, 2008, to issue bonds for the purposes of promoting, developing, encouraging, and maintaining employment, commerce, transportation, housing, tourism, recreation, arts, entertainment, economic development, parking, infrastructure, safety, public welfare, and water, sewer, and drainage facilities to serve land and development within its boundaries, but has no funds on hand for such purposes at the present time; and

WHEREAS, the City is agreeable to advancing funds to the District in order to facilitate development and encouraging the fulfillment of the purposes for which the District was created for the Property located in the District (the "Property"); and

WHEREAS, the Board of Directors of the District has determined that it is in the best interest of the District to provide for the design and construction of facilities that promote, develop, encourage, and maintain employment, commerce, transportation, housing, tourism, recreation, arts, entertainment, economic development, parking, infrastructure, safety, public welfare, and water, sewer, and drainage facilities to serve the Property; and

WHEREAS, the City is agreeable to advancing funds to or on behalf of the District for the purpose of promoting, developing, encouraging, and maintaining

employment, commerce, transportation, housing, tourism, recreation, arts, entertainment, economic development, parking, infrastructure, safety, public welfare, and water, sewer, and drainage facilities to serve the Property, on the condition that it is reimbursed by the District; and

WHEREAS, the District desires to reimburse the City for expenditures made to further the Project (as such term is hereinafter defined) in accordance with State Law, the Act, and Chapter 375 of the Texas Local Government Code, and for certain of such costs that are reimbursable to the City, only following approval from the Texas Commission on Environmental Quality (the "TCEQ");

AGREEMENT

Now, Therefore, for and in consideration of the mutual promises, covenants, obligations and benefits of this Agreement, the District and the City contract and agree as follows:

ARTICLE I

CONSTRUCTION OF THE PROJECT

Section 1.01: The Project(s). The "Projects" shall be and include the following, which are further identified in the attached Exhibit "A":

(a) Regional detention pond site acquisition, including related legal, engineering and acquisition fees, acquired pursuant to the implementation of the District's Regional Drainage Plan; the costs are identified in the attached Exhibit "B"; and

(b) Implementation and development of the Regional Drainage Plan, including: engineering, land acquisition, design and construction of drainage facilities to serve the development in the District, whether designed and constructed in phases or at one time; and

(c) Implementation of Phase I of the Regional Drainage Plan, including engineering design, construction and construction supervision and related costs as identified in the attached Exhibit "C"; and

(d) Certain water, sewer and drainage facilities and road improvements to promote the orderly development of the District as identified in the attached Exhibit "A"; and

(e) Costs related to the reconstruction of Hooper Road, including but not limited to land acquisition, the installation of storm sewer, sanitary sewer, water lines, lighting and landscaping; and

(f) Kirby Drive detention facility improvements, including but not limited to the detention connection on the west side of Kirby.

Design and construction costs include costs related to permits, environmental, testing, surveying, inspection and construction and project management. As projects are agreed upon by the District and City, such projects shall be designated in accordance with Section 1.04 of this Agreement. The City and the District shall determine the timing of construction of the phases of the Project so that the Property may be developed pursuant to the development plans of the developers and businesses within the District.

Section 1.02: Design of the Project(s). All facilities to be constructed as a part of the Project shall be designed by the engineer employed by the District (the "Engineer"), or if authorized by the District, by an engineer employed by the City. If the City is pre-financing a Project, the City shall approve the design engineering contracts; and vice-versa if the City is employing its own engineer to design a Project, the District shall approve the design engineering contracts. The design of the Project(s) shall be subject to the approval of all governmental entities with jurisdiction, including, without limitation, the City, Harris County, the TCEQ (if for a water, sewer or drainage project), and the Texas Department of Health (where appropriate).

Section 1.03: Construction and Acquisition of Project(s).

(a) The Project(s) shall be constructed in easements and rights-of-way in the name of the District if such facilities are to be maintained by the District, or if not, in public easements and rights-of-way.

(b) The Project(s) shall be installed and the construction contracts shall be awarded in accordance with the Act and in full compliance with the rules and regulations of the TCEQ, if applicable, and any other local, state or federal agencies having jurisdiction.

(c) The Board of Directors of the District shall authorize the award of the construction contracts, provided that the City authorizes such award.

(d) The Project(s) may be constructed in stages or by sections pursuant to development plans of developers and businesses within the District.

(e) Following completion of construction and acceptance of the Project(s) by the City and the District, the District will acquire, operate and maintain the regional

drainage ditches and detention facilities and the City will operate and maintain the water, sewer and storm sewer infrastructure portions of the Project(s) and roadways.

Section 1.04: Subsequent Letter Agreements. As the Project(s) are authorized to be designed in accordance with Section 1.01 and as they are constructed in phases, the District and the City shall execute letter agreements for each design authorization and construction phase, substantially in the form attached as Exhibit "D". The purpose of the letter agreement is to confirm the design and construction of that phase of the Project(s), that the City will pre-finance all associated costs of that phase of the Project(s), and that the City will be reimbursed by the District, all in accordance with the terms and conditions of this Agreement.

ARTICLE II

REIMBURSEMENT FOR FUNDS ADVANCED

Section 2.01: Reimbursement.

(a) The District agrees to make all reasonable efforts to obtain any required approvals for the sale of bonds and to sell the bonds for the purpose of repaying the City at the earliest feasible date, in accordance with this Article II. The District agrees to make partial reimbursement(s) to the City if the conditions set forth herein are satisfied. The District shall be obligated to submit an application to the TCEQ as may be necessary to fund water, sewer or drainage facilities, and, following its approval, to sell bonds to reimburse the City for portions of the Project(s) when the following have occurred as related to the portion of the Project(s) for which the City is being reimbursed:

- (1) For water, sewer and drainage facilities, the economic feasibility rules of the TCEQ are satisfied;
- (2) For such facilities described above in (1), the TCEQ approves the issuance and sale of the bonds;
- (3) For all Projects, the District's priority of reimbursement policy is satisfied;
- (4) For all Projects, the Attorney General of Texas approves the bonds;
- (5) For all Projects, the Comptroller of Public Accounts of the State of Texas registers the bonds.

(b) In order to determine whether the economic feasibility rules of the TCEQ are met, the District shall at least once each year request a certificate of estimated assessed valuation from the Harris County Appraisal District.

(c) When facilities are required to receive TCEQ approval, the District shall be obligated to request TCEQ approval for 100% reimbursement of costs and to pay such percentage of reimbursement, if allowed under the TCEQ Rules.

(d) Upon consummation of the sale of the bonds and approval by the Board of Directors of the reimbursement audit performed in connection with each sale, the District agrees that it will pay the City for all sums advanced to, or on behalf of, the District to the maximum extent permitted under the Rules of the TCEQ, including payment of "developer interest" on the funds so advanced to or paid on behalf of the District. For Projects reimbursed which do not require TCEQ approval to issue bonds, "developer interest" shall be paid at the net effective interest rate of the bonds issued to make reimbursement for the same time period as is allowed under TCEQ rules.

Section 2.02: The City's Obligations. The City shall comply with all of the conditions established by the City relating to the development of the property. In connection with the reimbursements to the City, the City must provide all information that may be required by the District, its financial advisor, or attorney in connection with the preparation of the bond application and the Preliminary Official Statement or other disclosure documents related to the sale of the bonds and must provide sufficient information to the District's auditor in order that the District's auditor may perform a reimbursement audit following the sale of the bonds.

ARTICLE III

REPRESENTATIONS

Section 3.01: Representations by the City. The City represents that:

(a) This Agreement, the transactions contemplated herein, and the execution and delivery of this Agreement have been duly authorized by the City in accordance with its Home Rule Charter.

(b) This Agreement and the representations and covenants contained herein, and the consummation of the transactions contemplated herein, will not violate or constitute a breach of any contract or other agreement to which the City is a party.

Section 3.02: Representations by District. The District represents and covenants that it will:

(a) use its best efforts to prepare the necessary materials and reports to be filed with the TCEQ for approval of any bond issues (or if TCEQ approval is not required), to sell bonds in an amount sufficient to, among other things, reimburse the City in a timely manner in accordance with this Agreement;

(b) use its best efforts to market and sell its bonds in the manner set forth herein;

(c) use its best efforts to obtain the approval of the Attorney General of Texas of the bonds; and

(d) use its best efforts to reimburse the City upon the terms set forth herein at the earliest practicable time.

ARTICLE IV

DEFAULT

Section 4.01: Default by the City. In the event of default by the City, the District shall be entitled to assume the outstanding contracts and prosecute construction of the facilities to conclusion. In the event the District exercises this option, the District shall reimburse the City the amount of the advances, less all additional costs incurred by the District, if any, in prosecuting completion of the facilities due to the default, when it is able to issue bonds to finance the particular facilities.

Section 4.02: Default by Either Party. In the event of default by either party hereto, either party may employ attorneys to pursue its legal rights; and the prevailing party shall be entitled to payment by the other party of all reasonable attorneys' fees incurred by the prevailing party.

ARTICLE V

MISCELLANEOUS

Section 5.01: Severability. The provisions of this Agreement are severable, and if any provision or part of this Agreement or the application thereof to any person or circumstance shall ever be held by any court of competent jurisdiction to be invalid or unconstitutional for any reason, the remainder of this Agreement and the application of such provision or part of this Agreement to other persons or circumstances shall not be affected thereby.

Section 5.02: Modification. This Agreement shall be subject to change or modification only with the mutual written consent of the City and the District.

Section 5.03: Assignability. This Agreement shall not be assignable by either party without the prior written consent of the other party, which consent shall not be unreasonably withheld. Upon the request of the City, the District shall acknowledge an assignment of the right to reimbursement hereunder to a lender of the City, so long as said lender is not granted a lien upon any of the facilities constructed as part of the

Project(s) and agrees in writing to execute a release and receipt of payment upon any reimbursement.

Section 5.04: Applicable Law. This Agreement shall be governed by, and construed in accordance with, the laws of the State of Texas.

Section 5.05: Parties at Interest. This Agreement shall be for the sole and exclusive benefit of the parties hereto and shall never be construed to confer any benefit upon any third party, except the successor in title to the Property.

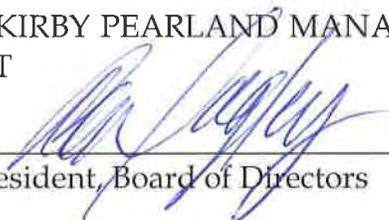
Section 5.06: Term. Except as otherwise provided herein, this Agreement shall be in force and effect from the date of execution hereof for a term of 40 years or until the transactions contemplated herein are consummated, whichever first occurs.

Section 5.07: Force Majeure. If either party is rendered unable, wholly or in part, by force majeure to carry out any of its obligations under this Agreement, then the obligations of either party to the extent affected by such force majeure and to the extent that due diligence is being used to resume performance at the earliest practicable time, shall be suspended during the continuance of any inability so caused to the extent provided but for no longer period. Such cause, as far as possible, shall be remedied with all reasonable diligence. The term "force majeure", as used herein, shall include, without limitation of the generality thereof, acts of God, strikes, lockouts, or other industrial disturbances, acts of the public enemy, orders of any kind of the Government of the United States or of the State of Texas or any civil or military authority, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, hurricanes, storms, floods, washouts, droughts, arrests, restraint of government and people, civil disturbances, explosions, breakage or accidents to machinery, pipe-lines or canals, partial or entire failure of water necessary for operation of the sewer system, or of the District to receive waste, and any other incapacities of either party, whether similar to those enumerated or otherwise, which are not within the control of either party, which either party could not have avoided by the exercise of due diligence and care. It is understood and agreed that the settlement of strikes and lockouts shall be entirely within the discretion of either party, and that the above requirement that any force majeure shall be remedied with all reasonable dispatch shall not require the settlement of strikes and lockouts by acceding to the demand of the opposing party or parties when such settlement is unfavorable to it in the judgment of the affected party.

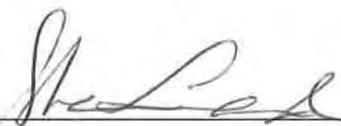
[EXECUTION PAGE FOLLOWS]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in multiple copies, each of equal dignity, as of the date and year set forth on the first page hereof.

LOWER KIRBY PEARLAND MANAGEMENT DISTRICT

By: 
President, Board of Directors

ATTEST:

By: 
Secretary, Board of Directors

(SEAL)



City of Pearland, Texas

By: _____
City Manager, City of Pearland

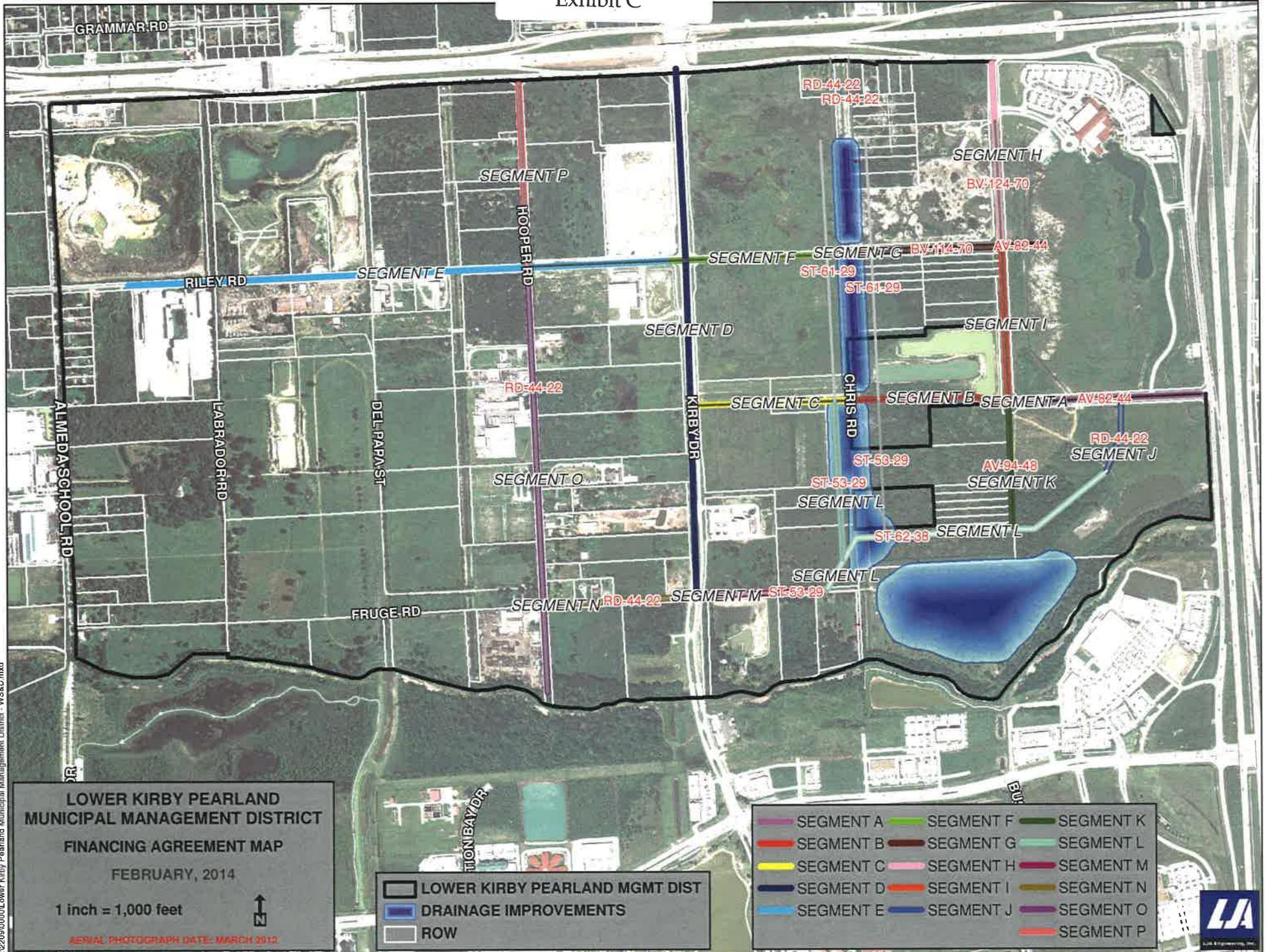
LJA Engineering, Inc.

LOWER KIRBY PEARLAND MANAGEMENT DISTRICT
PEARLAND MUNICIPAL MANAGEMENT DISTRICT NO. 1
FINANCING AGREEMENT PROJECTS
SUMMARY OF COSTS
FEBRUARY 6, 2014

ITEMS	COSTS
Drainage System	\$ 5,064,844
Water System	\$ 622,656
Sanitary Sewer System	\$ 885,938
Detention Ponds	\$ 13,395,313
Water, Sewer, Drainage Total	\$ 19,968,750
Streets	\$ 5,851,563
Electric	\$ 5,596,875
Traffic Items	\$ 2,457,813
Streetscape and Sidewalks	\$ 4,212,500
Street Total	\$ 18,118,750
Contingencies (10%)	\$ 3,808,750
Engineering and Testing (18%)	\$ 6,855,750
TOTAL	\$ 48,752,000

Exhibit A

Exhibit C



**LOWER KIRBY PEARLAND
MUNICIPAL MANAGEMENT DISTRICT**

FINANCING AGREEMENT MAP

FEBRUARY, 2014

1 inch = 1,000 feet



AERIAL PHOTOGRAPH DATE: MARCH 2012

- LOWER KIRBY PEARLAND MGMT DIST
- DRAINAGE IMPROVEMENTS
- ROW

- | | | |
|-----------|-----------|-----------|
| SEGMENT A | SEGMENT F | SEGMENT K |
| SEGMENT B | SEGMENT G | SEGMENT L |
| SEGMENT C | SEGMENT H | SEGMENT M |
| SEGMENT D | SEGMENT I | SEGMENT N |
| SEGMENT E | SEGMENT J | SEGMENT O |
| | | SEGMENT P |



T:\22090000\Lower Kirby Pearland Municipal Management District - WS&D.mxd

Pate Engineers, Inc.

13333 Northwest Freeway, Suite 300
Houston, Texas 77040
(713) 462-3178

**LOWER KIRBY URBAN CORE
SUMMARY
CONSTRUCTION COST ESTIMATE
DATE: 10/21/11**

Segment	Name		
J	Frugé: Promenade to S. Spectrum (Curve)		
	Streets	\$	208,000.00
	Drainage	\$	329,000.00
	Water	\$	65,000.00
	Sewer	\$	76,000.00
	Electric	\$	403,000.00
	Traffic Items	\$	280,000.00
	Streetscape	\$	258,000.00
	Segment J Total	\$	1,619,000.00
K	Promenade: S. Spectrum to Frugé		
	Streets	\$	403,000.00
	Drainage	\$	474,000.00
	Water	\$	66,000.00
	Sewer	\$	166,000.00
	Electric	\$	413,000.00
	Traffic Items	\$	280,000.00
	Streetscape	\$	343,000.00
	Segment K Total	\$	2,145,000.00
L	Frugé: Promenade to TXDOT		
	Streets	\$	189,000.00
	Drainage	\$	-
	Water	\$	32,000.00
	Sewer	\$	158,000.00
	Electric	\$	195,000.00
	Traffic Items	\$	280,000.00
	Streetscape	\$	169,000.00
	Segment L Total	\$	1,023,000.00
M	Frugé: TXDOT to Kirby		
	Streets	\$	287,000.00
	Drainage	\$	-
	Water	\$	48,000.00
	Sewer	\$	119,000.00
	Electric	\$	296,000.00
	Traffic Items	\$	280,000.00
	Streetscape	\$	188,000.00
	Segment M Total	\$	1,218,000.00
N	Frugé: Kirby to Hooper		
	Streets	\$	158,000.00
	Drainage	\$	-
	Water	\$	49,000.00
	Sewer	\$	82,000.00
	Electric	\$	307,000.00
	Traffic Items	\$	280,000.00
	Streetscape	\$	196,000.00
	Segment N Total	\$	1,072,000.00

Pate Engineers, Inc.

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Houston, Texas 77040

(713) 462-3178

O

Hooper: Beltway 8 to N. Spectrum

Streets	\$	483,000.00
Drainage	\$	1,568,000.00
Water	\$	146,000.00
Sewer	\$	194,000.00
Electric	\$	928,000.00
Traffic Items	\$	280,000.00
Streetscape	\$	597,000.00
Segment N Total	\$	4,196,000.00

P

Hooper: N. Spectrum to Fruge

Streets	\$	203,000.00
Drainage	\$	138,000.00
Water	\$	65,000.00
Sewer	\$	62,000.00
Electric	\$	392,000.00
Traffic Items	\$	66,000.00
Streetscape	\$	252,000.00
Segment N Total	\$	1,178,000.00

Total for all Segments	\$	31,606,000.00
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**LOWER KIRBY URBAN CORE
 CONSTRUCTION COST ESTIMATE
 DATE: 10/21/11**

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment A - S. Spectrum 288 to Promenade				
Total Segment Length	1620	ft		
Existing Segment Length	810	ft		
New Segment Length	810	ft		
Paving				
AV-82-44				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	2	\$ 1,200.00	\$ 2,000.00
Roadway Excavation	CY.	2,766	\$ 3.25	\$ 9,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	4,230	\$ 1.75	\$ 7,000.00
Lime for Stabilization (7% per dry weight)	TON	99	\$ 120.00	\$ 12,000.00
10-inch Reinforced Concrete Pavement (45' B-B)	SY.	4,050	\$ 36.00	\$ 146,000.00
6-inch Reinforced Concrete Curb	L.F.	1,620	\$ 2.50	\$ 4,000.00
Sub Total				\$ 180,000.00
Appurtenances (5%)				\$ 9,000.00
Contingency (25%)				\$ 47,000.00
Engineering (12%)				\$ 28,000.00
Subtotal Items:				\$ 264,000.00
Drainage				
Type "C-2A"	EA.	4	\$ 3,100.00	\$ 12,000.00
Manholes	EA.	2	\$ 3,500.00	\$ 7,000.00
24-inch Leads	L.F.	44	\$ 50.00	\$ 2,000.00
54-inch Sewer RCP	L.F.	3,048	\$ 175.00	\$ 533,000.00
Conveyance to Ex. Poag Pond (10% of Drainage Cost)	EA.	1	\$ 55,400.00	\$ 55,000.00
Appurtenances (15%)				\$ 91,000.00
Contingency (25%)				\$ 175,000.00
Engineering (12%)				\$ 105,000.00
Subtotal Items:				\$ 980,000.00
Water		0	\$ -	\$ -
Sewer		0	\$ -	\$ -
Electric				
Ductbank	LF.	810	\$ 165.00	\$ 134,000.00
Street Light	LF.	6	\$ 2,700.00	\$ 16,000.00
Contingency (25%)				\$ 38,000.00
Engineering (12%)				\$ 23,000.00
Subtotal Items:				\$ 211,000.00
Streetscape				
Sidewalks	SY	2,160	\$ 32.00	\$ 69,000.00
Street Trees	LF.	1,620	\$ 29.00	\$ 47,000.00
Irrigation	L.F.	1620	\$ 45.00	\$ 73,000.00

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Segment A

<u>DESCRIPTION</u>	<u>UNIT</u>	<u>QTY</u>	<u>UNIT PRICE</u>	<u>TOTAL COST</u>
Segment A - S. Spectrum 288 to Promenade				
			Contingency (25%) \$	47,000.00
			Engineering (12%) \$	28,000.00
			Subtotal Items: \$	264,000.00
Segment Total:				\$ 1,719,000.00

**LOWER KIRBY URBAN CORE
 CONSTRUCTION COST ESTIMATE
 DATE: 10/21/11**

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment B - S. Spectrum: Promenade to TXDOT				
Total Segment Length	1310	ft		
Existing Segment Length	0	ft		
New Segment Length	1310	ft		
Paving				
BV-114-70				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	4	\$ 1,200.00	\$ 4,000.00
Roadway Excavation	CY.	6,909	\$ 3.25	\$ 22,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	10,626	\$ 1.75	\$ 19,000.00
Lime for Stabilization (7% per dry weight)	TON	249	\$ 120.00	\$ 30,000.00
10-inch Reinforced Concrete Pavement (7' B-B)	SY.	10,334	\$ 36.00	\$ 372,000.00
6-inch Reinforced Concrete Curb	L.F.	2,620	\$ 2.50	\$ 7,000.00
Sub Total for Segment B Paving				\$ 454,000.00
Appurtenances (5%)				\$ 23,000.00
Contingency (25%)				\$ 119,000.00
Engineering (12%)				\$ 72,000.00
Total Segment B Items:				\$ 668,000.00
Drainage				
Type "C-2A"	EA.	2	\$ 3,100.00	\$ 6,000.00
Manholes	EA.	2	\$ 3,500.00	\$ 7,000.00
24-inch Leads	L.F.	40	\$ 50.00	\$ 2,000.00
48" X 72" RCB	L.F.	2,308	\$ 265.00	\$ 612,000.00
Sub Total for Segment B Drainage				\$ 627,000.00
Appurtenances (15%)				\$ 94,000.00
Contingency (25%)				\$ 180,000.00
Engineering (12%)				\$ 108,000.00
Subtotal Items:				\$ 1,009,000.00
Water				
8" PVC Pipe	LF.	1,310	\$ 16.00	\$ 21,000.00
Fire Hydrant	EA.	3	\$ 2,700.00	\$ 8,000.00
8" Gate Valve	EA.	2	\$ 700.00	\$ 1,000.00
Sub Total for Segment B Water				\$ 30,000.00
Appurtenances (25%)				\$ 8,000.00
Contingency (25%)				\$ 10,000.00
Engineering (12%)				\$ 6,000.00
Subtotal Items:				\$ 54,000.00
Sanitary Sewer				
8" SDR-26	LF.	1,122	\$ 22.00	\$ 25,000.00
Sanitary Sewer Manhole (0-8')	EA.	3	\$ 2,000.00	\$ 6,000.00
ExtradePTH Manhole	VF.	1	\$ 100.00	\$ -

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Segment B

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment B - S. Spectrum: Promenade to TXDOT				
Trench Safety Systems	LF.	1,122	\$ 0.50	\$ 1,000.00
Sub Total for Segment B Sewer				\$ 32,000.00
Appurtenances (10%)				\$ 3,000.00
Contingency (15%)				\$ 5,000.00
Engineering (12%)				\$ 5,000.00
Subtotal Items:				\$ 45,000.00
Electric				
Ductbank	LF.	1,314	\$ 165.00	\$ 217,000.00
Street Light	LF.	9	\$ 2,700.00	\$ 24,000.00
Contingency (25%)				\$ 60,000.00
Engineering (12%)				\$ 36,000.00
Subtotal Items:				\$ 337,000.00
Traffic Items				
Signalized Intersection	EA.	1	\$ 200,000.00	\$ 200,000.00
Contingency (25%)				\$ 50,000.00
Engineering (12%)				\$ 30,000.00
Subtotal Items:				\$ 280,000.00
Streetscape				
Sidewalks	SY	2,911	\$ 32.00	\$ 93,000.00
Street Trees	LF.	1,310	\$ 29.00	\$ 38,000.00
Irrigation	L.F.	1310	\$ 45.00	\$ 59,000.00
Contingency (25%)				\$ 48,000.00
Engineering (12%)				\$ 29,000.00
Subtotal Items:				\$ 267,000.00
Segment Total:				\$ 2,660,000.00

**LOWER KIRBY URBAN CORE
 CONSTRUCTION COST ESTIMATE
 DATE: 10/21/11**

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment C - S. Spectrum: TXDOT to Kirby Dr.				
Total Segment Length	1270	ft		
Existing Segment Length	0	ft		
New Segment Length	1270	ft		
Paving				
BV-114-70				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	4	\$ 1,200.00	\$ 4,000.00
Roadway Excavation	CY.	6,698	\$ 3.25	\$ 22,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	10,301	\$ 1.75	\$ 18,000.00
Lime for Stabilization (7% per dry weight)	TON	241	\$ 120.00	\$ 29,000.00
10-inch Reinforced Concrete Pavement (71' B-B)	SY.	10,019	\$ 36.00	\$ 361,000.00
6-inch Reinforced Concrete Curb	L.F.	2,540	\$ 2.50	\$ 6,000.00
Sub Total				\$ 440,000.00
Appurtenances (5%)				\$ 22,000.00
Contingency (25%)				\$ 116,000.00
Engineering (12%)				\$ 69,000.00
Total Segment C Items:				\$ 647,000.00
Drainage				
Type "C-2A"	EA.	2	\$ 3,100.00	\$ 6,000.00
Manholes	EA.	2	\$ 3,500.00	\$ 7,000.00
24-inch Leads	L.F.	40	\$ 50.00	\$ 2,000.00
48" X 84" RCB	L.F.	2,422	\$ 315.00	\$ 763,000.00
Sub Total for Segment Drainage				\$ 778,000.00
Appurtenances (15%)				\$ 117,000.00
Contingency (25%)				\$ 224,000.00
Engineering (12%)				\$ 134,000.00
Subtotal Items:				\$ 1,253,000.00
Water				
8" PVC Pipe	L.F.	1,270	\$ 16.00	\$ 20,000.00
Fire Hydrant	EA.	3	\$ 2,700.00	\$ 8,000.00
8" Gate Valve	EA.	2	\$ 700.00	\$ 1,000.00
Sub Total for Segment Water				\$ 29,000.00
Appurtenances (25%)				\$ 7,000.00
Contingency (25%)				\$ 9,000.00
Engineering (12%)				\$ 5,000.00
Subtotal Items:				\$ 50,000.00
Sewer				
8" SDR-26	L.F.	801	\$ 22.00	\$ 18,000.00
Sanitary Sewer Manhole (0-8')	EA.	2	\$ 2,000.00	\$ 4,000.00
Extrapeph Manhole	VF.	5	\$ 100.00	\$ 1,000.00

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment C - S. Spectrum: TXDOT to Kirby Dr.				
Trench Safety Systems	LF.	801	\$ 0.50	\$ -
Sub Total for Segment Water				\$ 23,000.00
Appurtenances (10%)				\$ 2,000.00
Contingency (15%)				\$ 4,000.00
Engineering (12%)				\$ 3,000.00
Subtotal Items:				\$ 32,000.00
Electric				
Ductbank	LF.	1,272	\$ 165.00	\$ 210,000.00
Street Light	LF.	8	\$ 2,700.00	\$ 22,000.00
Contingency (25%)				\$ 58,000.00
Engineering (12%)				\$ 35,000.00
Subtotal Items:				\$ 325,000.00
Traffic Items				
Signalized Intersection	EA.	1	\$ 200,000.00	\$ 200,000.00
Contingency (25%)				\$ 50,000.00
Engineering (12%)				\$ 30,000.00
Subtotal Items:				\$ 280,000.00
Streetscape				
Sidewalks	SY	2,822	\$ 32.00	\$ 90,000.00
Street Trees	LF.	1,270	\$ 29.00	\$ 37,000.00
Irrigation	L.F.	1270	\$ 45.00	\$ 57,000.00
Contingency (25%)				\$ 46,000.00
Engineering (12%)				\$ 28,000.00
Subtotal Items:				\$ 258,000.00
Segment Total:				\$ 2,845,000.00

**LOWER KIRBY URBAN CORE
 CONSTRUCTION COST ESTIMATE
 DATE: 10/21/11**

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment D - Kirby Drive: Beltway 8 to Fruge				
Total Segment Length	4400	ft		
Existing Segment Length	4400	ft		
New Segment Length	0	ft		
Paving		0	\$ -	\$ -
Drainage		0	\$ -	\$ -
Water		0	\$ -	\$ -
Sewer		0	\$ -	\$ -
Electric				
Ductbank	LF	4,400	\$ 165.00	\$ 726,000.00
Street Light	LF	0	\$ 2,700.00	\$ -
			Contingency (25%)	\$ 182,000.00
			Engineering (12%)	\$ 109,000.00
			Subtotal Items:	\$ 1,017,000.00
Streetscape				
Sidewalks	SY	5,867	\$ 32.00	\$ 188,000.00
Street Trees	LF	4,400	\$ 29.00	\$ 128,000.00
Irrigation	L.F.	4,400	\$ 45.00	\$ 198,000.00
			Contingency (25%)	\$ 129,000.00
			Engineering (12%)	\$ 77,000.00
			Subtotal Items:	\$ 720,000.00
Segment Total:				\$ 1,737,000.00

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Segment E

**LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
DATE: 10/21/11**

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment E - N Spectrum/Riley: Kirby to Alameda School Rd				
Total Segment Length	5200	ft		
Existing Segment Length	1200	ft		
New Segment Length	4000	ft		
Paving				
BV-114-70				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	8	\$ 1,200.00	\$ 9,000.00
Roadway Excavation	CY.	13,659	\$ 3.25	\$ 44,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	20,889	\$ 1.75	\$ 37,000.00
Lime for Stabilization (7% per dry weight)	TON	489	\$ 120.00	\$ 59,000.00
10-inch Reinforced Concrete Pavement (45' B-B)	SY.	20,000	\$ 36.00	\$ 720,000.00
6-inch Reinforced Concrete Curb	L.F.	8,000	\$ 2.50	\$ 20,000.00
			Sub Total	\$ 889,000.00
			Appurtenances (5%)	\$ 44,000.00
			Contingency (25%)	\$ 233,000.00
			Engineering (12%)	\$ 140,000.00
			Total Segment E Items:	\$ 1,306,000.00
Drainage				
Street Drainage	L.F.	4,000	\$ 60.00	\$ 240,000.00
			Appurtenances (15%)	\$ 36,000.00
			Contingency (25%)	\$ 69,000.00
			Engineering (12%)	\$ 41,000.00
			Subtotal Items:	\$ 386,000.00
Water				
12" PVC Pipe	LF.	4,000	\$ 25.00	\$ 100,000.00
Fire Hydrant	EA.	8	\$ 2,700.00	\$ 22,000.00
12" Gate Valve	EA.	4	\$ 1,000.00	\$ 4,000.00
			Sub Total for Segment Water	\$ 126,000.00
			Appurtenances (25%)	\$ 32,000.00
			Contingency (25%)	\$ 40,000.00
			Engineering (12%)	\$ 24,000.00
			Subtotal Items:	\$ 222,000.00
Sewer				
12" SDR-26	LF.	4,000	\$ 30.00	\$ 120,000.00
Sanitary Sewer Manhole (0-8')	EA.	10	\$ 2,000.00	\$ 20,000.00
Trench Safety Systems	LF.	4,000	\$ 0.50	\$ 2,000.00
			Sub Total for Segment B Sewer	\$ 142,000.00
			Appurtenances (10%)	\$ 14,000.00

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Segment E

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment E - N Spectrum/Riley: Kirby to Alameda School Rd				
			Contingency (15%)	\$ 23,000.00
			Engineering (12%)	\$ 21,000.00
			Subtotal Items:	\$ 200,000.00
Electric				
Ductbank	LF.	4,000	\$ 165.00	\$ 660,000.00
Street Light	LF.	25	\$ 2,700.00	\$ 68,000.00
			Contingency (25%)	\$ 182,000.00
			Engineering (12%)	\$ 109,000.00
			Subtotal Items:	\$ 1,019,000.00
Traffic Items				
Signalized Intersection	EA.	0	\$ 200,000.00	\$ -
			Contingency (25%)	\$ -
			Engineering (12%)	\$ -
			Subtotal Items:	\$ -
Streetscape				
Sidewalks	SY	8,889	\$ 32.00	\$ 284,000.00
Street Trees	LF.	4,000	\$ 29.00	\$ 116,000.00
Irrigation	L.F.	4,000	\$ 45.00	\$ 180,000.00
			Contingency (25%)	\$ 145,000.00
			Engineering (12%)	\$ 87,000.00
			Subtotal Items:	\$ 812,000.00
Segment Total:				\$ 3,523,000.00

**LOWER KIRBY URBAN CORE
 CONSTRUCTION COST ESTIMATE
 DATE: 10/21/11**

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment F - N. Spectrum: TXDOT to Kirby Dr.				
Total Segment Length	1100	ft		
Existing Segment Length	0	ft		
New Segment Length	1100	ft		
Paving				
BV-114-70				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	3	\$ 1,200.00	\$ 4,000.00
Roadway Excavation	CY.	5,801	\$ 3.25	\$ 19,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	8,922	\$ 1.75	\$ 16,000.00
Lime for Stabilization (7% per dry weight)	TON	209	\$ 120.00	\$ 25,000.00
10-inch Reinforced Concrete Pavement (71' B-B)	SY.	8,678	\$ 36.00	\$ 312,000.00
6-inch Reinforced Concrete Curb	L.F.	2,200	\$ 2.50	\$ 6,000.00
Sub Total				\$ 380,861.75
Sub Total for Segment Paving				\$ 381,000.00
Appurtenances (5%)				\$ 19,000.00
Contingency (25%)				\$ 100,000.00
Engineering (12%)				\$ 60,000.00
Total Segment F Items:				\$ 560,000.00
Drainage				
24" RCP	LF	510	\$ 50.00	\$ 26,000.00
30" RCP	LF	374	\$ 65.00	\$ 24,000.00
Type C Inlets	EA	6	\$ 3,100.00	\$ 19,000.00
Appurtenances (15%)				\$ 10,000.00
Contingency (25%)				\$ 20,000.00
Engineering (12%)				\$ 12,000.00
Subtotal Items:				\$ 111,000.00
Water		0	\$ -	\$ -
Sewer		0	\$ -	\$ -
Electric				
Ductbank	LF.	1,099	\$ 165.00	\$ 181,000.00
Street Light	LF.	7	\$ 2,700.00	\$ 19,000.00
Contingency (25%)				\$ 50,000.00
Engineering (12%)				\$ 30,000.00
Subtotal Items:				\$ 280,000.00
Traffic Items				
Signalized Intersection	EA.	1	\$ 200,000.00	\$ 200,000.00

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Segment F

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment F - N. Spectrum: TXDOT to Kirby Dr.				
			Contingency (25%)	\$ 50,000.00
			Engineering (12%)	\$ 30,000.00
			Subtotal Items:	\$ 280,000.00
Streetscape				
Sidewalks	SY	2,444	\$ 32.00	\$ 78,000.00
Street Trees	LF.	1,100	\$ 29.00	\$ 32,000.00
Irrigation	L.F.	1,100	\$ 45.00	\$ 50,000.00
			Contingency (25%)	\$ 40,000.00
			Engineering (12%)	\$ 24,000.00
			Subtotal Items:	\$ 224,000.00
Segment Total:				\$ 1,455,000.00

**LOWER KIRBY URBAN CORE
 CONSTRUCTION COST ESTIMATE
 DATE: 10/21/11**

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment G - N. Spectrum: Promenade to TXDOT				
Total Segment Length	1750	ft		
Existing Segment Length	0	ft		
New Segment Length	1750	ft		
Paving				
BV-114-70				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	5	\$ 1,200.00	\$ 6,000.00
Roadway Excavation	CY.	9,204	\$ 3.25	\$ 30,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	14,194	\$ 1.75	\$ 25,000.00
Lime for Stabilization (7% per dry weight)	TON	333	\$ 120.00	\$ 40,000.00
10-inch Reinforced Concrete Pavement (7' B-B)	SY.	13,806	\$ 36.00	\$ 497,000.00
6-inch Reinforced Concrete Curb	L.F.	3,500	\$ 2.50	\$ 9,000.00
Sub Total				\$ 607,000.00
Sub Total for Segment Paving				\$ 607,000.00
Appurtenances (5%)				\$ 30,000.00
Contingency (25%)				\$ 159,000.00
Engineering (12%)				\$ 96,000.00
Total Segment G Items:				\$ 892,000.00
Drainage		0	\$ -	\$ -
Water		0	\$ -	\$ -
Sewer		0	\$ -	\$ -
Electric				
Ductbank	LF.	1,745	\$ 165.00	\$ 288,000.00
Street Light	LF.	11	\$ 2,700.00	\$ 30,000.00
Contingency (25%)				\$ 80,000.00
Engineering (12%)				\$ 48,000.00
Subtotal Items:				\$ 446,000.00
Traffic Items				
Signalized Intersection	EA.	1	\$ 200,000.00	\$ 200,000.00
Contingency (25%)				\$ 50,000.00
Engineering (12%)				\$ 30,000.00
Subtotal Items:				\$ 280,000.00
Streetscape				
Sidewalks	SY	3,889	\$ 32.00	\$ 124,000.00
Street Trees	LF.	1,750	\$ 29.00	\$ 51,000.00
Irrigation	L.F.	1,750	\$ 45.00	\$ 79,000.00
Contingency (25%)				\$ 64,000.00

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Segment G

<u>DESCRIPTION</u>	<u>UNIT</u>	<u>QTY</u>	<u>UNIT PRICE</u>	<u>TOTAL COST</u>
Segment G - N. Spectrum: Promenade to TXDOT				
			Engineering (12%)	\$ 38,000.00
			Subtotal Items:	\$ 356,000.00
			Segment Total:	\$ 1,974,000.00

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Segment H

**LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
DATE: 10/21/11**

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment H - Promenade: Beltway 8 to N. Spectrum				
Total Segment Length	1550	ft		
Existing Segment Length	470	ft		
New Segment Length	1080	ft		
Paving				
BV-114-70				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC	3	\$ 1,200.00	\$ 3,000.00
Roadway Excavation	CY	5,680	\$ 3.25	\$ 18,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY	8,760	\$ 1.75	\$ 15,000.00
Lime for Stabilization (7% per dry weight)	TON	205	\$ 120.00	\$ 25,000.00
10-inch Reinforced Concrete Pavement (71' B-B)	SY	8,520	\$ 36.00	\$ 307,000.00
6-inch Reinforced Concrete Curb	L.F.	2,160	\$ 2.50	\$ 5,000.00
			Sub Total	\$ 373,000.00
			Sub Total for Segment Paving	\$ 373,000.00
			Appurtenances (5%)	\$ 19,000.00
			Contingency (25%)	\$ 98,000.00
			Engineering (12%)	\$ 59,000.00
			Total Segment I Items:	\$ 549,000.00
Drainage		0	\$ -	\$ -
Water		0	\$ -	\$ -
Sewer		0	\$ -	\$ -
Electric				
Ductbank	LF	1,000	\$ 165.00	\$ 165,000.00
Street Light	LF	7	\$ 2,700.00	\$ 19,000.00
			Contingency (25%)	\$ 46,000.00
			Engineering (12%)	\$ 28,000.00
			Subtotal Items:	\$ 258,000.00
Streetscape				
Sidewalks	SY	2,400	\$ 32.00	\$ 77,000.00
Street Trees	LF	1,080	\$ 29.00	\$ 31,000.00
Irrigation	L.F.	1,080	\$ 45.00	\$ 49,000.00
			Contingency (25%)	\$ 39,000.00
			Engineering (12%)	\$ 24,000.00
			Subtotal Items:	\$ 220,000.00
Segment Total:				\$ 1,027,000.00

**LOWER KIRBY URBAN CORE
 CONSTRUCTION COST ESTIMATE
 DATE: 10/21/11**

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment I - Promenade: N. Spectrum to S. Spectrum				
Total Segment Length	1320	ft		
Existing Segment Length	0	ft		
New Segment Length	1320	ft		
Paving				
BV-114-70				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	4	\$ 1,200.00	\$ 4,000.00
Roadway Excavation	CY.	6,942	\$ 3.25	\$ 23,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	10,707	\$ 1.75	\$ 19,000.00
Lime for Stabilization (7% per dry weight)	TON	251	\$ 120.00	\$ 30,000.00
10-inch Reinforced Concrete Pavement (71' B-B)	SY.	10,413	\$ 36.00	\$ 375,000.00
6-inch Reinforced Concrete Curb	L.F.	2,640	\$ 2.50	\$ 7,000.00
Sub Total				\$ 458,000.00
Sub Total for Segment Paving				\$ 458,000.00
Appurtenances (5%)				\$ 23,000.00
Contingency (25%)				\$ 120,000.00
Engineering (12%)				\$ 72,000.00
Total Segment I Items:				\$ 673,000.00
Drainage				
Type "C-2A"	EA.	4	\$ 3,100.00	\$ 12,000.00
Manholes	EA.	2	\$ 3,500.00	\$ 7,000.00
24-inch Leads	L.F.	140	\$ 50.00	\$ 7,000.00
48" X 84" RCB	L.F.	600	\$ 315.00	\$ 189,000.00
Sub Total				\$ 215,000.00
Appurtenances (15%)				\$ 32,000.00
Contingency (25%)				\$ 62,000.00
Engineering (12%)				\$ 37,000.00
Subtotal Items:				\$ 346,000.00
Water		0	\$ -	\$ -
Sewer		0	\$ -	\$ -
Electric				
Ductbank	LF.	1,315	\$ 165.00	\$ 217,000.00
Street Light	LF.	9	\$ 2,700.00	\$ 24,000.00
Contingency (25%)				\$ 60,000.00
Engineering (12%)				\$ 36,000.00
Subtotal Items:				\$ 337,000.00
Traffic Items				
Signalized Intersection	EA.	1	\$ 200,000.00	\$ 200,000.00

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Segment I

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment I - Promenade: N. Spectrum to S. Spectrum				
			Contingency (25%)	\$ 50,000.00
			Engineering (12%)	\$ 30,000.00
			Subtotal Items:	\$ 280,000.00
Streetscape				
Sidewalks	SY	2,933	\$ 32.00	\$ 94,000.00
Street Trees	LF.	1,320	\$ 29.00	\$ 38,000.00
Irrigation	L.F.	1,320	\$ 45.00	\$ 59,000.00
			Contingency (25%)	\$ 48,000.00
			Engineering (12%)	\$ 29,000.00
			Subtotal Items:	\$ 268,000.00
Segment Total:				\$ 1,904,000.00

**LOWER KIRBY URBAN CORE
 CONSTRUCTION COST ESTIMATE
 DATE: 10/21/11**

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment J - Fruge: Promenade to S. Spectrum Drive (Curve)				
Total Segment Length	1580	ft		
Existing Segment Length	0	ft		
New Segment Length	1580	ft		
Paving				
RD-44-22				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	2	\$ 1,200.00	\$ 2,000.00
Roadway Excavation	CY.	2,304	\$ 3.25	\$ 7,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	4,389	\$ 1.75	\$ 8,000.00
Lime for Stabilization (7% per dry weight)	TON	103	\$ 120.00	\$ 12,000.00
8-inch Reinforced Concrete Pavement (23' B-B)	SY.	4,038	\$ 26.00	\$ 105,000.00
6-inch Reinforced Concrete Curb	L.F.	3,160	\$ 2.50	\$ 8,000.00
Sub Total				\$ 142,000.00
Appurtenances (5%)				\$ 7,000.00
Contingency (25%)				\$ 37,000.00
Engineering (12%)				\$ 22,000.00
Total Phase I Items:				\$ 208,000.00
Drainage				
Type "C-2A"	EA.	2	\$ 3,100.00	\$ 6,000.00
Manholes	EA.	3	\$ 3,500.00	\$ 11,000.00
24-inch Leads	L.F.	50	\$ 50.00	\$ 3,000.00
48-inch Sewer RCP	L.F.	1,418	\$ 130.00	\$ 184,000.00
Sub Total				\$ 204,000.00
Appurtenances (15%)				\$ 31,000.00
Contingency (25%)				\$ 59,000.00
Engineering (12%)				\$ 35,000.00
Subtotal Items:				\$ 329,000.00
Water				
8" PVC Pipe	L.F.	1,580	\$ 16.00	\$ 25,000.00
Fire Hydrant	EA.	4	\$ 2,700.00	\$ 11,000.00
8" Gate Valve	EA.	2	\$ 700.00	\$ 1,000.00
Sub Total				\$ 37,000.00
Appurtenances (25%)				\$ 9,000.00
Contingency (25%)				\$ 12,000.00
Engineering (12%)				\$ 7,000.00
Subtotal Items:				\$ 65,000.00
Sewer				
8" SDR-26	L.F.	1,782	\$ 22.00	\$ 39,000.00
Sanitary Sewer Manhole (0-8')	EA.	7	\$ 2,000.00	\$ 14,000.00
Extradept Manhole	VF.	1	\$ 100.00	\$ -

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Segment J

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment J - Fruge: Promenade to S. Spectrum Drive (Curve)				
Trench Safety Systems	LF.	1,782	\$ 0.50	\$ 1,000.00
			Sub Total	\$ 54,000.00
			Appurtenances (10%)	\$ 5,000.00
			Contingency (15%)	\$ 9,000.00
			Engineering (12%)	\$ 8,000.00
			Subtotal Items:	\$ 76,000.00
Electric				
Ductbank	LF.	1,582	\$ 165.00	\$ 261,000.00
Street Light	LF.	10	\$ 2,700.00	\$ 27,000.00
			Contingency (25%)	\$ 72,000.00
			Engineering (12%)	\$ 43,000.00
			Subtotal Items:	\$ 403,000.00
Traffic Items				
Signalized Intersection	EA.	1	\$ 200,000.00	\$ 200,000.00
			Contingency (25%)	\$ 50,000.00
			Engineering (12%)	\$ 30,000.00
			Subtotal Items:	\$ 280,000.00
Streetscape				
Sidewalks	SY	2,107	\$ 32.00	\$ 67,000.00
Street Trees	LF.	1,580	\$ 29.00	\$ 46,000.00
Irrigation	L.F.	1,580	\$ 45.00	\$ 71,000.00
			Contingency (25%)	\$ 46,000.00
			Engineering (12%)	\$ 28,000.00
			Subtotal Items:	\$ 258,000.00
Segment Total:				\$ 1,619,000.00

**LOWER KIRBY URBAN CORE
 CONSTRUCTION COST ESTIMATE
 DATE: 10/21/11**

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment K - Promenade: S. Spectrum to Fruge Rd.				
Total Segment Length	1610	ft		
Existing Segment Length	0	ft		
New Segment Length	1610	ft		
Paving				
AV-94-48				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	2	\$ 1,200.00	\$ 3,000.00
Roadway Excavation	CY.	3,876	\$ 3.25	\$ 13,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	7,334	\$ 1.75	\$ 13,000.00
Lime for Stabilization (7% per dry weight)	TON	172	\$ 120.00	\$ 21,000.00
8-inch Reinforced Concrete Pavement (39' B-B)	SY.	6,977	\$ 31.00	\$ 216,000.00
6-inch Reinforced Concrete Curb	L.F.	3,220	\$ 2.50	\$ 8,000.00
Sub Total				\$ 274,000.00
Appurtenances (5%)				\$ 14,000.00
Contingency (25%)				\$ 72,000.00
Engineering (12%)				\$ 43,000.00
Total Phase I Items:				\$ 403,000.00
Drainage				
Type "C-2A"	EA.	2	\$ 3,100.00	\$ 6,000.00
Manholes	EA.	3	\$ 3,500.00	\$ 11,000.00
24-inch Leads	L.F.	50	\$ 50.00	\$ 3,000.00
42-inch Sewer RCP	L.F.	840	\$ 100.00	\$ 84,000.00
48-inch Sewer RCP	L.F.	1,464	\$ 130.00	\$ 190,000.00
Sub Total				\$ 294,000.00
Appurtenances (15%)				\$ 44,000.00
Contingency (25%)				\$ 85,000.00
Engineering (12%)				\$ 51,000.00
Subtotal Items:				\$ 474,000.00
Water				
8" PVC Pipe	LF.	1,610	\$ 16.00	\$ 26,000.00
Fire Hydrant	EA.	4	\$ 2,700.00	\$ 11,000.00
8" Gate Valve	EA.	2	\$ 700.00	\$ 1,000.00
Sub Total				\$ 38,000.00
Appurtenances (25%)				\$ 10,000.00
Contingency (25%)				\$ 12,000.00
Engineering (12%)				\$ 6,000.00
Subtotal Items:				\$ 66,000.00
Sewer				
10" SDR-26	LF.	1,069	\$ 33.00	\$ 35,000.00
18" SDR-26	LF.	1,142	\$ 58.00	\$ 66,000.00

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Segment K

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment K - Promenade: S. Spectrum to Fruge Rd.				
Sanitary Sewer Manhole (0-8')	EA.	7	\$ 2,000.00	\$ 14,000.00
ExtradePTH Manhole	VF.	13	\$ 100.00	\$ 1,000.00
Trench Safety Systems	LF.	2,211	\$ 0.50	\$ 1,000.00
			Sub Total	\$ 117,000.00
			Appurtenances (10%)	\$ 12,000.00
			Contingency (15%)	\$ 19,000.00
			Engineering (12%)	\$ 18,000.00
			Subtotal Items:	\$ 166,000.00
Electric				
Ductbank	LF.	1,607	\$ 165.00	\$ 265,000.00
Street Light	LF.	11	\$ 2,700.00	\$ 30,000.00
			Contingency (25%)	\$ 74,000.00
			Engineering (12%)	\$ 44,000.00
			Subtotal Items:	\$ 413,000.00
Traffic Items				
Signalized Intersection	EA.	1	\$ 200,000.00	\$ 200,000.00
			Contingency (25%)	\$ 50,000.00
			Engineering (12%)	\$ 30,000.00
			Subtotal Items:	\$ 280,000.00
Streetscape				
Sidewalks	SY	3,936	\$ 32.00	\$ 126,000.00
Street Trees	LF.	1,610	\$ 29.00	\$ 47,000.00
Irrigation	L.F.	1,610	\$ 45.00	\$ 72,000.00
			Contingency (25%)	\$ 61,000.00
			Engineering (12%)	\$ 37,000.00
			Subtotal Items:	\$ 343,000.00
Segment Total:				\$ 2,145,000.00

**LOWER KIRBY URBAN CORE
 CONSTRUCTION COST ESTIMATE
 DATE: 10/21/11**

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment L - Fruge: Promenade to TXDOT				
Total Segment Length	760	ft		
Existing Segment Length	0	ft		
New Segment Length	760	ft		
Paving				
ST-62-38				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	1	\$ 1,200.00	\$ 1,000.00
Roadway Excavation	CY.	1,830	\$ 3.25	\$ 6,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	3,462	\$ 1.75	\$ 6,000.00
Lime for Stabilization (7% per dry weight)	TON	81	\$ 120.00	\$ 10,000.00
8-inch Reinforced Concrete Pavement (39' B-B)	SY.	3,293	\$ 31.00	\$ 102,000.00
6-inch Reinforced Concrete Curb	L.F.	1,520	\$ 2.50	\$ 4,000.00
Sub Total				\$ 129,000.00
Appurtenances (5%)				\$ 6,000.00
Contingency (25%)				\$ 34,000.00
Engineering (12%)				\$ 20,000.00
Total Phase I Items:				\$ 189,000.00
Drainage				
street drainage	LF	760	\$ 60.00	\$ 46,000.00
Appurtenances (15%)				\$ 7,000.00
Contingency (25%)				\$ 13,000.00
Engineering (12%)				\$ 8,000.00
Subtotal Items:				\$ 74,000.00
Water				
8" PVC Pipe	LF.	760	\$ 16.00	\$ 12,000.00
Fire Hydrant	EA.	2	\$ 2,700.00	\$ 5,000.00
8" Gate Valve	EA.	1	\$ 700.00	\$ 1,000.00
Sub Total				\$ 18,000.00
Appurtenances (25%)				\$ 5,000.00
Contingency (25%)				\$ 6,000.00
Engineering (12%)				\$ 3,000.00
Subtotal Items:				\$ 32,000.00
Sewer				
10" SDR-26	LF.	1,036	\$ 33.00	\$ 34,000.00
18" SDR-26	LF.	1,142	\$ 58.00	\$ 66,000.00
Sanitary Sewer Manhole (0-8')	EA.	5	\$ 2,000.00	\$ 10,000.00
ExtradePTH Manhole	VF.	13	\$ 100.00	\$ 1,000.00
Trench Safety Systems	LF.	2,178	\$ 0.50	\$ 1,000.00
Sub Total				\$ 112,000.00

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Segment L

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment L - Fruge: Promenade to TXDOT				
			Appurtenances (10%)	\$ 11,000.00
			Contingency (15%)	\$ 18,000.00
			Engineering (12%)	\$ 17,000.00
			Subtotal Items:	\$ 158,000.00
Electric				
Ductbank	LF.	756	\$ 165.00	\$ 125,000.00
Street Light	LF.	5	\$ 2,700.00	\$ 14,000.00
			Contingency (25%)	\$ 35,000.00
			Engineering (12%)	\$ 21,000.00
			Subtotal Items:	\$ 195,000.00
Traffic Items				
Signalized Intersection	EA.	1	\$ 200,000.00	\$ 200,000.00
			Contingency (25%)	\$ 50,000.00
			Engineering (12%)	\$ 30,000.00
			Subtotal Items:	\$ 280,000.00
Streetscape				
Sidewalks	SY	2,027	\$ 32.00	\$ 65,000.00
Street Trees	LF.	760	\$ 29.00	\$ 22,000.00
Irrigation	L.F.	760	\$ 45.00	\$ 34,000.00
			Contingency (25%)	\$ 30,000.00
			Engineering (12%)	\$ 18,000.00
			Subtotal Items:	\$ 169,000.00
Segment Total:				\$ 1,097,000.00

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Segment M

**LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
DATE: 10/21/11**

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment M - Fruge: TXDOT to Kirby				
Total Segment Length	1150	ft		
Existing Segment Length	0	ft		
New Segment Length	1150	ft		
Paving				
ST-53-29				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	2	\$ 1,200.00	\$ 2,000.00
Roadway Excavation	CY.	2,769	\$ 3.25	\$ 9,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	5,239	\$ 1.75	\$ 9,000.00
Lime for Stabilization (7% per dry weight)	TON	123	\$ 120.00	\$ 15,000.00
8-inch Reinforced Concrete Pavement (39' B-B)	SY.	4,983	\$ 31.00	\$ 154,000.00
6-inch Reinforced Concrete Curb	L.F.	2,300	\$ 2.50	\$ 6,000.00
Sub Total				\$ 195,000.00
Appurtenances (5%)				\$ 10,000.00
Contingency (25%)				\$ 51,000.00
Engineering (12%)				\$ 31,000.00
Total Phase I Items:				\$ 287,000.00
Drainage				
		0	\$ -	\$ -
Water				
8" PVC Pipe	LF.	1,150	\$ 16.00	\$ 18,000.00
Fire Hydrant	EA.	3	\$ 2,700.00	\$ 8,000.00
8" Gate Valve	EA.	2	\$ 700.00	\$ 1,000.00
Sub Total				\$ 27,000.00
Appurtenances (25%)				\$ 7,000.00
Contingency (25%)				\$ 9,000.00
Engineering (12%)				\$ 5,000.00
Subtotal Items:				\$ 48,000.00
Sewer				
18" SDR-26	LF.	1,186	\$ 58.00	\$ 69,000.00
Sanitary Sewer Manhole (0-8')	EA.	3	\$ 2,000.00	\$ 6,000.00
Extradepth Manhole	VF.	12	\$ 100.00	\$ 1,000.00
Trench Safety Systems	LF.	1,186	\$ 0.50	\$ 1,000.00
Sub Total				\$ 77,000.00
Appurtenances (10%)				\$ 8,000.00
Contingency (15%)				\$ 21,000.00
Engineering (12%)				\$ 13,000.00
Subtotal Items:				\$ 119,000.00
Electric				
Ductbank	LF.	1,145	\$ 165.00	\$ 189,000.00

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Segment M

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment M - Fruge: TXDOT to Kirby				
Street Light	LF.	8	\$ 2,700.00	\$ 22,000.00
			Contingency (25%)	\$ 53,000.00
			Engineering (12%)	\$ 32,000.00
			Subtotal Items:	\$ 296,000.00
Traffic Items				
Signalized Intersection	EA.	1	\$ 200,000.00	\$ 200,000.00
			Contingency (25%)	\$ 50,000.00
			Engineering (12%)	\$ 30,000.00
			Subtotal Items:	\$ 280,000.00
Streetscape				
Sidewalks	SY	1,533	\$ 32.00	\$ 49,000.00
Street Trees	LF.	1,150	\$ 29.00	\$ 33,000.00
Irrigation	L.F.	1,150	\$ 45.00	\$ 52,000.00
			Contingency (25%)	\$ 34,000.00
			Engineering (12%)	\$ 20,000.00
			Subtotal Items:	\$ 188,000.00
Segment Total:				\$ 1,218,000.00

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Segment N

**LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
DATE: 10/21/11**

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment N - Fruge: Kirby to Hooper				
Total Segment Length	1200	ft		
Existing Segment Length	0	ft		
New Segment Length	1200	ft		
Paving				
RD-44-22				
Site Preparation (Clearing & Grubbing)	AC	1	\$ 1,200.00	\$ 1,000.00
Roadway Excavation	CY	1,750	\$ 3.25	\$ 6,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY	3,333	\$ 1.75	\$ 6,000.00
Lime for Stabilization (7% per dry weight)	TON	78	\$ 120.00	\$ 9,000.00
10-inch Reinforced Concrete Pavement (23' B-B)	SY	3,067	\$ 26.00	\$ 80,000.00
6-inch Reinforced Concrete Curb	L.F.	2,400	\$ 2.50	\$ 6,000.00
Sub Total				\$ 108,000.00
Appurtenances (5%)				\$ 5,000.00
Contingency (25%)				\$ 28,000.00
Engineering (12%)				\$ 17,000.00
Total Phase I Items:				\$ 158,000.00
Drainage				
street drainage	LF	1,200	\$ 60.00	\$ 72,000.00
Appurtenances (15%)				\$ 11,000.00
Contingency (25%)				\$ 21,000.00
Engineering (12%)				\$ 12,000.00
Subtotal Items:				\$ 116,000.00
Water				
8" PVC Pipe	LF	1,200	\$ 16.00	\$ 19,000.00
Fire Hydrant	EA	3	\$ 2,700.00	\$ 8,000.00
8" Gate Valve	EA	2	\$ 700.00	\$ 1,000.00
Sub Total				\$ 28,000.00
Appurtenances (25%)				\$ 7,000.00
Contingency (25%)				\$ 9,000.00
Engineering (12%)				\$ 5,000.00
Subtotal Items:				\$ 49,000.00
Sewer				
10" SDR-26	LF	1,250	\$ 33.00	\$ 41,000.00
Sanitary Sewer Manhole (0-8')	EA	5	\$ 2,000.00	\$ 10,000.00
ExtradePTH Manhole	VF	13	\$ 100.00	\$ 1,000.00
Trench Safety Systems	LF	1,250	\$ 0.50	\$ 1,000.00
Sub Total				\$ 53,000.00
Appurtenances (10%)				\$ 5,000.00
Contingency (15%)				\$ 15,000.00

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Segment N

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment N - Fruge: Kirby to Hooper				
			Engineering (12%)	\$ 9,000.00
			Subtotal Items:	\$ 82,000.00
Electric				
Ductbank	LF.	1,195	\$ 165.00	\$ 197,000.00
Street Light	LF.	8	\$ 2,700.00	\$ 22,000.00
			Contingency (25%)	\$ 55,000.00
			Engineering (12%)	\$ 33,000.00
			Subtotal Items:	\$ 307,000.00
Traffic Items				
Signalized Intersection	EA.	1	\$ 200,000.00	\$ 200,000.00
			Contingency (25%)	\$ 50,000.00
			Engineering (12%)	\$ 30,000.00
			Subtotal Items:	\$ 280,000.00
Streetscape				
Sidewalks	SY	1,600	\$ 32.00	\$ 51,000.00
Street Trees	LF.	1,200	\$ 29.00	\$ 35,000.00
Irrigation	L.F.	1,200	\$ 45.00	\$ 54,000.00
			Contingency (25%)	\$ 35,000.00
			Engineering (12%)	\$ 21,000.00
			Subtotal Items:	\$ 196,000.00
Segment Total:				\$ 1,030,000.00

**LOWER KIRBY URBAN CORE
 CONSTRUCTION COST ESTIMATE**

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DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment O - Hooper: Beltway 8 to N. Spectrum				
Total Segment Length	3650	ft		
Existing Segment Length	0	ft		
New Segment Length	3650	ft		
RD-44-22				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	4	\$ 1,200.00	\$ 4,000.00
Roadway Excavation	CY.	5,322	\$ 3.25	\$ 17,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	10,139	\$ 1.75	\$ 18,000.00
Lime for Stabilization (7% per dry weight)	TON	238	\$ 120.00	\$ 29,000.00
10-inch Reinforced Concrete Pavement (23' B-B)	SY.	9,328	\$ 26.00	\$ 243,000.00
6-inch Reinforced Concrete Curb	L.F.	7,300	\$ 2.50	\$ 18,000.00
Sub Total				\$ 329,000.00
Appurtenances (5%)				\$ 16,000.00
Contingency (25%)				\$ 86,000.00
Engineering (12%)				\$ 52,000.00
Total Phase I Items:				\$ 483,000.00
Drainage				
Type "C-2A"	EA.	8	\$ 3,100.00	\$ 25,000.00
Manholes	EA.	5	\$ 3,500.00	\$ 18,000.00
24-inch Leads	L.F.	104	\$ 50.00	\$ 5,000.00
48-inch Sewer RCP	L.F.	3,500	\$ 130.00	\$ 455,000.00
54-inch Sewer RCP	L.F.	2,692	\$ 175.00	\$ 471,000.00
Sub Total				\$ 974,000.00
Appurtenances (15%)				\$ 146,000.00
Contingency (25%)				\$ 280,000.00
Engineering (12%)				\$ 168,000.00
Subtotal Items:				\$ 1,568,000.00
Water				
8" PVC Pipe	LF.	3,650	\$ 16.00	\$ 58,000.00
Fire Hydrant	EA.	8	\$ 2,700.00	\$ 22,000.00
8" Gate Valve	EA.	4	\$ 700.00	\$ 3,000.00
Sub Total				\$ 83,000.00
Appurtenances (25%)				\$ 21,000.00
Contingency (25%)				\$ 26,000.00
Engineering (12%)				\$ 16,000.00
Subtotal Items:				\$ 146,000.00
Sewer				
8" SDR-26	LF.	1,204	\$ 22.00	\$ 26,000.00
10" SDR-26	LF.	2,650	\$ 33.00	\$ 87,000.00
12" SDR-26	LF.	1,307	\$ 35.00	\$ 46,000.00

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Segment O

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment O - Hooper: Beltway 8 to N. Spectrum				
Sanitary Sewer Manhole (0-8')	EA.	14	\$ 2,000.00	\$ 28,000.00
ExtradePTH Manhole	VF.	35	\$ 100.00	\$ 4,000.00
Trench Safety Systems	LF.	5,161	\$ 0.50	\$ 3,000.00
			Sub Total	\$ 194,000.00
			Appurtenances (10%)	\$ 19,000.00
			Contingency (15%)	\$ 32,000.00
			Engineering (12%)	\$ 29,000.00
			Subtotal Items:	\$ 274,000.00
Electric				
Ductbank	LF.	3,645	\$ 165.00	\$ 601,000.00
Street Light	LF.	23	\$ 2,700.00	\$ 62,000.00
			Contingency (25%)	\$ 166,000.00
			Engineering (12%)	\$ 99,000.00
			Subtotal Items:	\$ 928,000.00
Traffic Items				
Signalized Intersection	EA.	1	\$ 200,000.00	\$ 200,000.00
			Contingency (25%)	\$ 50,000.00
			Engineering (12%)	\$ 30,000.00
			Subtotal Items:	\$ 280,000.00
Streetscape				
Sidewalks	SY	4,867	\$ 32.00	\$ 156,000.00
Street Trees	LF.	3,650	\$ 29.00	\$ 106,000.00
Irrigation	L.F.	3,650	\$ 45.00	\$ 164,000.00
			Contingency (25%)	\$ 107,000.00
			Engineering (12%)	\$ 64,000.00
			Subtotal Items:	\$ 597,000.00
Segment Total:				\$ 4,276,000.00

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Segment P

**LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE**

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DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment P - Hooper: N. Spectrum to Fruge Rd.				
Total Segment Length	1540	ft		
Existing Segment Length	0	ft		
New Segment Length	1540	ft		
RD-44-22				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	2	\$ 1,200.00	\$ 2,000.00
Roadway Excavation	CY.	2,246	\$ 3.25	\$ 7,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	4,278	\$ 1.75	\$ 7,000.00
Lime for Stabilization (7% per dry weight)	TON	100	\$ 120.00	\$ 12,000.00
10-inch Reinforced Concrete Pavement (23' B-B)	SY.	3,936	\$ 26.00	\$ 102,000.00
6-inch Reinforced Concrete Curb	L.F.	3,080	\$ 2.50	\$ 8,000.00
			Sub Total	\$ 138,000.00
			Appurtenances (5%)	\$ 7,000.00
			Contingency (25%)	\$ 36,000.00
			Engineering (12%)	\$ 22,000.00
			Total Phase I Items:	\$ 203,000.00
Drainage				
Type "C-2A"	EA.	2	\$ 3,100.00	\$ 6,000.00
Manholes	EA.	2	\$ 3,500.00	\$ 7,000.00
24-inch Leads	L.F.	36	\$ 50.00	\$ 2,000.00
42-inch Sewer RCP	L.F.	700	\$ 100.00	\$ 70,000.00
			Sub Total	\$ 85,000.00
			Appurtenances (15%)	\$ 13,000.00
			Contingency (25%)	\$ 25,000.00
			Engineering (12%)	\$ 15,000.00
			Subtotal Items:	\$ 138,000.00
Water				
8" PVC Pipe	L.F.	1,540	\$ 16.00	\$ 25,000.00
Fire Hydrant	EA.	4	\$ 2,700.00	\$ 11,000.00
8" Gate Valve	EA.	2	\$ 700.00	\$ 1,000.00
			Sub Total	\$ 37,000.00
			Appurtenances (25%)	\$ 9,000.00
			Contingency (25%)	\$ 12,000.00
			Engineering (12%)	\$ 7,000.00
			Subtotal Items:	\$ 65,000.00
Sewer				
8" SDR-26	L.F.	1,602	\$ 22.00	\$ 35,000.00
Sanitary Sewer Manhole (0-8')	EA.	4	\$ 2,000.00	\$ 8,000.00
ExtradePTH Manhole	VF.	3	\$ 100.00	\$ -
Trench Safety Systems	L.F.	1,602	\$ 0.50	\$ 1,000.00

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Segment P

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment P - Hooper: N. Spectrum to Fruge Rd.				
			Sub Total	\$ 44,000.00
			Appurtenances (10%)	\$ 4,000.00
			Contingency (15%)	\$ 7,000.00
			Engineering (12%)	\$ 7,000.00
			Subtotal Items:	\$ 62,000.00
Electric				
Ductbank	LF	1,536	\$ 165.00	\$ 253,000.00
Street Light	LF	10	\$ 2,700.00	\$ 27,000.00
			Contingency (25%)	\$ 70,000.00
			Engineering (12%)	\$ 42,000.00
			Subtotal Items:	\$ 392,000.00
Streetscape				
Sidewalks	SY	2,053	\$ 32.00	\$ 66,000.00
Street Trees	LF	1,540	\$ 29.00	\$ 45,000.00
Irrigation	L.F.	1,540	\$ 45.00	\$ 69,000.00
			Contingency (25%)	\$ 45,000.00
			Engineering (12%)	\$ 27,000.00
			Subtotal Items:	\$ 252,000.00
Segment Total:				\$ 1,112,000.00

**LOWER KIRBY URBAN CORE
 CONSTRUCTION COST ESTIMATE**

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DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Detention Pond 1				
Detention Pond Excavation	C.Y.	309,760	\$ 5.00	\$ 1,549,000.00
Outfall (15% of Excavation)	EA.	1	\$ 232,000.00	\$ 232,000.00
Backslope Interceptor	EA.	4	\$ 5,000.00	\$ 20,000.00
Backslope swale	L.F.	2,500	\$ 3.50	\$ 9,000.00
			Appurtenances (25%)	\$ 453,000.00
			Contingency (25%)	\$ 566,000.00
			Engineering (12%)	\$ 339,000.00
			Subtotal Detention Pond 1 Items:	\$ 3,168,000.00

Detention Pond 2				
Detention Pond Excavation	C.Y.	118,653	\$ 5.00	\$ 593,000.00
Outfall (15% of Excavation)	EA.	1	\$ 89,000.00	\$ 89,000.00
Backslope Interceptor	EA.	11	\$ 5,000.00	\$ 55,000.00
Backslope swale	L.F.	7,700	\$ 3.50	\$ 27,000.00
Bridge @ AV-82-44	S.F.	12,300	\$ 75.00	\$ 923,000.00
Bridge @ BV -114-70	S.F.	12,300	\$ 75.00	\$ 923,000.00
Signature Bridge	S.F.	12,300	\$ 75.00	\$ 923,000.00
Land Acquisition	S.F.	1,002,127	\$ 2.25	\$ 2,255,000.00
			Appurtenances (25%)	\$ 883,000.00
			Contingency (25%)	\$ 1,104,000.00
			Engineering (12%)	\$ 662,000.00
			Subtotal Detention Pond 2 Items:	\$ 8,437,000.00

Detention Pond 3				
Detention Pond Excavation	C.Y.	123,233	\$ 5.00	\$ 616,000.00
Outfall (15% of Excavation)	EA.	1	\$ 92,000.00	\$ 92,000.00
Backslope Interceptor	EA.	3	\$ 5,000.00	\$ 15,000.00
Backslope swale	L.F.	2,230	\$ 3.50	\$ 8,000.00
Land Acquisition	S.F.	615,806	\$ 2.25	\$ 1,386,000.00
			Appurtenances (25%)	\$ 183,000.00
			Contingency (25%)	\$ 229,000.00
			Engineering (12%)	\$ 137,000.00
			Subtotal Detention Pond 3 Items:	\$ 2,666,000.00

Detention Pond 4				
Detention Pond Excavation	C.Y.	149,334	\$ 5.00	\$ 747,000.00

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Detention

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Outfall (5% of Excavation)	EA.	1	\$ 37,000.00	\$ 37,000.00
Backslope Interceptor	EA.	3	\$ 5,000.00	\$ 15,000.00
Backslope swale	L.F.	1,600	\$ 3.50	\$ 6,000.00
Land Acquisition	S.F.	651,587	\$ 2.25	\$ 1,466,000.00
			Appurtenances (25%)	\$ 201,000.00
			Contingency (25%)	\$ 252,000.00
			Engineering (12%)	\$ 151,000.00
			Subtotal Detention Pond 4 Items:	\$ 2,875,000.00

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**LOWER KIRBY URBAN CORE
DETENTION SUMMARY
CONSTRUCTION COST ESTIMATE
DATE: 10/21/11**

Name		Cost
Detention Pond 1	\$	3,168,000.00
Detention Pond 2	\$	8,437,000.00
Detention Pond 3	\$	2,666,000.00
Detention Pond 4	\$	2,875,000.00
Total	\$	17,146,000.00
Total Roadway Segments	\$	31,606,000.00
Total Detention	\$	17,146,000.00
Total Cost	\$	48,752,000.00

Exhibit B - Detention Pond
Acquisition Cost

CERTIFICATION OF MASTER DRAINAGE PLAN FOR
DEVELOPMENT IN THE DISTRICT

WHEREAS, Lower Kirby Pearland Management District (the "District"), formerly known as Spectrum Management District, was created as a municipal management district under Article XVI, Section 59, and Article III, Sections 52 and 52-a, Texas Constitution;

WHEREAS, the District operates under Chapter 3840, Texas Special District Local Laws Code; Chapter 375, Texas Local Government Code; and Chapters 49 and 54, Texas Water Code, and is authorized to engage in drainage and flood control activities;

WHEREAS, pursuant to Section 49.211, Texas Water Code, the District has commissioned a master drainage plan, including rules related to the plan and design criteria for drainage channels, facilities, and flood control improvements, and certain rules related to construction activity within the District;

WHEREAS, in order to accomplish the purposes for which the District was created, the District has determined to establish a master drainage plan for the entire 903 acres, which is the total acreage located within the District boundaries;

WHEREAS, the Board of Directors deems it necessary to adopt rules, regulations and fees necessary for the implementation and enforcement of a master drainage plan.

NOW, THEREFORE, the Board of Directors for the District hereby certifies that Phase I of the Master Drainage Plan attached hereto has been received, reviewed and is hereby adopted.

CERTIFIED this 10th day of February, 2014.



President, Board of Directors

ATTEST:



Secretary, Board of Directors

(SEAL)

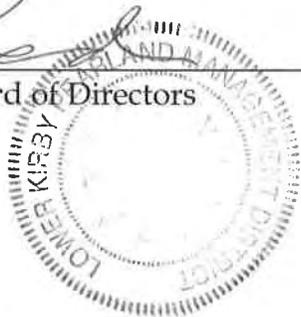


Exhibit C

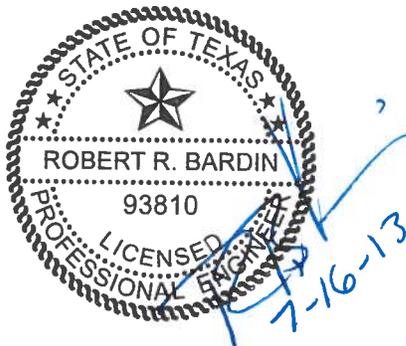
**Clear Creek
Harris County Flood Control
Unit No. A100-00-00**

**Drainage Design and Impact Analysis
for
Lower Kirby Regional Detention Facility**

July 2013

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July 2013

LJA Engineering, Inc.
2929 Briarpark Dr., Suite 600
Houston, Texas 77042-3703
Phone 713.953.5200
Fax 713.953.5026
LJA Firm Registration No. F-1386
LJA Job No. 1607-1102

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EXECUTIVE SUMMARY

The Lower Kirby Regional Detention Facility is part of the Lower Kirby Urban Center in the City of Pearland that consists of approximately 1,000 acres of mostly undeveloped land at the southwest quadrant of State Highway 288 (SH 288) and Beltway 8.¹ The Lower Kirby Regional Detention Service Area makes up approximately 467 acres of the Lower Kirby Urban Center. In order to reclaim land from the effective 100-year floodplain and accommodate a more urban development, the City of Pearland is proposing a regional approach to detention for the 467 acre service area. This is a preferred alternative to individual developments providing onsite detention.

Four ponds are proposed that will provide the necessary detention for development and floodplain mitigation. An existing borrow pit located adjacent to the north bank of Clear Creek will be improved to provide the required storage volume for the proposed development. Additionally, the TxDOT ditch providing drainage for Beltway 8 will be improved into three linear lakes that will provide additional storage volume, as well as a surplus volume of storage for possible use when SH 288 is improved.

The 128 acre Prudential Tract located in the northeast quadrant of the Lower Kirby Regional Service Area is currently only partially developed. A Bass Pro Shops retail center was constructed and onsite detention was provided within the property.

Numerous additional development plans for the Prudential Tract have been investigated but were never implemented. There were plans for expanding the Promenade Shops with additional retail, but these have also been put on hold.¹

Since it is unknown what future development will occur within the Prudential Property, a previous study investigated three development scenarios and proposed a regional detention plan for each one. The development scenarios are based on future development of the Prudential Tract and participation in the regional detention. The development scenarios are summarized below:



- Scenario 1 – full participation of the Promenade Shops in the regional detention plan.
- Scenario 2 – partial participation of the Promenade Shops in the regional detention plan.
- Scenario 3 – no participation of the Promenade Shops in the regional detention plan.

This report focuses on Scenario 1. Results of a hydrologic analysis indicate that, for the preferred development scenario, the peak 100-year undetained flow from the Lower Kirby Development is approximately 2,331 cfs, but is limited to approximately 715 cfs according to a

¹ *Lower Kirby Urban Center Master Plan and Implementation Strategy*

pre project HEC-HMS model. The proposed detention system for The Lower Kirby Development produces a peak 100-year flow of 477 cfs from the detention facility, which is less than the maximum allowable rate. The 10-year HEC-HMS results conclude that the peak discharge from the detention facility does not exceed the allowable peak flow as well. **Table ES-1** summarizes the peak discharges for The Lower Kirby Development.

TABLE ES-1 LOWER KIRBY REGIONAL PEAK FLOW COMPARISONS			
Storm Event	Allowable Q ¹ (cfs)	Un-detained Q ² (cfs)	Detained Q ³ (cfs)
10-yr	366	1,494	204
100-yr	715	2,331	477

To incorporate the proposed Lower Kirby Development into the Clear Creek Watershed, post project flows were routed through detention using ICPR using a variable tailwater boundary condition. Results of the post project HEC-HMS model at selected points along Clear Creek are compared to the pre project HEC-HMS results in **Table ES-2** below.

TABLE ES-2 CLEAR CREEK PEAK FLOW COMPARISONS								
HEC-HMS Node	HEC-RAS SECNO	Description	10% Peak Flow (cfs)		1% Peak Flow (cfs)		Pre Project vs Post Project	
			Pre Project	Post Project	Pre Project	Post Project	10%	1%
2385J	239967.4		484	484	1099	1099	0	0
2228J	231533.3		1148	1148	2662	2662	0	0
2199J	222868.7		1148	1148	2662	2662	0	0
2143J	214705.8		1934	1884	3922	3849	-50	-73
1999J	197996.2		2240	2223	4359	4292	-17	-66
1660J	179278.5	Hickory	2910	2905	5443	5433	-5	-11
1601J	165983.9		2910	2905	5443	5433	-5	-11
1271J	129631	A120-00-00	4340	4339	7679	7675	-2	-4
1222J	123196.7	A119-00-00	7718	7717	13312	13308	-1	-4
1052J	106343.5	Mary's	10071	10070	17037	17034	-1	-4
0927J	93497.69	Cowart	12892	12891	22176	22172	-1	-4
0771J	77642.36	Chigger	14379	14377	24474	24471	-1	-4
0702J	72765.55	Magnolia	14755	14753	25242	25239	-1	-4
0601J	61501.83		14757	14756	25244	25241	-1	-4
0556J	55615.42		15332	15331	26212	26209	-1	-3
0366J	36556.81	A107-00-00	15356	15355	26239	26237	-1	-3
0301J	30794.12		15576	15574	26591	26588	-1	-3
0184J	20859.46	Armand	17123	17122	39144	39144	-1	0
0140J	16112.37	A104-00-00	17705	17705	42985	42985	0	0

The proposed Lower Kirby Development is located along the left (north) overbank of Clear Creek between SH 288 and Kirby Drive. The floodplain volume in the left overbank of Clear Creek was calculated in HEC-RAS for existing and proposed conditions, and the difference in volume is the volume of displacement from the proposed 271 acres that will be filled to reclaim

land from the Clear Creek SFHA. The resulting volume of floodplain storage displaced below the 100-year BFE is 158 acre-feet.

Approximately 304 acre-feet of storage is required to detain the developed flows from the Lower Kirby Development, this volume produces a detention rate of 0.65 acre-ft per acre, which is the minimum allowable detention volume for the City of Pearland

The total volume of detention for the development of the 467 acre Lower Kirby Tract is 462 ac-ft. **Table ES-3** summarizes the results of the required detention volumes for the Lower Kirby Development for each scenario.

TABLE ES-3 REQUIRED STORAGE VOLUME SUMMARY			
Service Area	Development	Floodplain Storage	Total
(ac)	(ac-ft)	(ac-ft)	(ac-ft)
467	304	158	462

ICPR results included the maximum water surface elevations and corresponding surface area in each of the modeled detention facilities. Using this data, the available storage volume can be calculated. These results are shown in **Table ES-4**.

TABLE ES-4 AVAILABLE STORAGE VOLUME								
Lake ID	Normal Pool Elevation ¹ (ft)	Min. Lake Area (acres)	Max. Lake Area (acres)	Max WSEL ¹ (ft)	Min. WSEL ¹ (ft)	Depth (ft)	Average Area (ac)	Volume (ac-ft)
A100F3A	44.68	0.50	4.40	56.50	44.68	11.82	2.45	28.96
A100F3B	44.22	0.65	6.02	56.50	44.22	12.28	3.34	40.95
A100F3C	44.10	4.50	12.02	56.50	44.10	12.40	8.26	102.42
A100F3D	44.00	27.55	31.74	54.00	44.00	10.00	29.65	296.50
Total Detention Storage Provided=								468.83

¹ NAVD 1988, 2001 adj.

The total storage available in the proposed ponds will provide adequate volume necessary for the total required detention if built as recommended in this report. A surplus storage volume of 6.8 acre-feet is also available, which can be utilized by TxDOT for future SH 288 improvements, or any other roadway improvement in this vicinity² should TxDOT require the additional storage.

The flows produced by the post project HEC-HMS model were entered into a post project HEC-RAS model and the resulting water surface elevations were compared to the pre project elevations. **Table ES-5** shows the results and comparisons of the 10- and 100-year flows.

**TABLE ES-5
CLEAR CREEK WATER SURFACE ELEVATION COMPARISONS**

HEC SECNO	Description	Water Surface Elevation					
		10-Year			100-Year		
		Pre Proj	Post Proj	Diff	Pre Proj	Post Proj	Diff
211277.7	Upstream of Cullen Blvd	50.49	50.48	-0.01	51.11	51.10	-0.01
212049.2		50.91	50.88	-0.03	51.53	51.52	-0.01
212735.5		51.14	51.10	-0.04	51.69	51.68	-0.01
213290.6		51.34	51.30	-0.04	51.90	51.89	-0.01
213801.7		51.54	51.50	-0.04	52.16	52.14	-0.02
214705.8		51.81	51.77	-0.04	52.46	52.45	-0.01
215408.2		51.85	51.81	-0.04	52.52	52.51	-0.01
216257.9		51.88	51.84	-0.04	52.57	52.56	-0.01
216969		51.92	51.88	-0.04	52.63	52.62	-0.01
217869.1		52.00	51.96	-0.04	52.75	52.74	-0.01
218474		52.17	52.13	-0.04	52.99	52.98	-0.01
219197.5		52.62	52.60	-0.02	53.43	53.43	0.00
219890.1		53.08	53.07	-0.01	53.94	53.94	0.00
220697.2		53.47	53.46	-0.01	54.33	54.33	0.00
221401.5		53.60	53.59	-0.01	54.47	54.47	0.00
222149.2		53.74	53.73	-0.01	54.65	54.65	0.00
222868.7		54.09	54.08	-0.01	55.26	55.26	0.00
223445.1		54.19	54.19	0.00	55.45	55.45	0.00
223455	SH 288						
223668.1		54.21	54.21	0.00	55.58	55.58	0.00
224031.4		54.22	54.21	-0.01	55.61	55.61	0.00
225035.7		55.05	54.61	-0.44	56.38	56.05	-0.33
225542.2		55.16	54.71	-0.45	56.44	56.14	-0.30
226430.5		55.30	54.96	-0.34	56.50	56.33	-0.17
227358.8		55.55	55.46	-0.09	56.62	56.62	0.00
228044.5		55.70	55.56	-0.14	56.77	56.76	-0.01
228828.4		56.21	55.81	-0.40	57.33	57.13	-0.20
228950	Kirby Drive						
229073.3		56.36	56.00	-0.36	57.69	57.55	-0.14
229428.1		56.45	56.11	-0.34	57.79	57.67	-0.12
230159.2		56.82	56.70	-0.12	58.01	57.92	-0.09
230878.1		56.99	56.90	-0.09	58.12	58.04	-0.08
231533.3		57.09	57.02	-0.07	58.21	58.13	-0.08
232232.1		57.20	57.15	-0.05	58.29	58.21	-0.08
232999.9		57.36	57.33	-0.03	58.34	58.29	-0.05
233734.5		57.72	57.71	-0.01	58.48	58.46	-0.02
234420.7	D/S Alameda School Rd	58.34	58.34	0.00	58.73	58.71	-0.02

The impact of the projected development of approximately 467 acres of land, including floodplain reclamation will require detention to mitigate the increased runoff from development and to compensate for floodplain storage and conveyance loss as a result of filling the floodplain. A proposed regional detention system will detain the increased rainfall runoff from the development and provide floodplain storage and conveyance mitigation to replace the storage lost due to reclaiming the area in the floodplain. With the implementation of the

detention system and the compensatory excavation discussed above, the proposed changes to the Clear Creek Floodplain will be in accordance with National Flood Insurance Program (NFIP) regulations and will not adversely impact the Clear Creek Watershed. The proposed project has no impact to existing flood hazard conditions for storm events up to and including the 100-year event.

For development to occur orderly and economically, proper planning is essential. The drainage analysis presented in this report shows that proposed development of the Lower Kirby Tract is feasible from a drainage perspective. The proposed design will convey the rainfall runoff to the outfall channels, which will not be adversely affected if the required detention is provided for the development.

1.0 INTRODUCTION

The Lower Kirby Regional Detention Facility (Lower Kirby) is part of the Lower Kirby Urban Center in the City of Pearland. The Lower Kirby Urban Center consists of approximately 1,000 acres of mostly undeveloped land at the southwest quadrant of State Highway 288 (SH 288) and Beltway 8.² The Lower Kirby Regional Detention Service Area makes up approximately 467 acres of the Lower Kirby Urban Center as shown in the figure below.



1.1 Site Location and Description

The 467 acre Lower Kirby regional detention service area consists of the 128 acre Prudential Tract and approximately 339 acres of mostly undeveloped or rural area in southern Harris County, Texas, 12 miles south of downtown Houston as shown on **Exhibit 1.1**. The area is in the City of Pearland City Limits and Harris County; bound by Beltway 8 to the north, SH 288 to the east, Kirby Drive and Hooper Road to the west, and Clear Creek to the south.

Soils in the area are mostly Lake Charles clay or Bernard clay loam that is represented by Soil Conservation Service (SCS) soil Group D. Low permeability and slow surface runoff potential characterize these soils. Annual rainfall averages 45 inches with periods of intense rainfall associated with tropical storms and localized thunderstorms occurring frequently throughout the year. As part of the Gulf Coast plain, the land is characterized by extremely flat topography. LiDAR information shows average natural ground elevations ranging from 54 feet to 58 feet (NAVD 1988, 2001 adj) across the area. Ground cover in the tract consists of flat pasture land with minimal natural channel conveyance for runoff.

1.2 Existing Drainage

Natural drainage is mainly in the form of sheet flow that travels southward toward Clear Creek. An existing partially improved Texas Department of Transportation (TxDOT) ditch that bisects the tract conveys runoff from the Beltway 8 Right of Way (ROW) south into Clear Creek. This

² Lower Kirby Urban Center Master Plan and Implementation Strategy

ditch is planned to be improved for drainage of the future Lower Kirby development as well as future improvements to SH 288. An existing pond south of Lower Kirby that was once used as a borrow pit will also be improved to provide detention for the Lower Kirby Development.

The Kirby Drive corridor drains into the TxDOT ditch through a large man made drainage channel. An existing Bass Pro Shops retail center, which is part of the 128 acre Prudential Tract, drains into Clear Creek through a system of detention ponds, channels, and closed conduit pipe before ultimately entering Clear Creek adjacent to SH 288. **Exhibit 1.2** illustrates the various existing drainage features within the Lower Kirby site.

Clear Creek forms the south boundary of the Lower Kirby development and is the only flooding source within the facility. Clear Creek has a wide floodplain with shallow flooding along the overbank reaches. The project area is located on the FEMA FIRM Panel Number 48201C1010 L for Harris County, Texas dated June 18, 2007. The effective floodplain and floodway affecting the Tract is shown in **Exhibit 1.3**.

The majority of Lower Kirby lies in the 100-year Special Flood Hazard Area (SFHA). Effective base flood elevations (BFE) range from approximately 56.0 feet (NAVD 1988, 2001 adj) at the eastern boundary of the tract near SH 288 to approximately 57.3 feet (NAVD 1988, 2001 adj) at the western boundary near Kirby Drive. Development of the tract will include filling the land to an elevation above the 100-Year BFE to reclaim the land for development. Fill will not be placed in the FEMA Effective Regulatory Floodway. The volume of detention will be determined for mitigating developed run-off, and floodplain fill, and conveyance mitigation.

1.3 Regulatory Jurisdictions

As previously noted, Lower Kirby is located in Harris County and the City of Pearland City Limits. Both of these governmental entities have published drainage design criteria. The HCFCD has jurisdiction over flood control in Harris County. However, the City of Pearland Drainage Criteria will be considered where more conservative measures are required relative to HCFCD Criteria. Harris County and the City of Pearland are participants in the National Flood Insurance Program (NFIP) and as such are required to regulate new development to comply with the minimum requirements of the NFIP, including coordination with adjoining jurisdictions.

1.4 Project Datum

The source models described in Section 2 are based on NAVD 88, 2001 adjustment, which is the datum established for the Harris County Effective FIRMs. A benchmark data sheet available on the HCFCD web site describes the Harris County Floodplain reference Mark No. 010195, and lists an elevation of 57.39 feet (NAVD 1988, 2001 adjustment). Therefore, the following elevations have been established for the Harris County Floodplain reference Mark No. 010195:

Elevation	59.23 (NGVD 1973)
Elevation	57.39 (NAVD 1988, 2001 Adj.)

Therefore, to convert NAVD 1988, 2001 adj. to NGVD 1973, add 1.84 feet.

All elevations referenced in this report are tied to the NAVD 1988, 2001 adjustment datum.

1.5 Previous Studies

1.5.1 Promenade Shops Development

Proposed development of The Promenade Shops Tract consisted of approximately 99.5 acres of commercial and retail development and some small amenity ponds, with the remainder of the tract consisting of detention and easements. A five-acre tract south of the main large detention pond served primarily as additional compensatory floodplain excavation. The amenity ponds

also provided storage primarily for floodplain fill mitigation.

The existing TxDOT ditch that flows south from the Beltway 8 ROW to Clear Creek was not affected by The Promenade development. The existing stock pond was improved and the TxDOT ditch was disassociated from The Promenade drainage system.

Runoff from the development is conveyed through a closed conduit system that drains from the detention pond along the south boundary of the tract to SH 288, then south along the west ROW of SH 288 and outfall into Clear Creek at a rate that is less than the pre-developed runoff rate.

To date, the Promenade Shops is not fully developed and the drainage system was not constructed as designed according to the master drainage plan for the Promenade Shops.



1.5.2 Promenade Regional Detention Analysis



A regional detention study titled "Mitigation Plan and Impact Analysis for the Promenade Regional Development" dated November 2005 was approved by HCFCD in April 2007. The regional study included 301 acres encompassed by Beltway 8 to the north, SH 288 to the east, Clear Creek to the south, and an existing TxDOT ditch (A145-00-00) to the west. 233 acres were considered for development, which is the entire 301 acre tract less the area within the floodway. It also included the 128 acre Promenade Shops development. Results of the analysis concluded that approximately 367 acre-feet of detention would be required for mitigating impacts from developed flows and floodplain storage loss.

The existing borrow pit would be improved to provide 203 acre feet of storage volume. The remaining 164 acre feet of storage was provided by the Promenade Shops detention.

1.5.3 Water Lights Master Drainage Plan

The Waterlights development is an 85 acre tract located along Clear Creek just upstream of SH

288. Proposed improvements included an existing borrow pit located adjacent to the north bank of Clear Creek to be excavated to provide the required volume for detention and compensatory excavation. Seventeen acres of the Water Lights development encroached into the FEMA Effective Regulatory Floodway. The loss of conveyance was to be mitigated by digging a canal adjacent to the north bank of Clear Creek. The canal, which is part of the detention pond, will provide conveyance when Clear Creek reaches a specified elevation and overflows into the detention system.



The Water Lights detention pond and canal will be hydraulically connected to Clear Creek to allow runoff to drain from the development at a rate that is less than the existing conditions runoff. The natural ground that lies between the north bank of Clear Creek and the south edge of the pond would serve as an extreme event overflow weir during historical storm events.

1.5.4 Letter of Map Revision – Fill for Goldknight Tracts



A letter of Map Revision based on Fill (LOMR-F) was issued by FEMA on June 23, 2009 (FEMA Case number 09-06-1522A). The LOMR-F removed approximately 91 acres of land from the FEMA 100-year floodplain based on conversations with the City of Pearland. A metes and bounds description is included with the Letter of Final Determination that describes the shape of the area removed. The illustration to the left was provided by the City of Pearland for use in this study. Consideration was given to this project when calculating the floodplain storage lost due to filling the natural ground. This area was not included in the calculations.

1.6 Proposed Lower Kirby Regional Development and Detention Facility

In order to reclaim land from the effective 100-year floodplain and accommodate a more urban

development, the City of Pearland is proposing a regional approach to detention for the 467 acre service area. This is a preferred alternative to individual developments providing onsite detention. Proposed improvements that were analyzed in this study are based on the Lower Kirby Master Development Plan illustrative framework exhibit. Land use based on this plan will consist of primarily commercial and institutional development, with some green space and detention areas. **Exhibit 1.4** shows the proposed area of development that will be serviced by the Lower Kirby Regional Detention Facility.

Four ponds are proposed that will provide the necessary detention for development and floodplain mitigation. An existing borrow pit located adjacent to the north bank of Clear Creek will be improved to provide the required storage volume for the proposed development. Additionally, the TxDOT ditch providing drainage for Beltway 8 will be improved into three linear lakes that will provide additional storage volume for the development. The four ponds will also provide a surplus capacity for the future expansion of State Highway 288 (SH 288) as requested by TxDOT. This analysis will show that existing condition water surface elevations in the TxDOT outfall channel will not be increased.

Because the placement of fill to reclaim land from the floodplain will encroach up to the floodway fringe, conveyance will be affected. The loss of conveyance will be mitigated by excavating two channels parallel and adjacent to the north bank of Clear Creek. One channel will be located west of the TxDOT ditch in the same location that a pond was proposed based on the Lower Kirby Master Development Plan, and a second channel will consist of an existing pond that was part of the original Water Lights development. These channels, which will not be hydraulically connected to the proposed detention ponds, will provide compensating conveyance when Clear Creek reaches a specified elevation and overflows into them.

The Lower Kirby detention ponds will be hydraulically connected to the TxDOT ditch close to its outfall into Clear Creek. Reinforced concrete pipes (RCPs) will allow runoff to drain from the 467 acre development at a rate that is less than the pre project conditions runoff. The RCPs will allow flow to travel in both directions into and out of the ponds as Clear Creek rises and falls. This will allow the ponds to provide the floodplain storage that will be lost when the land is reclaimed from the 100-year SFHA.

The natural ground that lies between the north bank of Clear Creek and the south edge of the regional pond will serve as an extreme event overflow weir during historical storm events. Therefore, this area will need to be stabilized so that the hydraulic characteristics do not change in this area. This will be addressed in more detail as development of the Lower Kirby Regional Detention Facility progresses.

The 128 acre Prudential Tract located in the northeast Lower Kirby Regional Service Area is currently only partially developed. A Bass Pro Shops retail center was constructed and onsite detention was provided within the property. To date, drainage for the property is routed through an improved stock pond, then through a closed



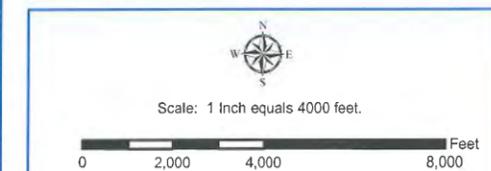
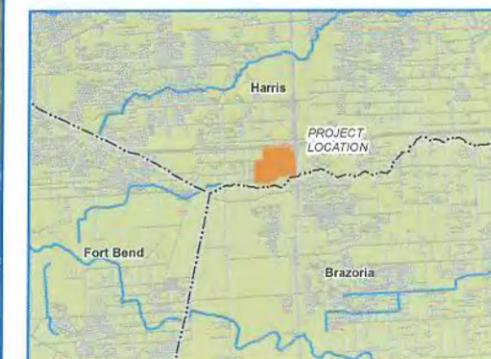
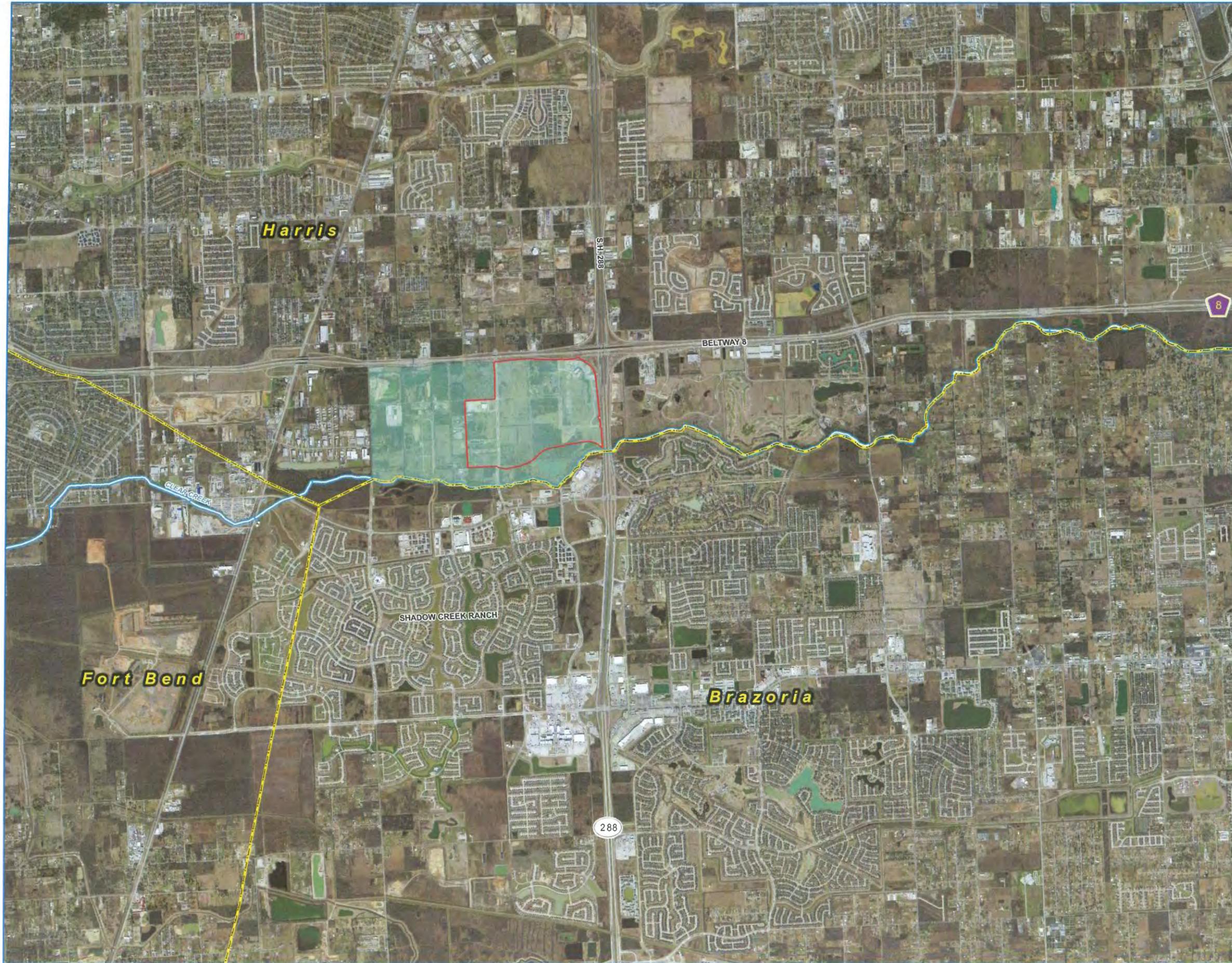
conduit storm drain along the southern edge of the property to SH 288, then south along the SH 288 ROW into Clear Creek. The pond adjacent and south of Bass Pro Shops was constructed for floodplain mitigation purposes.

Numerous additional development plans for the Prudential Tract have been investigated but were never implemented. There were plans for expanding the development with additional retail, but these have also been put on hold.¹

Since it is unknown what future development will occur within the Prudential Property, a previous study investigated three development scenarios and proposed a regional detention plan for each one. The development scenarios are based on future development of the Prudential Tract and participation in the regional detention. The development scenarios are summarized below:

- Scenario 1 – full participation of the Prudential Tract in the regional detention plan.
- Scenario 2 – partial participation of the Prudential Tract in the regional detention plan.
- Scenario 3 – no participation of the Prudential Tract in the regional detention plan.

This report focuses on Scenario 1. This development scenario assumes that the Prudential Tract development will participate fully in the regional detention plan. In this case, the detention pond adjacent to the Bass Pro Shops center will no longer be used as floodplain mitigation and will have the option of being filled or to remain as an amenity feature. The improved stock ponds that were originally used for runoff detention will be filled to reclaim additional land for development as proposed in the Lower Kirby Urban Center Master Development Plan. The necessary allotment of detention and mitigation for the 128 acre Prudential Tract will be provided in the regional ponds.



Note:
This exhibit shows pertinent items necessary to illustrate the information described in the text and is not intended to include all physical characteristics of the area.

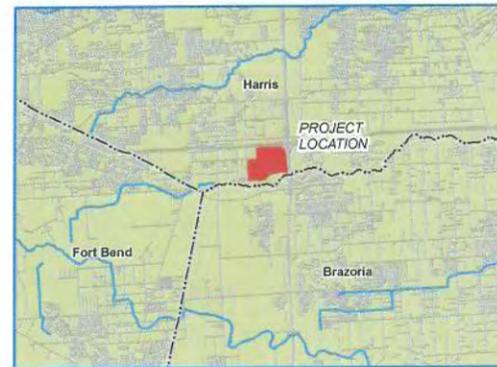
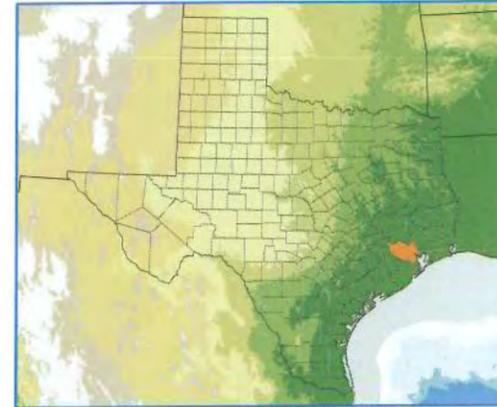
Data Source:
Aerial Photography - dated December 2010.

- LEGEND**
- LOWER KIRBY URBAN CENTER
 - PROJECT BOUNDARY
 - COUNTY BOUNDARY

Exhibit 1.1
**LOWER KIRBY REGIONAL DETENTION FACILITY
IMPACT ANALYSIS AND MITIGATION PLAN**
VICINITY MAP

Date: Dec, 2012 Job No. 1607-1102

H:\1607-1102_Spectrum_Ferguson\GIS\workspace\Ferbruary 2012\Map\land_14\land\plan.mxd




 Scale: 1 Inch equals 1000 feet.

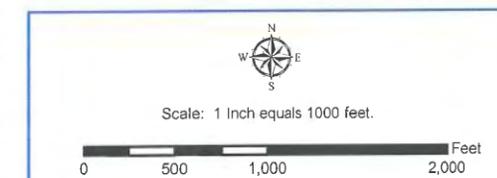
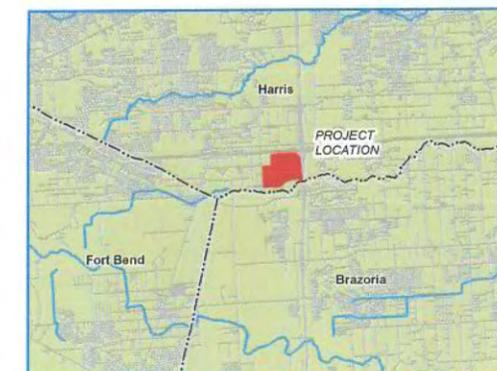
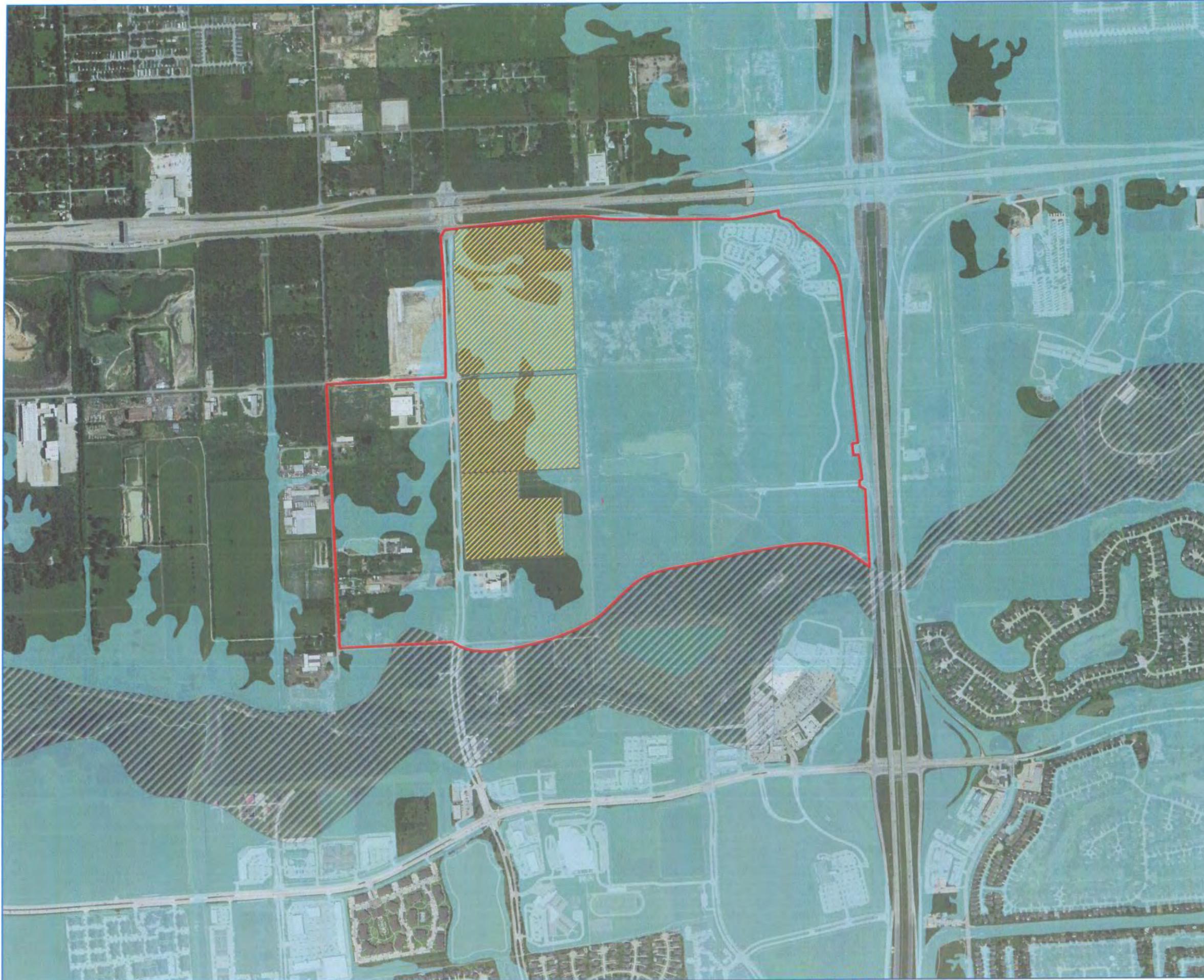

 0 500 1,000 2,000 Feet

Note:
 This exhibit shows pertinent items necessary to illustrate the information described in the text and is not intended to include all physical characteristics of the area.

Data Source:
 Aerial Photography - dated December 2010.

LEGEND

 PROJECT BOUNDARY
 EXISTING DITCH/CHANNEL



Note:
This exhibit shows pertinent items necessary to illustrate the information described in the text and is not intended to include all physical characteristics of the area.

Data Source:
Aerial Photography - dated December 2010.

- LEGEND**
- PROJECT BOUNDARY
 - 100-YEAR FLOODPLAIN
 - FLOODWAY
 - AREA REMOVED WITH LOMR-F

Exhibit 1.3

**LOWER KIRBY REGIONAL DETENTION FACILITY
MITIGATION PLAN AND IMPACT ANALYSIS**

EFFECTIVE SPECIAL FLOOD HAZARD AREA

Date: Dec, 2012 Job No. 1607-1102

LJA Engineering, Inc.

2.0 HYDROLOGIC ANALYSIS

The starting hydrology models used for this analysis were received from Harris County Flood Control District (HCFCD) Map and Model Management (M3) System, which is a web interface that allows users to request the most recent and final FEMA effective models and supporting data.

2.1 Methodology

The hydrograph methodology used for the drainage analysis was developed in Harris County for the design of major flood control facilities. The Watershed Modeling Method was used in lieu of the Site Runoff Curves so that the analysis would correlate with existing hydrologic models for Clear Creek. This is also the method used for the Flood Insurance Study (FIS) of the Clear Creek watershed in Harris, Brazoria and Galveston Counties. According to current City of Pearland Criteria, this is a large project (larger than 30 acres) with onsite detention in which a downstream impact analysis is required.

HEC-HMS version 3.3.0 was used for the hydrology analyses presented in this study. This program simulates the precipitation-runoff process and computes flood hydrographs at desired locations within a watershed. The physical characteristics of the watershed are represented by an interconnected system of geographic and hydrologic components described below.

2.1.1 Watershed Characteristics

The runoff processes of the HEC-HMS model used in this analysis are based on runoff hydrographs developed using Clark's Unit Graph method. This method uses the time of concentration (Tc) and storage coefficient (R) to develop the runoff hydrograph of the basin resulting from the excess precipitation during a storm event. These two parameters were calculated for each sub-watershed. The equations used to calculate Tc and R are shown below:

$$T_c = D [1 - (.0062)(0.3 DLU + 0.7 DCI)] (L_{CA} / \sqrt{S})^{1.06}$$

$$T_c + R = 7.25(L / \sqrt{S})^{0.706} \text{ if } DLU < 18\%$$

or

$$T_c + R = 4295(DLU)^{-0.678} (DCC)^{-0.967} (L / \sqrt{S})^{0.706} \text{ if } DLU \geq 18\%$$

where	<p>Tc = Clark's time of concentration</p> <p>R = Clark's storage coefficient</p> <p>L = length of the longest watercourse within the drainage area (miles)</p> <p>L_{CA} = length to centroid of drainage area (miles)</p> <p>S = average slope along the area's longest watercourse (ft/mile)</p> <p>DLU = percent urban development*</p> <p>DCI = percent channel improvement*</p> <p>DCC = percent channel conveyance*</p> <p>D = 2.46 if S₀ ≤ 20 feet per mile</p> <p>D = 3.79 if 20 feet per mile < S₀ ≤ 40 feet per mile</p> <p>D = 5.12 if S₀ > 40 feet per mile</p> <p>S₀ = watershed slope (ft/mile)</p>
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* Value for DLU, DCI, and DCC is in whole numbers.

When ponding occurs in more than 20 percent of a sub-watershed, the R-value is adjusted to account for the additional storage. The adjustment factor (RM) varies according to the design storm and is based on the area of the ponding and the percentage of the watershed affected by the ponding. The calculations for RM for the 10-, 50-, 100-, and 500-year events are shown below:

$$\begin{aligned}RM_{10} &= 1.28 P^{0.199} \\RM_{50} &= 1.23 P^{0.153} \\RM_{100} &= 1.21 P^{0.132} \\RM_{500} &= 1.17 P^{0.086}\end{aligned}$$

Where P = percent ponding

2.1.2 Precipitation Abstractions

Precipitation abstractions are the losses from precipitation that do not show up as runoff. Abstractions include interception, evapotranspiration, surface detention, and infiltration. All these factors except the amount of impervious cover, effecting infiltration, are dependent on soil type, land use, vegetative cover, topography, time of year, temperature, etc. Impervious cover, a measure of development, is the main parameter used to describe additional development in the hydrologic model.

This analysis uses the Green & Ampt method for determining the amount of the precipitation abstractions. Parameters for the Green & Ampt used in this analysis are listed below:

Initial Loss	=	0.1 inches
Volume Moisture Deficit	=	0.385
Wetting Front Suction	=	12.45 inches
Conductivity	=	0.024 in/hr
Impervious	=	varies %

Additional development in the watershed is analyzed by increasing the value of the impervious cover parameter in the runoff model.

2.1.3 Hypothetical Storm Events

This analysis used a 10-year and 100-year frequency design storm. The rainfall duration-depth relationship used in the HEC-HMS model is based on the National Weather Bureau publications Technical Paper No. 40, and Technical Memorandum Hydro 35. This data references point rainfall amounts for varying duration and frequency storms in Harris County, Texas.

2.1.4 Rainfall Distributions

The HEC-HMS version 3.3.0 allows the user to shift the peak of the storm from 50% of the storm duration (center-peaking event similar to HEC-1) to 25%, 33%, 67%, or 75% of the storm duration. According to Appendix A Section 2.3.2 of the BDD4 Rules, Regulations, and Guidelines effective August 1, 2004 (City of Pearland Drainage Criteria), the 67% duration peaking temporal rainfall distribution was used.

2.2 Detention Requirements

Since correlation with effective HEC-HMS and HEC-RAS models is necessary, the proposed Lower Kirby development area was analyzed using the Watershed Modeling Method discussed in Section 3.4.2 in the HCFCD Policy, Criteria and Procedure Manual dated December 2010. Additionally, Section 6 of the City of Pearland Drainage Criteria Manual dated November 2004 states a minimum storage of 0.65 acre-feet per acre are required regardless of the chosen

methodology.

According to the effective FIRMs, 271 acres of developable area lie within the Clear Creek 100-year special flood hazard area. In order to reclaim the land from the 100-year SFHA, fill will be placed to an elevation above the 100-year BFE. The minimum required detention volume is exclusive of mitigation for fill in the floodplain. To calculate the volume of fill that will be placed in the floodplain, the floodplain volume along the left overbank of Clear Creek was determined from HEC-RAS for pre and post-project conditions, and the difference in floodplain volume was calculated.

Discussions with TxDOT indicated that the partially improved channel that drains the South Sam Houston Tollway may be utilized for conveyance and/or storage of runoff from future improvements of State Highway 288. A rough estimate of the additional volume that could be obtained by improving the channel to its ultimate configuration was calculated, resulting in an additional 6 acre-feet that could be used for detaining for conveying runoff from SH 288 if needed. This additional volume will be provided as a surplus in the Lower Kirby Regional Detention.

Regional detention will be used to mitigate lost floodplain storage, increased runoff from development, and provide approximately 6 acre-feet of surplus storage allocated to TxDOT for future road improvement projects.

2.3 Base Conditions

The effective hydrology model of Clear Creek released on June 18, 2007 is the most recent model of the Clear Creek Watershed (referred to as “base model”) and was used as the starting point for the analysis presented in this study. The Clear Creek Watershed used to define the base conditions HEC-HMS analysis is shown on **Exhibit 2.1**. The Lower Kirby development is located in the Clear Creek Sub-watershed A100f. The Tc&R parameters for the A100f Sub-area are shown below in **Table 2.1** and **Table 2.2**.

TABLE 2.1 BASE CONDITION WATERSHED PARAMETERS									
Sub-area	DA (sq mi)	Length (mi)	L _{ca} (mi)	Channel Slope (ft/mi)	Overland Slope (ft/mi)	Channel Conv. (%)	Land Urban. (%)	Channel Improv. (%)	Imper. (%)
A100f	3.36	2.77	0.95	2.80	6.00	10.00	17.40	0.00	15.5

TABLE 2.2 BASE CONDITION TC&R VALUES					
Sub-area	% Ponding	Tc	R	R' (10 yr)	R' (100 yr)
A100f	23.0	1.30	9.04	21.59	16.54

*R' calculated based on the ponding adjustment.

The flows used in this analysis in the HEC-RAS model for the base conditions model are shown below in **Table 2.3**. Supporting documentation and results for the Base Condition HEC-HMS model can be found on the CD included with this report.

TABLE 2.3 BASE CONDITION PEAK FLOWS						
HMS Node	RAS SECNO	Description	10yr Peak Q	50yr Peak Q	100yr Peak Q	500yr Peak Q
2385J	239967.4		414	821	1077	1925
2228J	231533.3		1122	1902	2382	3951

TABLE 2.3 BASE CONDITION PEAK FLOWS						
HMS Node	RAS SECNO	Description	10yr Peak Q	50yr Peak Q	100yr Peak Q	500yr Peak Q
2199J	222868.7		1138	1902	2382	3951
2143J	214705.8		1880	3105	3826	6201
1999J	197996.2		2203	3438	4244	7002
1660J	179278.5	Hickory Slough	2982	4553	5376	7991
1601J	165983.9		2982	4553	5376	7991
1271J	129631	A120-00-00	4361	6766	7901	10572
1222J	123196.7	A119-00-00	6999	10803	12497	17621
1052J	106343.5	Mary's Creek	9343	14080	16162	22566
0927J	93497.69	Cowart Creek	11980	18188	20934	29187
0771J	77642.36	Chigger Creek	13201	19868	22891	30896
0702J	72765.55	Magnolia Creek	13562	20517	23659	31516
0601J	61501.83		13563	20518	23660	31516
0556J	55615.42		14037	21289	24535	32653
0366J	36556.81	A107-00-00	14051	21317	24557	32752
0301J	30794.12		14229	21633	24879	33496
0184J	20859.46	Armand Bayou	20938	35377	42013	64503
0140J	16112.37	A104-00-00	22481	38995	47042	72745

2.4 Revised Base Model

A Corrected Effective hydrologic model (referred to as “Revised Base model”) was created to incorporate current existing features and updates that the effective model did not include. Updates to the effective model include the following:

- Revised storage routing relationship
- Added Kirby Drive bridge and associated fill

2.4.1 Storage Routing

The hydrologic and hydraulic models obtained from the HCFCD M3 website were reviewed, and the resulting HEC-HMS flows did not match the flows that were used in HEC-RAS. Discussions with HCFCD revealed that the resulting flows from the base condition HMS model do not reflect updated storage routing from the effective HEC-RAS geometry. Therefore, a revised base HEC-HMS model was created in order to achieve consistent flows between the hydrology and hydraulic models.

A storage-routing spreadsheet for the entire reach of Clear Creek, received from HCFCD, was used to establish storage routing parameters based on the existing geometry of Clear Creek and the flows from the base conditions HEC-HMS. A multi profile HEC-RAS model was created using the base conditions HEC-HMS flows and the same flow ratios that were shown in the spreadsheet from HCFCD, and storage routing parameters were established from the HEC-RAS multi profile model to use in the Revised Base conditions HEC-HMS model. Several iterations were run until the models were balanced to within less than one percent of each other.

2.4.2 Kirby Drive Bridge

The effective HEC-RAS model did not include the recently constructed Kirby Drive bridge over Clear Creek. Therefore, the bridge was modeled in a revised base HEC-RAS model discussed

in more detail in Section 3. The bridge and associated fill in the embankments and overbanks were included in the multi profile HEC-RAS model for determining the storage routing relationship as discussed above.

The resulting flows produced by the Revised Base conditions HEC-HMS model are shown below and compared to the base condition flows in **Table 2.4** below. The results of the Revised Base HEC-HMS model can be found on the CD included with this report.

TABLE 2.4 REVISED BASE PEAK FLOW COMPARISONS								
HEC-HMS Node	HEC-RAS SECNO	Description	10% Peak Flow (cfs)		1% Peak Flow (cfs)		Base vs Rev. Base	
			Base	Rev. Base	Base	Rev. Base	10%	1%
2385J	239967.4		414	479	1077	1090	65	13
2228J	231533.3		1122	1117	2382	2614	-6	232
2199J	222868.7		1138	1117	2382	2614	-21	232
2143J	214705.8		1880	1864	3826	3826	-16	0
1999J	197996.2		2203	2203	4244	4256	1	12
1660J	179278.5	Hickory	2982	2896	5376	5429	-86	53
1601J	165983.9		2982	2896	5376	5429	-86	53
1271J	129631	A120-00-00	4361	4333	7901	7666	-29	-235
1222J	123196.7	A119-00-00	6999	7711	12497	13299	712	802
1052J	106343.5	Mary's	9343	10064	16162	17024	720	863
0927J	93497.69	Cowart	11980	12885	20934	22163	905	1229
0771J	77642.36	Chigger	13201	14372	22891	24462	1171	1571
0702J	72765.55	Magnolia	13562	14748	23659	25230	1186	1571
0601J	61501.83		13563	14750	23660	25232	1187	1572
0556J	55615.42		14037	15326	24535	26201	1289	1667
0366J	36556.81	A107-00-00	14051	15350	24557	26229	1299	1672
0301J	30794.12		14229	15569	24879	26580	1340	1701
0184J	20859.46	Armand	20938	17117	42013	39145	-3820	-2868
0140J	16112.37	A104-00-00	22481	17704	47042	42989	-4777	-4053

2.5 Pre Project Model

The pre project HEC-RAS model was created to isolate all revisions to the base conditions model in order to determine impacts associated only with the Lower Kirby Development. The following revisions were made to the Revised Base Model to create the Pre Project HMS model:

- Subdivided the A100F sub-watershed into A100F1 through A100F5
- Adjusted the Tc&R values to reflect existing conditions for each sub-watershed.
- Subdivided the 2199R routing reach into 2220R and 2199R
- Updated the runoff characteristics from Beltway 8 and offsite area north

2.5.1 Subdivided A100F

The A100F Subwatershed contains three channels that outfall into Clear Creek. These channels are under the jurisdiction of TxDOT and convey storm water runoff from Beltway 8 to Clear Creek. A100F was subdivided in order to establish drainage areas for each individual channel (A100F2, A100F3, and A100F4). Two more areas were also delineated; one area

(A100F5) south of Clear Creek makes up the portion of the original A100F Subwatershed south of Clear Creek, and an area north of Beltway 8 (A100F1) reflects offsite flow coming across the ROW into the TxDOT channel east of Kirby Drive.

Data used to delineate the drainage areas included LiDAR topography, aerial photography, field reconnaissance, available construction plans, and reports. The size or shape of A100F did not change with the subdivided areas. **Exhibit 2.2** illustrates the pre project drainage areas.

2.5.2 Subdivided Routing Reach 2199R

A new junction (2220J) was added to the pre project HMS model to reflect the outfall from the regional detention facility. This is the same outfall as the TxDOT Ditch east of Kirby Drive. To add the new junction, the routing reach 2199R was subdivided into 2220R and 2199R, and Junction 2220J was added between the two reaches. Storage routing relationships were calculated the same way as the revised base conditions.

2.5.3 Runoff from Beltway 8

In January 2011, a drainage impact study for the Sam Houston Tollway South Widening was created by Brown & Gay Engineers (BGE). A segment of the tollway ROW plus approximately 134 acres north of the tollway drain to the TxDOT ditch, called Channel S-2 according to the BGE report. The Study used EPA SWMM to analyze the proposed design and its effects on Channel S-2. The EPA SWMM model was used to determine the effectiveness of a proposed detention basin for mitigation measures.

The SWMM model results produced a runoff hydrograph for Channel S-2 (TxDOT Ditch) that was used in the pre project conditions HEC-HMS model for the Lower Kirby analysis. The runoff hydrograph was entered into the pre project HEC-HMS model using a source node to represent runoff from the offsite area north of Beltway 8 plus a portion of the proposed Beltway 8 improvements. This area is designated A100F1 in this study. The January 2011 BGE study can be found on the CD included with this report.

Section 3.4, Page 48, of the BGE study showed a 100-year WSEL of 56.9' (NAVD 88, 2001 adj) in Channel S-2 at the south ROW boundary of Beltway 8. The analysis presented in this report will show that the peak water surface elevations in the improved channel will not exceed those shown in the BGE study.

2.5.4 Tc&R Values

New Tc&R parameters were established for the subdivided drainage areas discussed above. The parameters were determined based on existing conditions using available aerial photographs. Ponding areas and areas affected by detention was interpolated from the original A100F parameters. The Tc&R parameters established for each drainage area are shown below in **Table 2.5** and **Table 2.6**.

TABLE 2.5 PRE PROJECT CONDITION TC&R PARAMETERS									
Sub-area	DA (sq mi)	Length (mi)	L _{ca} (mi)	Channel Slope (ft/mi)	Overland Slope (ft/mi)	Channel Conv. (%)	Land Urban. (%)	Channel Improv. (%)	Imper. (%)
A100F1	0.269	This sub area input to HMS as a source node (see section 2.4.3)							
A100F2	0.238	1.54	1.05	3.90	6.00	10.00	20.00	0.00	15.5
A100F3	0.778	0.95	0.57	4.30	6.00	10.00	10.00	0.00	22
A100F4	0.773	1.41	0.85	5.70	6.00	10.00	85.00	0.00	55
A100F5	1.300	1.21	0.95	2.80	6.00	10.00	75.00	0.00	65

Sub-area	% Ponding	Tc	R	R' (10 yr)	R' (100 yr)
A100F1	This sub area input to HMS as a source node (see section 2.4.3)				
A100F2	5	1.21	4.87	4.87	4.87
A100F3	34	0.61	3.56	9.20	6.87
A100F4	22	0.69	4.31	10.20	7.83
A100F5	35	1.16	4.61	11.96	8.91

The Tc&R values in Table 2.6 were entered into a pre project HEC-HMS model. The pre project model will be compared to the post project results to show differences in flows attributed directly to development of the Lower Kirby without any other influences such as sub-divided drainage areas or revised Tc&R parameters. The resulting flows are shown below in **Table 2.7** and compared to the revised base flows. The pre project condition HEC-HMS model can be found on the CD included with this report.

HEC-HMS Node	HEC-RAS SECNO	Description	10% Peak Flow (cfs)		1% Peak Flow (cfs)		Rev. Base vs Pre Project	
			Rev. Base	Pre Project	Rev. Base	Pre Project	10%	1%
2385J	239967.4		479	484	1090	1099	5	9
2228J	231533.3		1117	1148	2614	2662	31	48
2199J	222868.7		1117	1148	2614	2662	31	48
2143J	214705.8		1864	1934	3826	3922	70	96
1999J	197996.2		2203	2240	4256	4359	37	102
1660J	179278.5	Hickory	2896	2910	5429	5443	14	15
1601J	165983.9		2896	2910	5429	5443	14	15
1271J	129631	A120-00-00	4333	4340	7666	7679	8	13
1222J	123196.7	A119-00-00	7711	7718	13299	13312	7	13
1052J	106343.5	Mary's	10064	10071	17024	17037	7	13
0927J	93497.69	Cowart	12885	12892	22163	22176	7	13
0771J	77642.36	Chigger	14372	14379	24462	24474	7	12
0702J	72765.55	Magnolia	14748	14755	25230	25242	7	12
0601J	61501.83		14750	14757	25232	25244	7	12
0556J	55615.42		15326	15332	26201	26212	6	11
0366J	36556.81	A107-00-00	15350	15356	26229	26239	7	11
0301J	30794.12		15569	15576	26580	26591	6	11
0184J	20859.46	Armand	17117	17123	39145	39144	6	-1
0140J	16112.37	A104-00-00	17704	17705	42989	42985	1	-4

2.6 Post Project Hydrology – Lower Kirby Detention Facility

In the analysis, the amount and rate of surface runoff entering the detention facility directly affects the stages in the ponds as does any additional flow transfer between adjacent lakes. The amount of available storage in the lake also affects the stages. Stages in a particular segment of an outfall channel is affected by the amount of runoff entering the channel segment, the upstream inflow amount and rate, the available storage in the channel and downstream

stages.

Flow rates, stages and available storage all change at every time step in the simulation. Surface runoff rates from the HEC-HMS flow hydrographs are continually changing. These changes cause stage variations throughout the system. Flow rates through the culverts and channel segments are, in turn, affected by the stages.

The only way to analyze the drainage system is to solve the entire drainage network simultaneously at each time step in the simulation. Inflows, outflows and changes in storage (and stage) must be calculated and updated on a continual basis. The hydraulic analysis of The Lower Kirby drainage system used Streamline Technologies, Inc. "Advanced Interconnected Channel and Pond Routing" (ICPR) Ver. 3.02. However, the post project runoff hydrographs that are routed through detention must be computed.

In ICPR, all inflows are assigned to nodes (point loading). This means that the rainfall runoff is assigned to specific nodes for routing through the proposed detention system. Since hydrographs can be entered directly into ICPR, developed undetained hydrographs generated by HEC-HMS were imported into ICPR. Each drainage area represents a node in ICPR that is assigned an inflow hydrograph. The drainage areas are typically delineated based on the contributing area to each lake. For the Lower Kirby Development, four lakes are proposed. In addition, runoff from the area north of Beltway 8, the Kirby Drive corridor, and the Promenade Tract will be routed through the proposed detention system. Therefore, seven nodes are proposed in ICPR that will have inflow hydrographs assigned to them.

As discussed in Section 2, A100F was subdivided into A100F1 through A100F5. Sub-area A100F3 represents the drainage area for the TxDOT ditch that will be used for the outfall from the Lower Kirby Regional facility. For the internal analysis of Lower Kirby, the pre project sub-areas were modified as follows:

- 128 acres reflecting the Prudential Tract were added to A100F3
- 172 acres reflecting the offsite area north of Beltway 8 were added to A100F3
- Sub-Area A100F3 was further subdivided into A100F3A through A100F3F

In summary, A100F3 gained 300 acres, A100F1 was eliminated, and A100F4 lost 122 acres. **Exhibit 2.3** illustrates the internal drainage areas used to generate the inflow hydrographs in ICPR.

Table 2.8 and **Table 2.9** list the Tc&R parameters and values for the internal drainage areas.

TABLE 2.8 LOWER KIRBY REGIONAL INTERNAL TC&R PARAMETERS									
Sub-area (node)	DA (sq mi)	Length (mi)	L _{ca} (mi)	Channel Slope (ft/mi)	Overland Slope (ft/mi)	Channel Conv. (%)	Land Urban. (%)	Channel Improv. (%)	Imper. (%)
A100F1	0.269	ICPR inflow hydrograph imported from South Sam Houston Tollway report by BGE							
A100F3A	0.153	0.40	0.23	2.46	6.00	100	100.00	100	85
A100F3B	0.118	0.36	0.19	2.46	6.00	100	100.00	100	85
A100F3C	0.165	0.39	0.21	2.46	6.00	100	100.00	100	85
A100F3D	0.151	0.64	0.44	2.46	6.00	10	0.00	0	46
A100F3E	0.191	0.72	0.33	2.46	6.00	100	100.00	100	61
A100F3F	0.190	0.57	0.28	2.80	6.00	100	100.00	100	85

TABLE 2.9 LOWER KIRBY REGIONAL INTERNAL TC&R VALUES					
Sub-area (node)	% Ponding	Tc	R	R' (10 yr)	R' (100 yr)
A100F1	ICPR inflow hydrograph imported from South Sam Houston Tollway report by BGE				
A100F3A	0	0.12	0.72	0.72	0.72
A100F3B	0	0.10	0.68	0.68	0.68
A100F3C	0	0.11	0.71	0.71	0.71
A100F3D	46	0.64	3.21	8.80	6.44
A100F3E	0	0.19	1.23	1.23	1.23
A100F3F	0	0.14	0.89	0.89	0.89

The Tc&R values for each of the sub-areas were input into a HEC-HMS model to generate inflow hydrographs for each ICPR node. The developed hydrographs were routed through the proposed Lower Kirby Regional detention facility using ICPR as discussed in Section 3 of this report. The resulting outfall hydrographs from ICPR were then entered into a post project HEC-HMS model of Clear Creek as source nodes to determine the impact of the proposed facilities by comparing the peak flows to the pre project model results.

2.7 Post Project Hydrology – Clear Creek

The pre project HEC-HMS model was modified to include the proposed Lower Kirby Regional development. The following changes were made to the pre project conditions hydrology to create the post project hydrology:

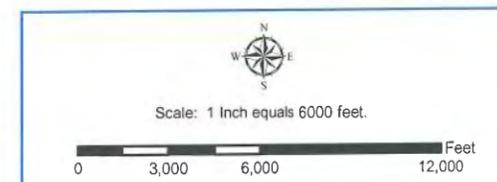
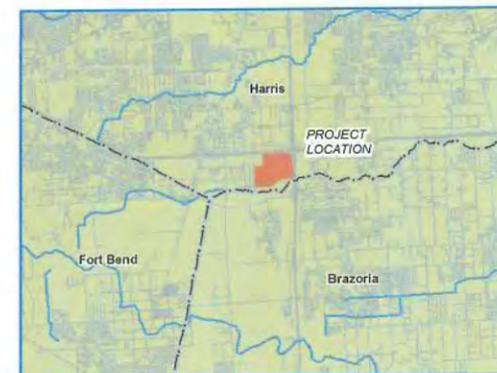
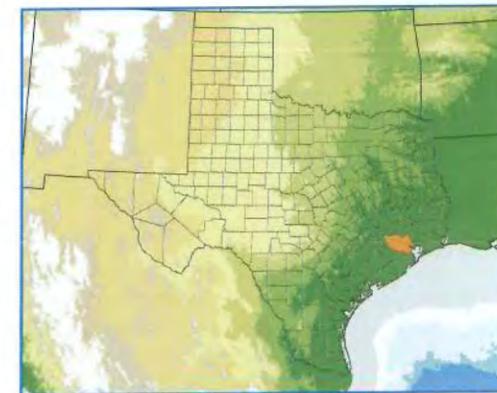
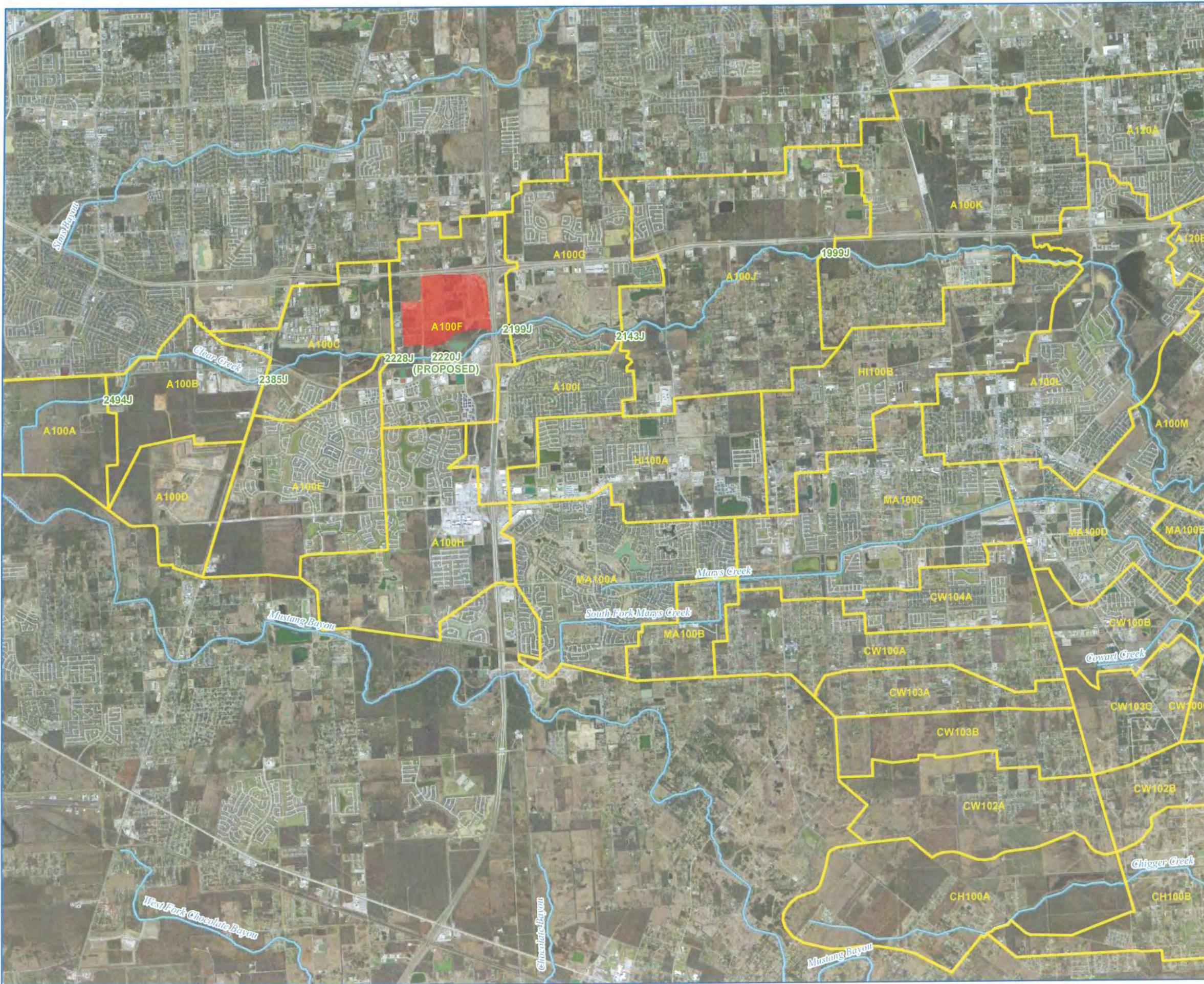
- Sub-Areas A100F1 and A100F3 combined as Sub-Area A100F3.
- 122 acres added to Sub-Area A100F3 from Sub-Area A100F4 (Prudential Tract).
- A100F3 was changed to a source node in HMS.
- Storage routing was re-evaluated based on proposed fill.

Table 2.10 and **Table 2.11** list the post project Tc&R parameters for the developed Lower Kirby Regional Tract.

TABLE 2.10 POST PROJECT CONDITION TC&R PARAMETERS									
Sub-area	DA (sq mi)	Length (mi)	L _{ca} (mi)	Channel Slope (ft/mi)	Overland Slope (ft/mi)	Channel Conv. (%)	Land Urban. (%)	Channel Improv. (%)	Imper. (%)
A100F2	0.238	1.54	1.05	3.90	6.00	10	20	0	15.5
A100F3	1.237	Hydrograph from ICPR Results imported directly into HMS as a source node							
A100F4	0.583	1.41	0.85	5.70	6.00	10	85	0	55
A100F5	1.300	1.21	0.95	2.80	6.00	10	75	0	65

TABLE 2.11 POST PROJECT CONDITION TC&R VALUES					
Sub-area	% Ponding	Tc	R	R' (10 yr)	R' (100 yr)
A100F2	5	1.21	4.87	4.87	4.87
A100F3	Hydrograph from ICPR Results imported directly into HMS as a source node				
A100F4	22	0.69	4.31	10.20	7.83
A100F5	35	1.16	4.61	11.96	8.91

The runoff hydrograph generated for “A100F3” will be combined directly with computation node 2220J in the post project HEC-HMS. This hydrograph reflects the resulting flows from the regional pond after being routed through the proposed detention ponds using the Advanced Interconnected Channel and Pond Routing (ICPR) program as discussed in Section 3 of this report.



Note:
This exhibit shows pertinent items necessary to illustrate the information described in the text and is not intended to include all physical characteristics of the area.

Data Source:
Aerial Photography - dated December 2010.

- LEGEND**
- PROJECT BOUNDARY
 - CLEAR CREEK
 - SUB-WATERSHED BOUNDARY

Exhibit 2.1

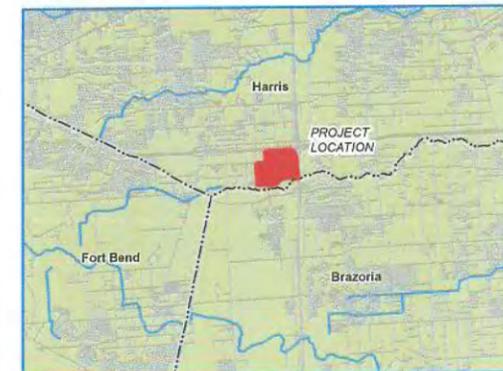
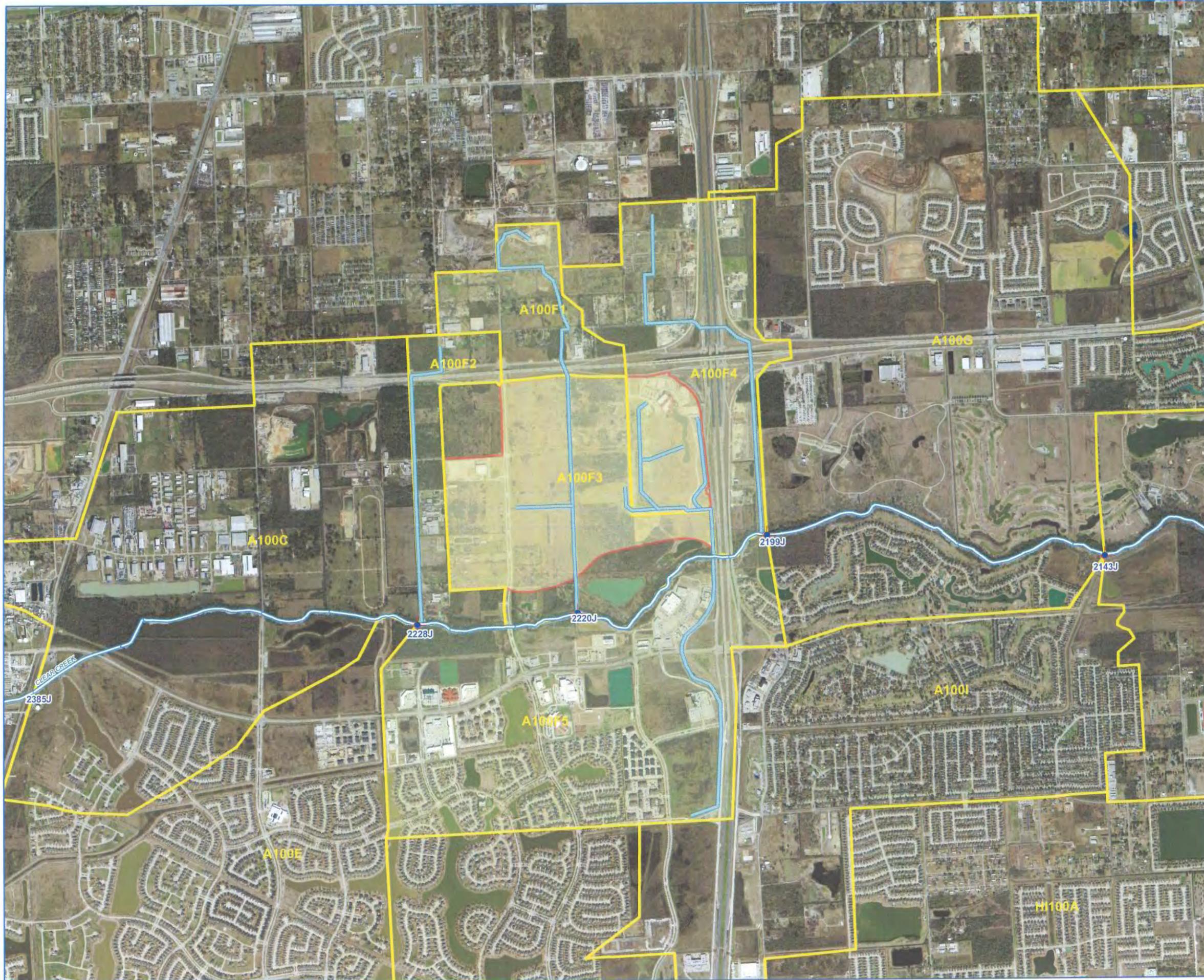
**LOWER KIRBY REGIONAL DETENTION FACILITY
MITIGATION PLAN AND IMPACT ANALYSIS**

**EFFECTIVE CLEAR CREEK
WATERSHED**

Date: Dec, 2012 Job No. 1607-1102

LJA Engineering, Inc.

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Scale: 1 Inch equals 2000 feet.



Note:
This exhibit shows pertinent items necessary to illustrate the information described in the text and is not intended to include all physical characteristics of the area.

Data Source:
Aerial Photography - dated December 2010.

LEGEND

- REGIONAL DETENTION SERVICE AREA
- FLOW PATH
- PRE PROJECT SUB-WATERSHED
- HMS COMPUTATION NODE

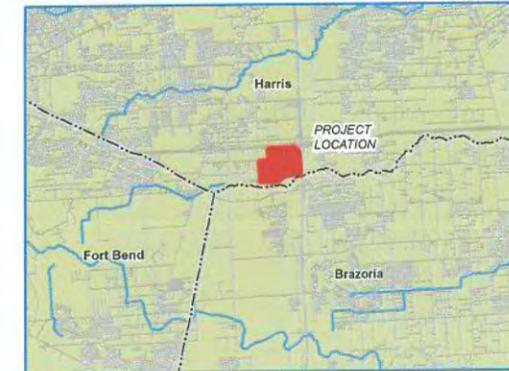
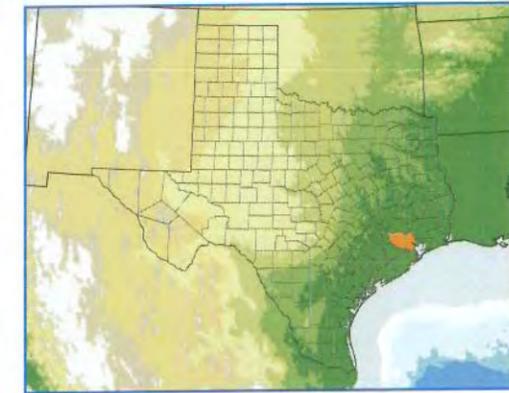
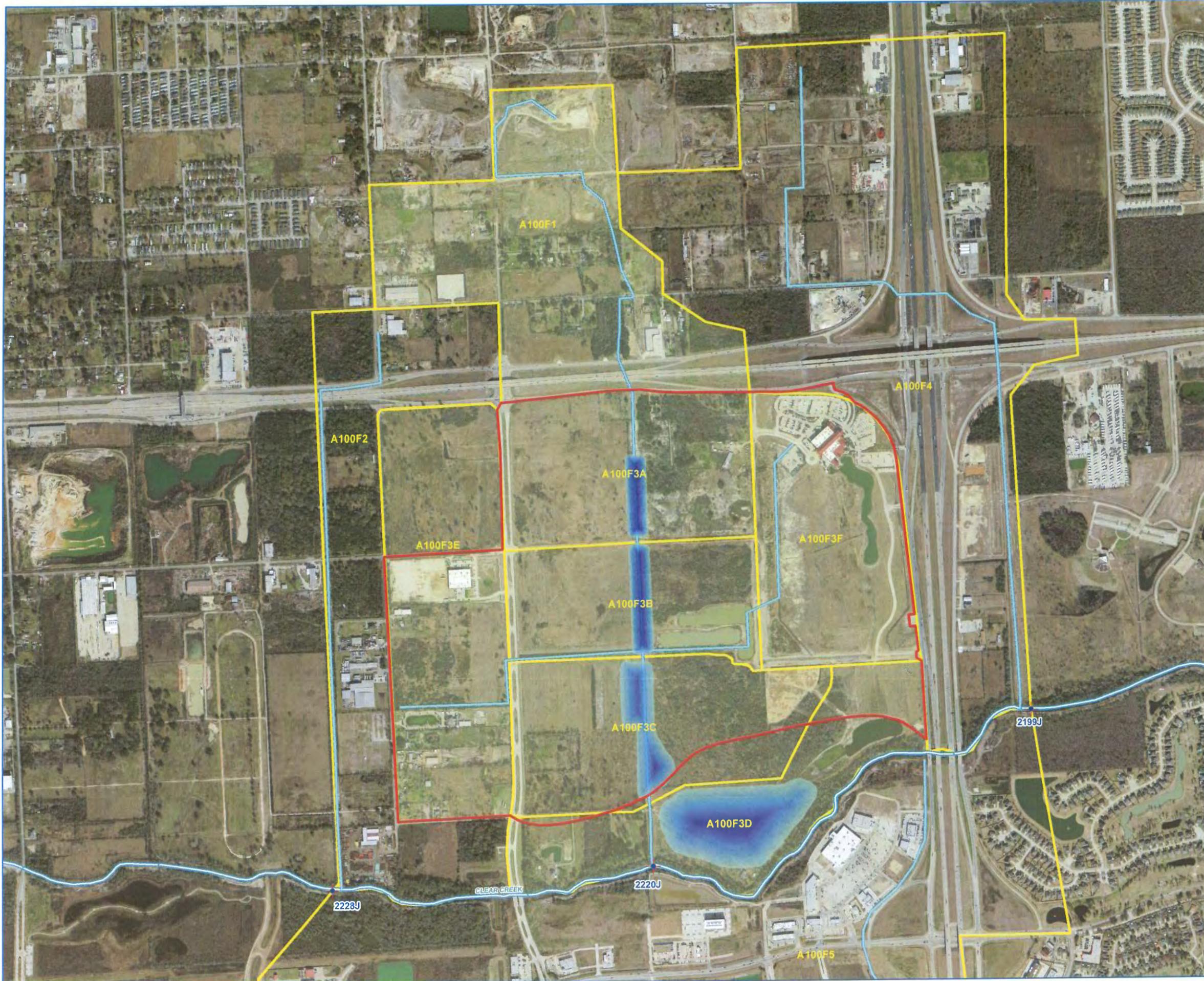
Exhibit 2.2

**LOWER KIRBY REGIONAL DETENTION FACILITY
MITIGATION PLAN AND IMPACT ANALYSIS**

**PRE PROJECT CLEAR CREEK
SUB-WATERSHEDS**

Date: Dec, 2012

Job No. 1607-1102



Scale: 1 Inch equals 1000 feet.



Note:
This exhibit shows pertinent items necessary to illustrate the information described in the text and is not intended to include all physical characteristics of the area.

Data Source:
Aerial Photography - dated December 2010.

- LEGEND**
- PROJECT BOUNDARY
 - FLOW PATH
 - SPECTRUM INTERNAL SUB-WATERSHED
 - + HMS COMPUTATION NODE
 - PROPOSED DETENTION

Exhibit 2.3

**LOWER KIRBY REGIONAL DETENTION FACILITY
MITIGATION PLAN AND IMPACT ANALYSIS
INTERNAL DRAINAGE AREAS**

Date: Dec, 2012

Job No. 1607-1102

3.0 HYDRAULIC ANALYSIS

In accordance with HCFCD Policy, Criteria, and Procedure Manual and City of Pearland Storm Drainage Design Criteria detention facilities will be provided to mitigate developed runoff from the Lower Kirby Regional Development. The proposed drainage and detention system consists of four interconnected ponds that outfall into Clear Creek through a controlled outfall structure.

Analysis of the proposed drainage and detention system needs to generate the following two results:

- The proposed flow into Clear Creek to insure the existing peak flows and water surface elevations are not increased.
- The 10- and 100-year water surface elevations in the proposed lakes to determine the amount of available storage for floodplain and development mitigation.

3.1 Lower Kirby Regional Detention Facility

The hydraulic analysis of The Lower Kirby drainage system used Streamline Technologies, Inc. "Advanced Interconnected Channel and Pond Routing" (ICPR) Ver. 3.02. This program is accepted by FEMA for use with flood insurance studies. The ICPR program dynamically routes storm water through open channels and/or closed conduits and can simulate a variety of complex conveyance systems, including looped systems. ICPR uses conservation of mass and the momentum equation to simulate unsteady hydraulic behavior. This means that bi-directional flow can be modeled and the tailwater elevation at an outfall is considered in the calculations. In its pond routing routine, HEC-HMS cannot consider the effects of tailwater. Therefore, ICPR provides a more "real world" model.

ICPR uses a link → node concept to represent real-world systems. This concept requires that the drainage system be simplified into a network of nodes, or junctions, and links, or reaches. A node is a discrete location in the drainage system where conservation of mass or continuity is maintained. Nodes are placed upstream and downstream of any structure (e.g., weirs, culverts, drop structures). In the ICPR model, a node is placed at each point where a stage calculation is needed. Runoff hydrographs are assigned to nodes. A100F1, and A100F3A through A100F3F are specified as nodes. Additional nodes such as manholes have been added at the upstream and downstream ends of culverts or channel reaches to properly model these connections and to specify other points of inflow.

Links are connections between nodes and are used to transfer or convey water through the system. The entire system of nodes and links forms the nodal network and serves as the computation framework for ICPR.

3.1.1 Detention Facility Modeling

In ICPR, ponds are modeled as level pools. This implies that the water surface within the storage area is flat, and rises or falls uniformly across the surface. A single node was used to model each pond in the Lower Kirby Development using a stage-area relationship to describe the water holding capacity. The stage-area relationship was derived from the Lower Kirby Urban Center Master Development Plan and based on an assumed lake cross section with 4:1 sides to obtain the surface area of the lake at corresponding elevations.

3.1.2 Stage-Area Nodes

Node locations used to model The Lower Kirby Development are shown on an ICPR Schematic in **Exhibit 3.1**. ICPR allows eight node types: stage-area, time-stage, stage-volume and four

node types to simulate manholes each type representing a different floor type and ghost nodes that are used to include information regarding a specific location is the drainage system without including the node in the model for computation purposes. Stage-area nodes were used to represent the detention facilities.

3.1.3 Boundary Nodes

Every drainage system must have boundaries, or limits. While the upstream boundaries of a system typically do not require special consideration, downstream boundaries are important. Downstream boundaries usually occur at locations where stage elevations as a function of time are known (time-stage nodes). Since the Lower Kirby Facility will not contain flap gates or other means to prevent backflows into the system, the boundary condition used in the ICPR model will vary with respect to time as Clear Creek rises then falls over the course of the rainfall event, allowing flows to enter and exit the lake system.

The time-stage data at the outfall point was obtained using the storage-discharge model of Clear Creek from the base conditions HEC-RAS. Multiple profile HEC-RAS run generated a rating curve that was added to the routing in the HEC-HMS model to determine the water surface elevation versus time relationship at the proposed outfall location on Clear Creek. The time-stage relationship was entered into ICPR for the boundary condition at the outfall location. Figure 3.1 below shows a graphical plot of the stage hydrograph boundary condition in ICPR.

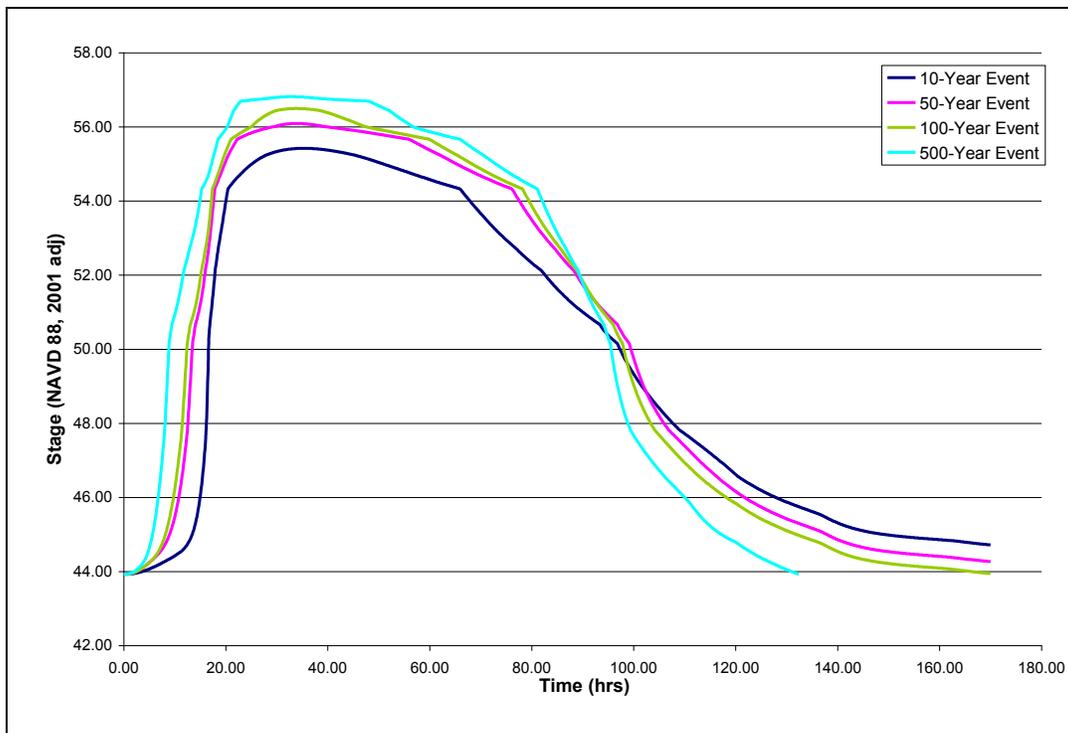


Figure 3.1

3.1.4 Pipes

In The Lower Kirby Development, closed conduit pipes connect the ponds and outfalls. In ICPR link flow direction can be set to both, positive only, or no flow. “Both” is the normal setting and allows flow reversals to occur. The pipe Manning’s roughness coefficient was 0.013 for pre-cast reinforced concrete pipe (RCP). Friction loss was calculated using the average conveyance

method. ICPR automatically determines the flow regime (sub-critical or super-critical) in pipes at every computational time increment. The program then applies the appropriate outlet or inlet condition specified.

Table 3.1 below summarizes the link/node descriptions for the drainage system. Supporting documentation for the ICPR analysis can be found on the CD included with this report.

TABLE 3.1 LOWER KIRBY REGIONAL DETENTION FACILITY SYSTEM					
ICPR Link ID	From Node (U/S)	To Node (D/S)	Link Type	Outfall Description	Control Elevation (ft)
TxDOT	A100F1	A100F3A	Channel	676' Existing TxDOT Ditch	n/a
Riley	A100F3A	A100F3B	Culvert	77' 2-10x8 RCB	n/a
Spectrum	A100F3B	A100F3C	Culvert	100' 3-10x10 RCB	n/a
Fruge	A100F3C	A100F3D	Channel	200' 6'BW 4:1 Sides	n/a
Kirby	A100F3E	A100F3B	Culvert	1221' 2-8x8 RCB	n/a
Poag	A100F3F	A100F3B	Culvert	1200' 2-11x8 RCB	n/a
Outfall	A100F3D	OUT	Culvert	150' 2-72" RCP	44.00

The detention facility will have only one control structure regulating detained runoff into Clear Creek. ICPR Link "Outfall" will restrict flows so that pre project flows are not exceeded. The remaining links were sized to minimize head loss across the structure and therefore maximize the storage capacity in the upstream ponds. This configuration will allow the interconnected ponds to act as essentially one storage reservoir, therefore allowing flexibility in the individual pond size and capacity; as long as the total required storage volume is provided below the prescribed water surface elevation, the system should function as designed. It is recommended, however, that changes to the pond sizes be analyzed to verify the effectiveness of the regional detention system.

3.2 Clear Creek

The impact of the projected development of approximately 385 acres of land will be mitigated by detaining the increased rainfall runoff from the proposed development and provide floodplain storage to replace the storage lost due to reclaiming land from the floodplain. This section details the hydraulic analysis of Clear Creek and shows that the proposed changes will not increase water levels.

3.2.1 Base Conditions HEC-RAS

The Effective HEC-RAS model for Clear Creek released on June 18, 2007 is the source model for the hydraulic analysis. The Lower Kirby Development is located between HEC-RAS section number (SECNO) 223668 and 228828 between Kirby Drive and SH 288. The tract is located along the north floodway fringe of Clear Creek, extending northward to Beltway 8 as shown in Exhibit 1.8.

3.2.2 Revised Base HEC-RAS

A Corrected Effective HEC-RAS model (referred to as "Revised Base model") was created to incorporate current existing features and updates that the effective model did not include. Updates to the effective model include the following:

- Revised flows based on updated storage routing
- Added Kirby Drive bridge and associated fill
- Added cross section 229073 to reflect upstream face of Kirby Drive Bridge

The flows in the base conditions HEC-RAS model are not consistent with flows computed by HEC-HMS as discussed in Section 2. Therefore, a revised base HEC-RAS model was created which uses flows generated from the revised base conditions HEC-HMS model. Also, cross section 229073 was added in the revised base HEC-RAS to depict the upstream face of the Kirby Drive Bridge. The Kirby Bridge, which was not included in the effective model, was added using construction plans for Kirby Drive provided by the City of Pearland.

3.2.3 Pre Project HEC-RAS

The pre project HEC-RAS model was created to isolate all revisions to the base conditions model in order to determine impacts associated only with the development of the Lower Kirby Tract. The following revisions were made to the revised base model to create the pre project model:

- Flows from the pre-project HEC-HMS results replaced the revised existing condition flows.

Table 3.3 summarizes the 10- and 100-year water surface elevations in the vicinity of the project from Cullen Blvd (211277.7) to Almeda School Road (234420.7).

TABLE 3.2 PRE PROJECT CONDITION WATER SURFACE ELEVATIONS			
HEC SECNO	Description	Water Surface Elevation	
		10-year	100-year
211277.7	Upstream of Cullen Blvd	50.49	51.11
212049.2		50.91	51.53
212735.5		51.14	51.69
213290.6		51.34	51.90
213801.7		51.54	52.16
214705.8		51.81	52.46
215408.2		51.85	52.52
216257.9		51.88	52.57
216969		51.92	52.63
217869.1		52.00	52.75
218474		52.17	52.99
219197.5		52.62	53.43
219890.1		53.08	53.94
220697.2		53.47	54.33
221401.5		53.60	54.47
222149.2		53.74	54.65
222868.7		54.09	55.26
223445.1		54.19	55.45
223455	SH 288		
223668.1		54.21	55.58
224031.4		54.22	55.61
225035.7		55.05	56.38
225542.2		55.16	56.44
226430.5		55.30	56.50
227358.8		55.55	56.62
228044.5		55.70	56.77
228828.4		56.21	57.33
228950	Kirby Drive		
229073.3		56.36	57.69
229428.1		56.45	57.79

TABLE 3.2 PRE PROJECT CONDITION WATER SURFACE ELEVATIONS			
HEC SECNO	Description	Water Surface Elevation	
		10-year	100-year
230159.2		56.82	58.01
230878.1		56.99	58.12
231533.3		57.09	58.21
232232.1		57.20	58.29
232999.9		57.36	58.34
233734.5		57.72	58.48
234420.7	D/S Alameda School Rd	58.34	58.73

3.2.4 Post Project HEC-RAS

The primary function of a watercourse and its associated floodplain is the collection, storage and transmission of storm water runoff. A floodplain can be described as nature's prescribed and natural easement along a watercourse. When fill is placed in the floodplain, not only is flow area (conveyance) lost, but the water that is dynamically stored in slow moving streams and floodplains is lost. Reducing conveyance of a watercourse will usually result in increased water surface elevations. Reducing or eliminating this natural storage in a drainage system can increase downstream flow. Neither result is acceptable. Therefore, the impacts of the proposed Lower Kirby development will be mitigated.

Figure 3.2 illustrates a proposed cross section in Clear Creek through The Lower Kirby Development.

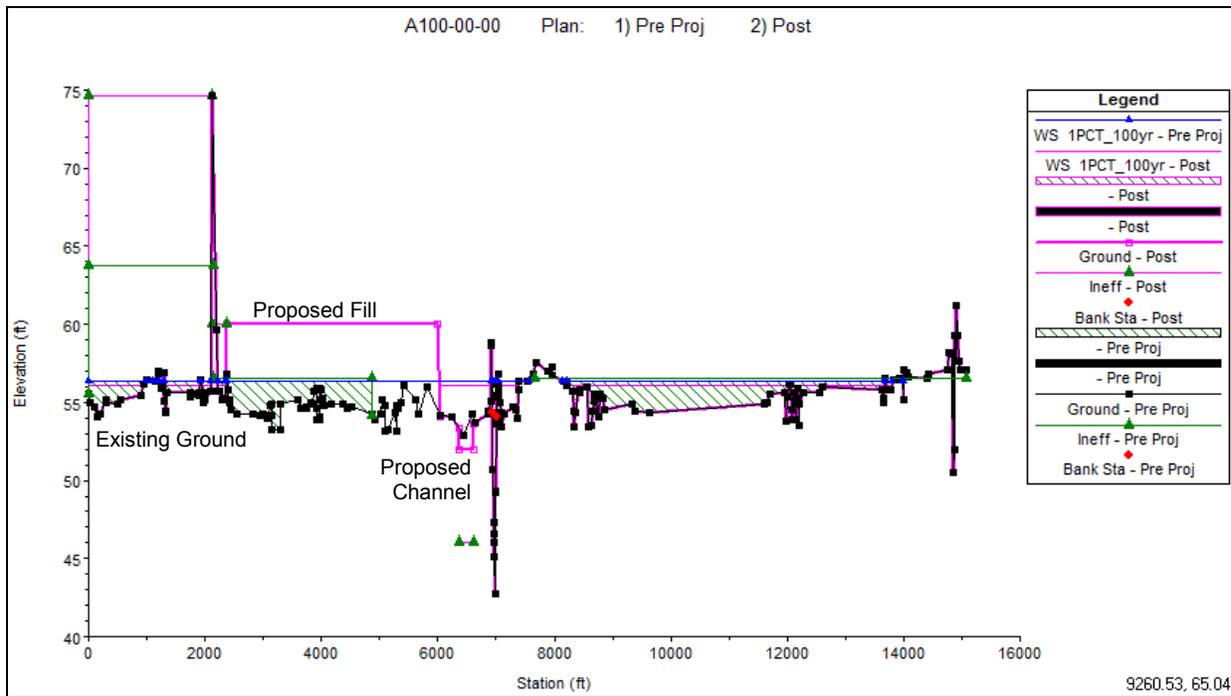


Figure 3.2

The figure shows the proposed cut and fill (pink line) relative to the natural ground (black line) and base flood elevation (blue line). The area shaded by the green hatching is the ineffective flow area. This is the area where the flow is naturally stored and moved along the overbanks at

very slow velocities; typically less than one foot per second. The filled area that is not shaded reflects the effective flow area where flow is being moved along the channel at a higher velocity; typically 3 to 6 feet per second. If the ineffective or effective flow area is reduced, increases to flows and water surface elevations can result. Neither is acceptable.

Approximately 280 acres of the effective Clear Creek floodplain will be filled to reclaim the land for development of the Lower Kirby Tract. The lost floodplain storage (ineffective flow area) will be mitigated with compensatory excavation in the four lakes. The lakes will be hydraulically connected to Clear Creek and will be allowed to fill and drain as Clear Creek rises and recedes, providing the floodplain storage that was lost due to fill.

The loss of conveyance will be mitigated by excavating two channels parallel and adjacent to the north bank of Clear Creek. One channel will be located west of the TxDOT ditch in the same location that a pond was proposed based on the Lower Kirby Master Development Plan, and a second channel will consist of an existing pond that was part of the original Water Lights development. These channels, which will not be hydraulically connected to the proposed detention ponds, will provide compensating conveyance when Clear Creek reaches a specified elevation and overflows into them.

Increased rainfall runoff from the proposed development will be detained. Outflow from the ponds will be controlled as it is released into Clear Creek, such that the release rate is equal to, or less than the existing runoff rate.

Changes to the pre project HEC-RAS model include:

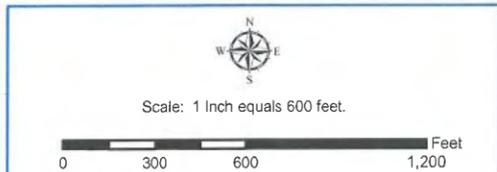
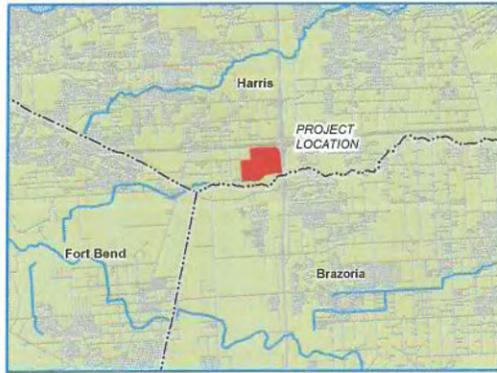
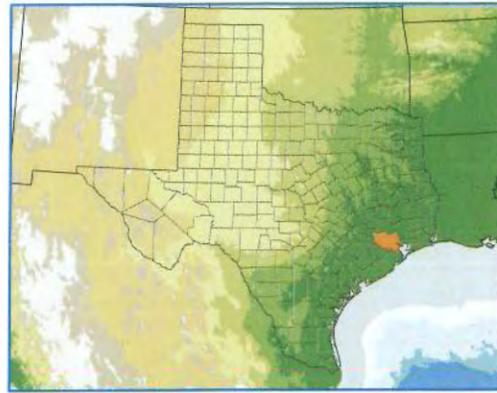
- Fill the left overbanks of Clear Creek above the 100-year BFE in cross section 223668 through 228828 to reclaim the land from the 100-year floodplain.
- Excavate conveyance mitigation channel in cross sections 228044, and 225542 through 224031
- Re-evaluate the storage routing reflecting proposed fill and excavation
- Revise the flows to reflect flows from the post project HEC-HMS model

A summary of the post project 10- and 100-year water surface elevations in the vicinity of the project area for each scenario are shown below. The CD included with this report contains the full HEC-RAS model results for the 10-, 50-, 100-, and 500-year storm events. **Table 3.4** gives the 10- and 100-year water surface elevations in Clear Creek for the Post Project condition.

TABLE 3.3			
POST PROJECT CONDITION WATER SURFACE ELEVATIONS			
HEC SECNO	Description	Water Surface Elevation	
		10-year	100-year
211277.7	Upstream of Cullen Blvd	50.48	51.10
212049.2		50.88	51.52
212735.5		51.10	51.68
213290.6		51.30	51.89
213801.7		51.50	52.14
214705.8		51.77	52.45
215408.2		51.81	52.51
216257.9		51.84	52.56
216969		51.88	52.62
217869.1		51.96	52.74
218474		52.13	52.98

**TABLE 3.3
POST PROJECT CONDITION WATER SURFACE ELEVATIONS**

HEC SECNO	Description	Water Surface Elevation	
		10-year	100-year
219197.5		52.60	53.43
219890.1		53.07	53.94
220697.2		53.46	54.33
221401.5		53.59	54.47
222149.2		53.73	54.65
222868.7		54.08	55.26
223445.1		54.19	55.45
223455	SH 288		
223668.1		54.21	55.58
224031.4		54.21	55.61
225035.7		54.61	56.05
225542.2		54.71	56.14
226430.5		54.96	56.33
227358.8		55.46	56.62
228044.5		55.56	56.76
228828.4		55.81	57.13
228950	Kirby Drive		
229073.3		56.00	57.55
229428.1		56.11	57.67
230159.2		56.70	57.92
230878.1		56.90	58.04
231533.3		57.02	58.13
232232.1		57.15	58.21
232999.9		57.33	58.29
233734.5		57.71	58.46
234420.7	D/S Alameda School Rd	58.34	58.71



Note:
This exhibit shows pertinent items necessary to illustrate the information described in the text and is not intended to include all physical characteristics of the area.

Data Source:
Aerial Photography - dated December 2010.

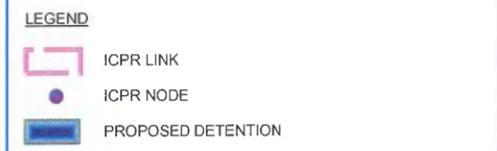


Exhibit 3.1

**LOWER KIRBY REGIONAL DETENTION FACILITY
MITIGATION PLAN AND IMPACT ANALYSIS**

ICPR SCHEMATIC

Date: Dec, 2012 Job No. 1607-1102

LJA Engineering, Inc.

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4.0 RESULTS AND CONCLUSIONS

4.1 Hydrology Results

The HEC-HMS results indicate that the peak 100-year undetained flow from the Lower Kirby Development is approximately 2,331 cfs, but is limited to approximately 715 cfs according to the pre project HEC-HMS model. The proposed detention system for The Lower Kirby Development produces a peak 100-year flow of 477 cfs from the detention facility, which is less than the maximum allowable rate. The 10-year HEC-HMS results conclude that the peak discharge from the detention facility does not exceed the allowable peak flow as well. **Table 4.1** summarizes the peak discharges for The Lower Kirby Development.

TABLE 4.1			
LOWER KIRBY REGIONAL PEAK FLOW COMPARISONS			
Storm Event	Allowable Q ¹ (cfs)	Un-detained Q ² (cfs)	Detained Q ³ (cfs)
10-yr	366	1,494	204
100-yr	715	2,331	477

¹Pre Project HEC-HMS

²Post Project HEC HMS Internal

³ICPR

To incorporate the proposed Lower Kirby Development into the Clear Creek Watershed, post project flows were routed through detention using ICPR using a variable tailwater boundary condition. The results from ICPR produced a hydrograph for the outfall into Clear Creek. The ICPR hydrograph was entered directly into the post project HEC-HMS model of Clear Creek at computation node 2220J. Results of the post project HEC-HMS model at selected points along Clear Creek are compared to the pre project HEC-HMS results in **Table 4.2** below.

TABLE 4.2								
CLEAR CREEK PEAK FLOW COMPARISONS								
HEC-HMS Node	HEC-RAS SECNO	Description	10% Peak Flow (cfs)		1% Peak Flow (cfs)		Pre Project vs Post Project	
			Pre Project	Post Project	Pre Project	Post Project	10%	1%
2385J	239967.4		484	484	1099	1099	0	0
2228J	231533.3		1148	1148	2662	2662	0	0
2199J	222868.7		1148	1148	2662	2662	0	0
2143J	214705.8		1934	1884	3922	3849	-50	-73
1999J	197996.2		2240	2223	4359	4292	-17	-66
1660J	179278.5	Hickory	2910	2905	5443	5433	-5	-11
1601J	165983.9		2910	2905	5443	5433	-5	-11
1271J	129631	A120-00-00	4340	4339	7679	7675	-2	-4
1222J	123196.7	A119-00-00	7718	7717	13312	13308	-1	-4
1052J	106343.5	Mary's	10071	10070	17037	17034	-1	-4
0927J	93497.69	Cowart	12892	12891	22176	22172	-1	-4
0771J	77642.36	Chigger	14379	14377	24474	24471	-1	-4
0702J	72765.55	Magnolia	14755	14753	25242	25239	-1	-4
0601J	61501.83		14757	14756	25244	25241	-1	-4
0556J	55615.42		15332	15331	26212	26209	-1	-3
0366J	36556.81	A107-00-00	15356	15355	26239	26237	-1	-3
0301J	30794.12		15576	15574	26591	26588	-1	-3

TABLE 4.2 CLEAR CREEK PEAK FLOW COMPARISONS								
HEC-HMS Node	HEC-RAS SECNO	Description	10% Peak Flow (cfs)		1% Peak Flow (cfs)		Pre Project vs Post Project	
			Pre Project	Post Project	Pre Project	Post Project	10%	1%
0184J	20859.46	Armand	17123	17122	39144	39144	-1	0
0140J	16112.37	A104-00-00	17705	17705	42985	42985	0	0

4.2 Mitigation Results

Approximately 304 acre-feet of storage is required to detain the developed flows from the Lower Kirby Development, this volume produces a detention rate of 0.65 acre-ft per acre, which is the minimum allowable detention volume for the City of Pearland.

The proposed Lower Kirby Development is located along the left (north) overbank of Clear Creek between SH 288 and Kirby Drive. The floodplain volume in the left overbank of Clear Creek was calculated in HEC-RAS for existing and proposed conditions, and the difference in volume is the volume of displacement from the proposed 280 acres that will be filled to reclaim land from the Clear Creek SFHA. The resulting volume of floodplain storage displaced below the 100-year BFE is 158 acre-feet.

The total volume of detention for the development of the 467 acre Lower Kirby Tract is 462 ac-ft. **Table 4.5** summarizes the results of the required detention volumes for the Lower Kirby Development.

TABLE 4.3 REQUIRED STORAGE VOLUME SUMMARY			
Service Area	Development	Floodplain Storage	Total
(ac)	(ac-ft)	(ac-ft)	(ac-ft)
467	304	158	462

ICPR results included the maximum water surface elevations and corresponding surface area in each of the modeled detention facilities. Using this data, the available storage volume can be calculated. These results are shown in **Table 4.6**.

TABLE 4.4 AVAILABLE STORAGE VOLUME								
Lake ID	Normal Pool Elevation ¹ (ft)	Min. Lake Area (acres)	Max. Lake Area (acres)	Max WSEL ¹ (ft)	Min. WSEL ¹ (ft)	Depth (ft)	Average Area (ac)	Volume (ac-ft)
A100F3A	44.68	0.50	4.40	56.49	44.68	11.82	2.45	28.96
A100F3B	44.22	0.65	6.02	56.49	44.22	12.28	3.34	40.95
A100F3C	44.10	4.50	12.02	56.49	44.10	12.40	8.26	102.42
A100F3D	44.00	27.55	31.74	54.00	44.00	10.00	29.65	296.45
Total Detention Storage Provided=								468.79

¹ NAVD 1988, 2001 adj.

The total storage available in the proposed ponds will provide adequate volume necessary for the total required detention if built as recommended in this report. A surplus storage volume of 6.8 acre-feet is also available, which can be utilized by TxDOT for future SH 288 improvements,

or any other roadway improvement in this vicinity should TxDOT require the additional storage. Additionally, the peak water surface elevation in the regional system will not exceed 56.9', which is the peak elevation discussed in the BGE drainage study for Beltway 8 outfall channel S-2.

As discussed in Section 3; the culverts used to connect the individual ponds were sized to minimize head loss across the structure and therefore maximize the storage capacity in the upstream ponds. This configuration allows the interconnected ponds to act as essentially one storage reservoir, therefore allowing flexibility in the individual pond size and capacity; as long as the total required storage volume is provided below the prescribed water surface elevation, the system should function as designed.

Approximately 6 ac-ft of storage volume in the system has been allocated to TxDOT should it be needed for future improvements to SH 288. Based on the regional detention design, this volume can be disbursed into any of the four ponds. It is recommended, however, that changes to the pond sizes be analyzed to verify the effectiveness of the regional detention system.

4.3 Hydraulic Results

The flows produced by the post project HEC-HMS model were entered into a post project HEC-RAS model and the resulting water surface elevations were compared to the pre project elevations as shown in **Table 4.7**.

TABLE 4.5 CLEAR CREEK WATER SURFACE ELEVATION COMPARISONS							
HEC SECNO	Description	Water Surface Elevation					
		10-Year			100-Year		
		Pre Proj	Post Proj	Diff	Pre Proj	Post Proj	Diff
211277.7	Upstream of Cullen Blvd	50.49	50.48	-0.01	51.13	51.08	-0.05
212049.2		50.91	50.88	-0.03	51.54	51.50	-0.04
212735.5		51.14	51.11	-0.03	51.70	51.66	-0.04
213290.6		51.34	51.30	-0.04	51.91	51.87	-0.04
213801.7		51.54	51.50	-0.04	52.17	52.13	-0.04
214705.8		51.81	51.78	-0.03	52.46	52.44	-0.02
215408.2		51.85	51.82	-0.03	52.53	52.50	-0.03
216257.9		51.88	51.85	-0.03	52.57	52.55	-0.02
216969		51.92	51.88	-0.04	52.63	52.61	-0.02
217869.1		52.00	51.97	-0.03	52.75	52.73	-0.02
218474		52.17	52.14	-0.03	52.99	52.98	-0.01
219197.5		52.62	52.60	-0.02	53.44	53.43	-0.01
219890.1		53.08	53.07	-0.01	53.94	53.94	0.00
220697.2		53.47	53.46	-0.01	54.33	54.33	0.00
221401.5		53.60	53.59	-0.01	54.47	54.47	0.00
222149.2		53.74	53.73	-0.01	54.65	54.65	0.00
222868.7		54.09	54.08	-0.01	55.26	55.26	0.00
223445.1		54.19	54.19	0.00	55.45	55.45	0.00
223455	SH 288						
223668.1		54.21	54.21	0.00	55.58	55.58	0.00
224031.4		54.22	54.21	-0.01	55.62	55.62	0.00
225035.7		55.05	54.61	-0.44	56.38	56.05	-0.33
225542.2		55.16	54.71	-0.45	56.44	56.14	-0.30
226430.5		55.30	54.96	-0.34	56.50	56.33	-0.17
227358.8		55.55	55.46	-0.09	56.64	56.64	0.00

**TABLE 4.5
CLEAR CREEK WATER SURFACE ELEVATION COMPARISONS**

HEC SECNO	Description	Water Surface Elevation					
		10-Year			100-Year		
		Pre Proj	Post Proj	Diff	Pre Proj	Post Proj	Diff
228044.5		55.70	55.56	-0.14	56.77	56.76	-0.01
228828.4		56.21	55.81	-0.40	57.33	57.13	-0.20
228950	Kirby Drive						
229073.3		56.36	56.00	-0.36	57.69	57.58	-0.11
229428.1		56.45	56.11	-0.34	57.79	57.73	-0.06
230159.2		56.82	56.67	-0.15	58.01	57.99	-0.02
230878.1		56.99	56.89	-0.10	58.12	58.11	-0.01
231533.3		57.09	57.01	-0.08	58.21	58.20	-0.01
232232.1		57.20	57.15	-0.05	58.29	58.27	-0.02
232999.9		57.36	57.32	-0.04	58.34	58.33	-0.01
233734.5		57.72	57.71	-0.01	58.48	58.47	-0.01
234420.7	D/S Alameda School Rd	58.34	58.34	0.00	58.73	58.72	-0.01

Digital copies of all the models used in this analysis are contained on a CD in **Appendix A**.

4.4 Conclusions

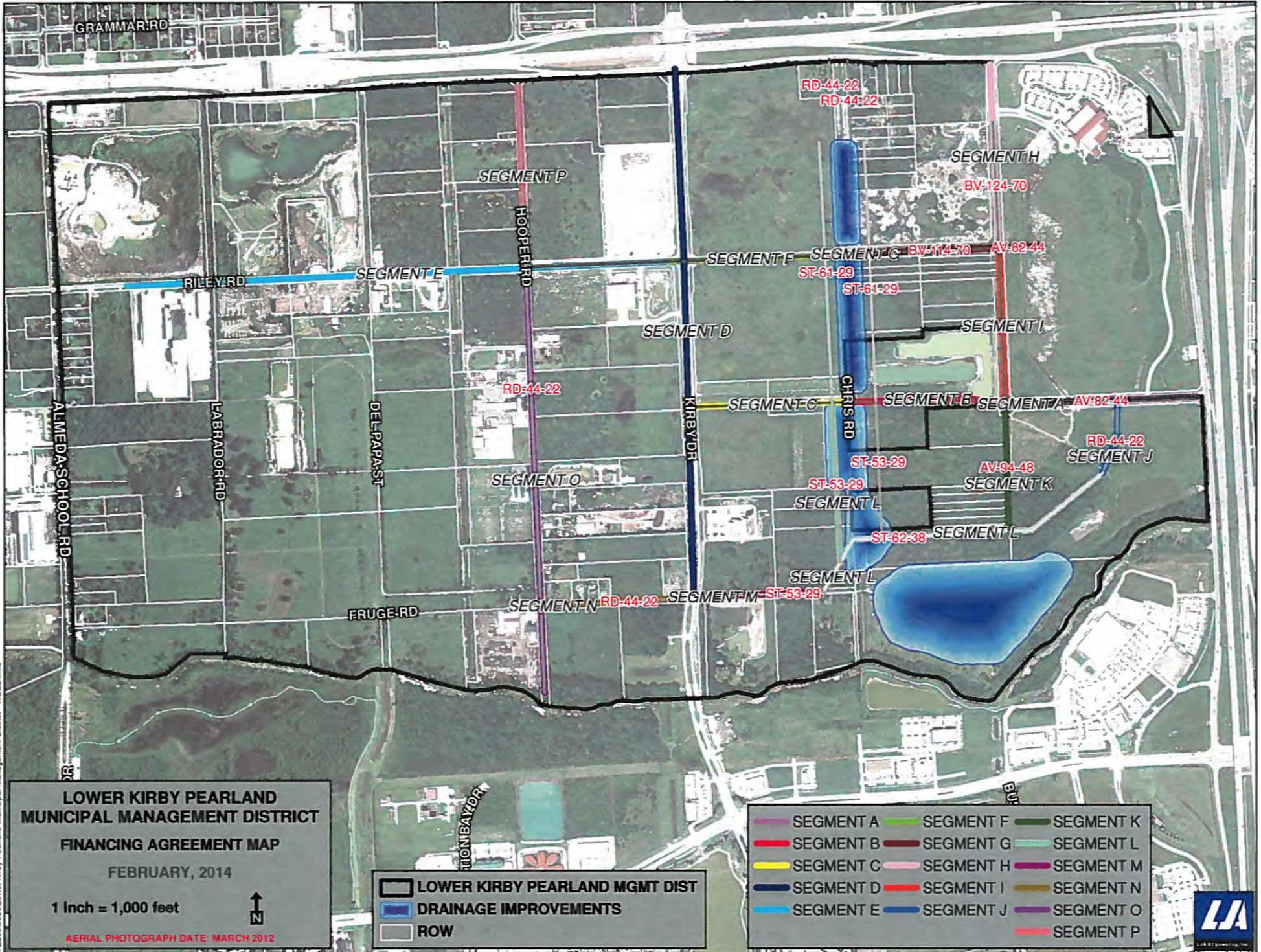
The impact of the projected development of approximately 467 acres of land, including floodplain reclamation will require detention to mitigate the increased runoff from development and to compensate for floodplain storage and conveyance loss as a result of filling the floodplain. A proposed regional detention system will detain the increased rainfall runoff from the development and provide floodplain storage and conveyance mitigation to replace the storage lost due to reclaiming the area in the floodplain. With the implementation of the detention system and the compensatory excavation discussed above, the proposed changes to the Clear Creek Floodplain will be in accordance with National Flood Insurance Program (NFIP) regulations and will not adversely impact the Clear Creek Watershed. The proposed project has no impact to existing flood hazard conditions for storm events up to and including the 100-year event.

For development to occur orderly and economically, proper planning is essential. The drainage analysis presented in this report shows that the proposed development of the 467 acre tract is feasible from a drainage perspective. The proposed design will convey the rainfall runoff to the outfall channels, which will not be adversely affected if the required detention is provided for the development.

Appendix B

Agreement Exhibits

- LKPMD Financing Agreement Map
- LKPMD/PMMD No. 1 City of Pearland Drainage Plan Review Fee
- LKPMD/PMMD No. 1 Financing Agreement Projects – Summary of Costs
- LKPMD/PMMD No. 1 Improvement Shares Exhibit
- LKPMD Construction Cost Estimate
- PMMD No. 1 Construction Cost Estimate
- LKPMD Boundary Map
- LKPMD Proposed Improvements Map



**LOWER KIRBY PEARLAND
MUNICIPAL MANAGEMENT DISTRICT
FINANCING AGREEMENT MAP**

FEBRUARY, 2014

1 Inch = 1,000 feet



AERIAL PHOTOGRAPH DATE: MARCH 2012

- LOWER KIRBY PEARLAND MGMT DIST
- DRAINAGE IMPROVEMENTS
- ROW

<ul style="list-style-type: none"> SEGMENT A SEGMENT B SEGMENT C SEGMENT D SEGMENT E 	<ul style="list-style-type: none"> SEGMENT F SEGMENT G SEGMENT H SEGMENT I SEGMENT J 	<ul style="list-style-type: none"> SEGMENT K SEGMENT L SEGMENT M SEGMENT N SEGMENT O SEGMENT P
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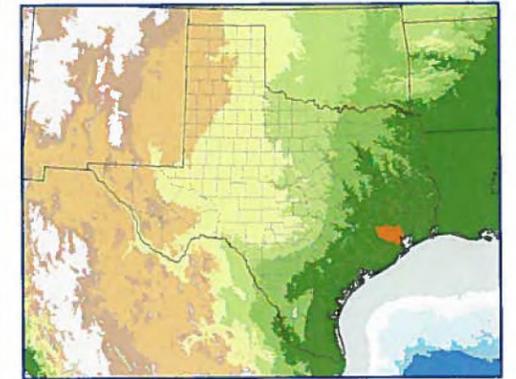
**LOWER KIRBY PEARLAND MANAGEMENT DISTRICT
PEARLAND MUNICIPAL MANAGEMENT DISTRICT NO. 1
CITY OF PEARLAND DRAINAGE PLAN REVIEW FEE**

CITY OF PEARLAND PLAN REVIEW FEE	COST	
Projects 10 acres or less	\$	1,000
Projects greater than 10 acres and up to 20 acres	\$	2,000
Projects greater than 20 acres	\$	3,000

LJA Engineering, Inc.

LOWER KIRBY PEARLAND MANAGEMENT DISTRICT
PEARLAND MUNICIPAL MANAGEMENT DISTRICT NO. 1
FINANCING AGREEMENT PROJECTS
SUMMARY OF COSTS
FEBRUARY 6, 2014

ITEMS	COSTS
Drainage System	\$ 5,064,844
Water System	\$ 622,656
Sanitary Sewer System	\$ 885,938
Detention Ponds	\$ 13,395,313
Water, Sewer, Drainage Total	\$ 19,968,750
Streets	\$ 5,851,563
Electric	\$ 5,596,875
Traffic Items	\$ 2,457,813
Streetscape and Sidewalks	\$ 4,212,500
Street Total	\$ 18,118,750
Contingencies (10%)	\$ 3,808,750
Engineering and Testing (18%)	\$ 6,855,750
TOTAL	\$ 48,752,000



Scale: 1 Inch equals 600 feet.



Note:
This exhibit shows pertinent items necessary to illustrate the information described in the text and is not intended to include all physical characteristics of the area.

Data Source:
Aerial Photography - dated December 2010.

LEGEND

-  LOWER KIRBY IMPROVEMENTS
-  MM1 IMPROVEMENTS
-  SHARED IMPROVEMENTS
-  PROPOSED DETENTION

**LOWER KIRBY REGIONAL DETENTION FACILITY
MITIGATION PLAN AND IMPACT ANALYSIS**

IMPROVEMENT SHARES

Date: Feb, 2014

Job No. 1607-1102

Regional Detention Facility Construction Cost Estimate

Lower Kirby Pearland Management District

Item	Description	Quantity	Unit	Unit Cost	Percent of District Cost	% Break Up
ROW Acquisition		32	AC	64,000	72%	\$ 1,480,704.00
ROW Already Acquired (39 ac) *		1	LS	\$ 1,890,307	72%	\$ 1,366,691.96
Mobilization (5%)		1	LS	\$ 413,010	72%	\$ 298,606.09
Structural Excavation and Placement		769887	CY	\$ 8.00	72%	\$ 4,453,026.41
CONC BOX CULV (10FTX8FT)	Future Riley Road Box Crossing	154	LF	450	72%	\$ 50,103.90
CONC BOX CULV (10FTX10FT)	Future Spectrum Road Box Crossing	300	LF	550	72%	\$ 119,295.00
CONC BOX CULV (12FTX8FT)	Connection from Prudential Tract	2400	LF	450	0%	\$ -
CONC BOX CULV (8FTX8FT)	Box to replace existing Kirby ditch	2442	LF	400	100%	\$ 976,800
CONC BOX CULV (8FTX8FT) (West)	Box to capture 100-YR on W side of Kirby	2000	LF	400	100%	\$ 800,000
RC PIPE (CL III) (72 IN)	Outfall from South Basin to Clear Creek	300	LF	300	72%	\$ 65,070.00
Contingency (20%)		1	LS	\$ 1,652,039	72%	\$ 1,194,424.34
Engineering (12%)		1	LS	\$ 991,224	72%	\$ 716,654.60
Total Construction Cost						\$ 11,521,376.30
Service Area Volume		334	AC-FT			
Cost per Service AC-FT		\$ 34,495				

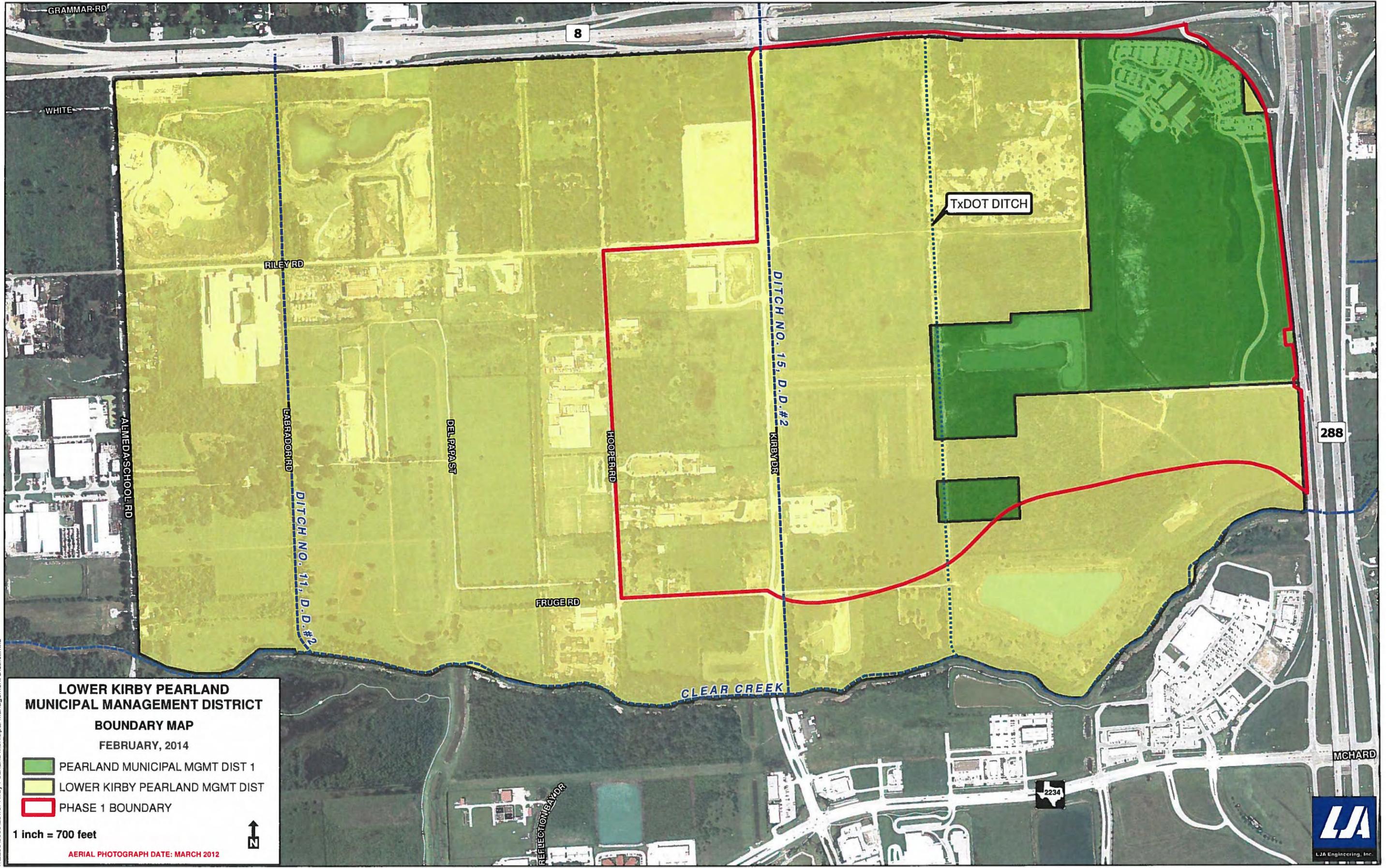
* Area and cost based on actual cost information provided by City of Pearland

Regional Detention Facility Construction Cost Estimate

Pearland Municipal Management District 1

Item	Description	Quantity	Unit	Unit Cost	Percent of District Cost	% Break Up
ROW Acquisition		32	AC	64,000	28%	\$ 567,296.00
ROW Already Acquired (39 ac) *		1	LS	1,890,307	28%	\$ 523,615.04
Mobilization (5%)		1	LS	\$ 378,170	28%	\$ 104,753
Structural Excavation and Placement		769887	CY	\$ 8.00	28%	\$ 1,706,070
CONC BOX CULV (10FTX8FT)	Future Riley Road Box Crossing	154	LF	450	28%	\$ 19,196
CONC BOX CULV (10FTX10FT)	Future Spectrum Road Box Crossing	300	LF	550	28%	\$ 45,705
CONC BOX CULV (12FTX8FT)	Connection from Prudential Tract	2400	LF	450	100%	\$ 1,080,000
CONC BOX CULV (8FTX8FT)	Box to replace existing Kirby ditch	2442	LF	400	0%	\$ -
CONC BOX CULV (8FTX8FT) (West)	Box to capture 100-YR on W side of Kirby	2000	LF	400	0%	\$ -
RC PIPE (CL III) (72 IN)	Outfall from South Basin to Clear Creek	300	LF	300	28%	\$ 24,930.00
Contingency (20%)		1	LS	\$ 1,512,679	28%	\$ 419,012
Engineering (12%)		1	LS	\$ 907,608	28%	\$ 251,407
Total Construction Cost						\$ 4,741,984
Service Area Volume		128	AC-FT			
Cost per Service AC-FT		\$ 37,047				

* Area and cost based on actual cost information provided by City of Pearland



**LOWER KIRBY PEARLAND
MUNICIPAL MANAGEMENT DISTRICT
BOUNDARY MAP
FEBRUARY, 2014**

- PEARLAND MUNICIPAL MGMT DIST 1
- LOWER KIRBY PEARLAND MGMT DIST
- PHASE 1 BOUNDARY

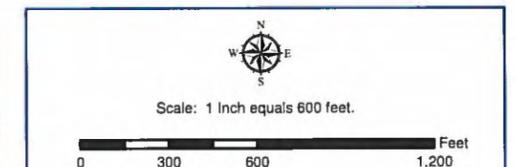
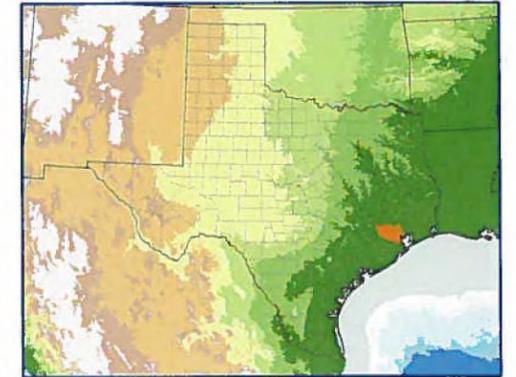
1 inch = 700 feet



AERIAL PHOTOGRAPH DATE: MARCH 2012

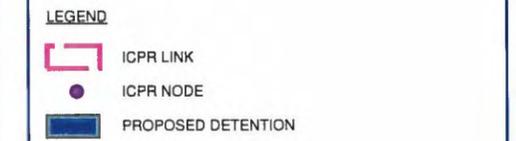
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Note:
This exhibit shows pertinent items necessary to illustrate the information described in the text and is not intended to include all physical characteristics of the area.

Data Source:
Aerial Photography - dated December 2010.



**LOWER KIRBY REGIONAL DETENTION FACILITY
MITIGATION PLAN AND IMPACT ANALYSIS**

PROPOSED IMPROVEMENTS

Date: Nov, 2013 Job No. 1607-1102

LJA Engineering, Inc.

EXHIBIT "D"

LOWER KIRBY PEARLAND MANAGEMENT DISTRICT

_____, 20__

[NOTE: The specific language of each Letter Agreement shall be adapted to the specific project; i.e., for land acquisition only, or design only or for construction only]

CITY OF PEARLAND, TEXAS

Re: Financing for the construction of facilities for Lower Kirby Pearland Management District

Gentlemen:

Lower Kirby Pearland Management District (the "District") and THE CITY OF PEARLAND, TEXAS (the "CITY") entered into a Financing Agreement (the "Agreement") dated _____ to provide for the financing and construction of facilities to serve land within the District. The District and the City have determined to proceed with the design and construction of _____ (the "Project) in accordance with the Agreement. [NOTE: Include specific information about engineer and contracting parties.] The City will make all payments due, including engineering and materials and other testing fees, for the Project, and the District agrees to reimburse the City pursuant to the terms of the Agreement.

This agreement was duly authorized at a meeting of the Board of Directors of the District held on the ____ day of _____, 20__

Very truly yours,

LOWER KIRBY PEARLAND MANAGEMENT DISTRICT

By: _____
President, Board of Directors

AGREED TO AND ACCEPTED this ____ day of _____, 20__.

City of Pearland, Texas

By: _____
City Manager

FINANCING AGREEMENT

THIS FINANCING AGREEMENT (the "Agreement") is entered into as of the ____th day of _____, 2014 by and between PEARLAND MUNICIPAL MANAGEMENT DISTRICT NO. 1, a political subdivision of the State of Texas, organized pursuant to the provisions of Article XVI, Section 59 of the Texas and was duly created by Senate Bill 1813, 79th Texas Legislature, and codified as Chapter 3838, Texas Special District Local Laws Code (the "Act") and Chapter 375 of the Texas Local Government Code, as amended (the "District") and THE CITY OF PEARLAND, TEXAS (the "City").

RECITALS

WHEREAS, the District was created by the Act and is organized for the purpose of promoting, developing, encouraging, and maintaining employment, commerce, transportation, housing, tourism, recreation, arts, entertainment, economic development, parking, infrastructure, safety, public welfare, and water, sewer, and drainage facilities to serve land and development within its boundaries; and

WHEREAS, the District was authorized, at an election held on November 8, 2005, to issue bonds for the purposes of promoting, developing, encouraging, and maintaining employment, commerce, transportation, housing, tourism, recreation, arts, entertainment, economic development, parking, infrastructure, safety, public welfare, and water, sewer, and drainage facilities to serve land and development within its boundaries, but has no funds on hand for such purposes at the present time; and

WHEREAS, the City is agreeable to advancing funds to the District in order to facilitate development and encouraging the fulfillment of the purposes for which the District was created for the Property located in the District (the "Property"); and

WHEREAS, the Board of Directors of the District has determined that it is in the best interest of the District to provide for the design and construction of facilities that promote, develop, encourage, and maintain employment, commerce, transportation, housing, tourism, recreation, arts, entertainment, economic development, parking, infrastructure, safety, public welfare, and water, sewer, and drainage facilities to serve the Property; and

WHEREAS, the City is agreeable to advancing funds to or on behalf of the District for the purpose of promoting, developing, encouraging, and maintaining employment, commerce, transportation, housing, tourism, recreation, arts, entertainment, economic development, parking, infrastructure, safety, public welfare, and water, sewer, and drainage facilities to serve the Property, on the condition that it is reimbursed by the District; and

WHEREAS, the District desires to reimburse the City for expenditures made to further the Project (as such term is hereinafter defined) in accordance with State Law, the Act, and Chapter 375 of the Texas Local Government Code, and for certain of such costs that are reimbursable to the City, only following approval from the Texas Commission on Environmental Quality (the "TCEQ");

AGREEMENT

Now, Therefore, for and in consideration of the mutual promises, covenants, obligations and benefits of this Agreement, the District and the City contract and agree as follows:

ARTICLE I

CONSTRUCTION OF THE PROJECT

Section 1.01: The Project(s). The "Projects" shall be and include the following:

(a) Regional detention pond site acquisition, including related legal, engineering and acquisition fees, acquired pursuant to the implementation of the District's Regional Drainage Plan; the costs are identified in the attached Exhibit "B"; and

(b) Implementation and development of the Regional Drainage Plan, including: engineering, land acquisition, design and construction of drainage facilities to serve the development in the District, whether designed and constructed in phases or at one time; and

(c) Implementation of the Regional Drainage Plan, including engineering design, construction and construction supervision and related costs, as identified in the attached Exhibit "C"; and

(d) Certain water, sewer and drainage facilities and road improvements to promote the orderly development of the District, as identified in the attached Exhibit "A";.

Design and construction costs include costs related to permits, environmental, testing, surveying, inspection and construction and project management. As projects are agreed upon by the District and City, such projects shall be designated in accordance with Section 1.04 of this Agreement. The City and the District shall determine the timing of construction of the phases of the Project so that the Property may be developed pursuant to the development plans of the developers and businesses within the District.

Section 1.02: Design of the Project(s). All facilities to be constructed as a part of the Project shall be designed by the engineer employed by the District (the "Engineer"), or if authorized by the District, by an engineer employed by the City. If the City is pre-financing a Project, the City shall approve the design engineering contracts; and vice-versa if the City is employing its own engineer to design a Project, the District shall approve the design engineering contracts. The design of the Project(s) shall be subject to the approval of all governmental entities with jurisdiction, including, without limitation, the City, Harris County, the TCEQ (if for a water, sewer or drainage project), and the Texas Department of Health (where appropriate).

Section 1.03: Construction and Acquisition of Project(s).

(a) The Project(s) shall be constructed in easements and rights-of-way in the name of the District if such facilities are to be maintained by the District, or if not, in public easements and rights-of-way.

(b) The Project(s) shall be installed and the construction contracts shall be awarded in accordance with the Act and in full compliance with the rules and regulations of the TCEQ, if applicable, and any other local, state or federal agencies having jurisdiction.

(c) The Board of Directors of the District shall authorize the award of the construction contracts, provided that the City authorizes such award.

(d) The Project(s) may be constructed in stages or by sections pursuant to development plans of developers and businesses within the District.

(e) Following completion of construction and acceptance of the Project(s) by the City and the District, the District will acquire, operate and maintain the regional drainage ditches and detention facilities and the City will operate and maintain the water, sewer and storm sewer infrastructure portions of the Project(s) and roadways.

Section 1.04: Subsequent Letter Agreements. As the Project(s) are authorized to be designed in accordance with Section 1.01 and as they are constructed in phases, the District and the City shall execute letter agreements for each design authorization and construction phase, substantially in the form attached as Exhibit "D". The purpose of the letter agreement is to confirm the design and construction of that phase of the Project(s), that the City will pre-finance all associated costs of that phase of the Project(s), and that the City will be reimbursed by the District, all in accordance with the terms and conditions of this Agreement.

ARTICLE II

REIMBURSEMENT FOR FUNDS ADVANCED

Section 2.01: Reimbursement.

(a) The District agrees to make all reasonable efforts to obtain any required approvals for the sale of bonds and to sell the bonds for the purpose of repaying the City at the earliest feasible date, in accordance with this Article II. The District agrees to make partial reimbursement(s) to the City if the conditions set forth herein are satisfied. The District shall be obligated to submit an application to the TCEQ as may be necessary to fund water, sewer or drainage facilities, and, following its approval, to sell bonds to reimburse the City for portions of the Project(s) when the following have occurred as related to the portion of the Project(s) for which the City is being reimbursed:

- (1) For water, sewer and drainage facilities, the economic feasibility rules of the TCEQ are satisfied;
- (2) For such facilities described above in (1), the TCEQ approves the issuance and sale of the bonds;
- (3) For all Projects, the District's priority of reimbursement policy is satisfied;
- (4) For all Projects, the Attorney General of Texas approves the bonds;
- (5) For all Projects, the Comptroller of Public Accounts of the State of Texas registers the bonds.

(b) In order to determine whether the economic feasibility rules of the TCEQ are met, the District shall at least once each year request a certificate of estimated assessed valuation from the Harris County Appraisal District.

(c) When facilities are required to receive TCEQ approval, the District shall be obligated to request TCEQ approval for 100% reimbursement of costs and to pay such percentage of reimbursement, if allowed under the TCEQ Rules.

(d) Upon consummation of the sale of the bonds and approval by the Board of Directors of the reimbursement audit performed in connection with each sale, the District agrees that it will pay the City for all sums advanced to, or on behalf of, the District to the maximum extent permitted under the Rules of the TCEQ, including payment of "developer interest" on the funds so advanced to or paid on behalf of the District. For Projects reimbursed which do not require TCEQ approval to issue bonds, "developer interest" shall be paid at the net effective interest rate of the bonds issued to make reimbursement for the same time period as is allowed under TCEQ rules.

Section 2.02: The City's Obligations. The City shall comply with all of the conditions established by the City relating to the development of the property. In

connection with the reimbursements to the City, the City must provide all information that may be required by the District, its financial advisor, or attorney in connection with the preparation of the bond application and the Preliminary Official Statement or other disclosure documents related to the sale of the bonds and must provide sufficient information to the District's auditor in order that the District's auditor may perform a reimbursement audit following the sale of the bonds.

ARTICLE III

REPRESENTATIONS

Section 3.01: Representations by the City. The City represents that:

(a) This Agreement, the transactions contemplated herein, and the execution and delivery of this Agreement have been duly authorized by the City in accordance with its Home Rule Charter.

(b) This Agreement and the representations and covenants contained herein, and the consummation of the transactions contemplated herein, will not violate or constitute a breach of any contract or other agreement to which the City is a party.

Section 3.02: Representations by District. The District represents and covenants that it will:

(a) use its best efforts to prepare the necessary materials and reports to be filed with the TCEQ for approval of any bond issues (and if TCEQ approval is not required), to sell bonds in an amount sufficient to, among other things, reimburse the City in a timely manner in accordance with this Agreement;

(b) use its best efforts to market and sell its bonds in the manner set forth herein;

(c) use its best efforts to obtain the approval of the Attorney General of Texas of the bonds; and

(d) use its best efforts to reimburse the City upon the terms set forth herein at the earliest practicable time.

ARTICLE IV

DEFAULT

Section 4.01: Default by the City. In the event of default by the City, the District shall be entitled to assume the outstanding contracts and prosecute construction of the facilities to conclusion. In the event the District exercises this option, the District shall

reimburse the City the amount of the advances, less all additional costs incurred by the District, if any, in prosecuting completion of the facilities due to the default, when it is able to issue bonds to finance the particular facilities.

Section 4.02: Default by Either Party. In the event of default by either party hereto, either party may employ attorneys to pursue its legal rights; and the prevailing party shall be entitled to payment by the other party of all reasonable attorneys' fees incurred by the prevailing party.

ARTICLE V

MISCELLANEOUS

Section 5.01: Severability. The provisions of this Agreement are severable, and if any provision or part of this Agreement or the application thereof to any person or circumstance shall ever be held by any court of competent jurisdiction to be invalid or unconstitutional for any reason, the remainder of this Agreement and the application of such provision or part of this Agreement to other persons or circumstances shall not be affected thereby.

Section 5.02: Modification. This Agreement shall be subject to change or modification only with the mutual written consent of the City and the District.

Section 5.03: Assignability. This Agreement shall not be assignable by either party without the prior written consent of the other party, which consent shall not be unreasonably withheld. Upon the request of the City, the District shall acknowledge an assignment of the right to reimbursement hereunder to a lender of the City, so long as said lender is not granted a lien upon any of the facilities constructed as part of the Project(s) and agrees in writing to execute a release and receipt of payment upon any reimbursement.

Section 5.04: Applicable Law. This Agreement shall be governed by, and construed in accordance with, the laws of the State of Texas.

Section 5.05: Parties at Interest. This Agreement shall be for the sole and exclusive benefit of the parties hereto and shall never be construed to confer any benefit upon any third party, except the successor in title to the Property.

Section 5.06: Term. Except as otherwise provided herein, this Agreement shall be in force and effect from the date of execution hereof for a term of 40 years or until the transactions contemplated herein are consummated, whichever first occurs.

Section 5.07: Force Majeure. If either party is rendered unable, wholly or in part, by force majeure to carry out any of its obligations under this Agreement, then the obligations of either party to the extent affected by such force majeure and to the extent

that due diligence is being used to resume performance at the earliest practicable time, shall be suspended during the continuance of any inability so caused to the extent provided but for no longer period. Such cause, as far as possible, shall be remedied with all reasonable diligence. The term "force majeure", as used herein, shall include, without limitation of the generality thereof, acts of God, strikes, lockouts, or other industrial disturbances, acts of the public enemy, orders of any kind of the Government of the United States or of the State of Texas or any civil or military authority, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, hurricanes, storms, floods, washouts, droughts, arrests, restraint of government and people, civil disturbances, explosions, breakage or accidents to machinery, pipe-lines or canals, partial or entire failure of water necessary for operation of the sewer system, or of the District to receive waste, and any other incapacities of either party, whether similar to those enumerated or otherwise, which are not within the control of either party, which either party could not have avoided by the exercise of due diligence and care. It is understood and agreed that the settlement of strikes and lockouts shall be entirely within the discretion of either party, and that the above requirement that any force majeure shall be remedied with all reasonable dispatch shall not require the settlement of strikes and lockouts by acceding to the demand of the opposing party or parties when such settlement is unfavorable to it in the judgment of the affected party.

[EXECUTION PAGE FOLLOWS]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in multiple copies, each of equal dignity, as of the date and year set forth on the first page hereof.

PEARLAND MUNICIPAL MANAGEMENT
DISTRICT NO. 1

By: *Wade D. Rozell*
President, Board of Directors

ATTEST:

By: *Alonzo Dole*
Secretary, Board of Directors

(SEAL)



City of Pearland, Texas

By: _____
City Manager, City of Pearland

New Business Item No. 5

5. **CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-25** – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO ENTER INTO FINANCE LETTER AGREEMENTS WITH THE LOWER KIRBY MUNICIPAL MANAGEMENT DISTRICT AND PEARLAND MUNICIPAL MANAGEMENT DISTRICT NO. 1, AND AN ENGINEERING SERVICES CONTRACT WITH LJA ENGINEERING ASSOCIATED WITH REGIONAL DETENTION FACILITIES.
Mr. Matt Buchanan, President Economic Development Corporation.

**AGENDA REQUEST
BUSINESS OF THE CITY COUNCIL
CITY OF PEARLAND, TEXAS**

AGENDA OF: 03/10/2014	ITEM NO.: Resolution No 2014-25
DATE SUBMITTED: 03/04/2014	DEPT. OF ORIGIN: PEDC
PREPARED BY: Buchanan/ Epperson	PRESENTOR: Matt Buchanan
REVIEWED BY: Coker/Hodge	REVIEW DATE: March 5, 2014
SUBJECT: Lower Kirby - Financing Letter Agreements (FLA) with LKMMD and PMMD No1	
EXHIBITS: 1: R2014-25 2: FLA – Conveyance of Detention Pond 3: FLA – Master Drainage Plan 4: FLA – Preliminary Engineering Report & Phase I Design– LJA Engineers Proposal	
FUNDING: <input type="checkbox"/> Grant <input type="checkbox"/> Developer/Other <input type="checkbox"/> Cash <input type="checkbox"/> Bonds To Be Sold <input type="checkbox"/> Bonds- Sold <input type="checkbox"/> L/P – Sold <input type="checkbox"/> L/P – To Be Sold	
EXPENDITURE REQUIRED: \$183,031 AMOUNT AVAILABLE: \$3,527,485 ACCOUNT NO.: 200-0000-565.01-01 ADDITIONAL APPROPRIATION REQUIRED: None ACCOUNT NO.: PROJECT NO.:	AMOUNT BUDGETED: \$3,550,000 PROJECT NO.:
To be completed by Department: <div style="display: flex; justify-content: space-around;"> Finance Legal Ordinance Resolution </div>	

EXECUTIVE SUMMARY

See Lower Kirby Interlocal Agreement agenda request for summary. We are still awaiting draft financing letters for two items that we will distribute at the meeting.

RECOMMENDED ACTION

Consideration and approval of a resolution authorizing multiple financing letter agreements with the Lower Kirby Municipal Management District and Pearland Municipal Management District No. 1 and a contract for engineering services on behalf of the Districts associated with regional detention and authorizing the City Manager to execute the financing letter agreements and the engineering services contract.

RESOLUTION NO. R2014-25

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO ENTER INTO FINANCE LETTER AGREEMENTS WITH THE LOWER KIRBY MUNICIPAL MANAGEMENT DISTRICT AND PEARLAND MUNICIPAL MANAGEMENT DISTRICT NO. 1, AND AN ENGINEERING SERVICES CONTRACT WITH LJA ENGINEERING ASSOCIATED WITH REGIONAL DETENTION FACILITIES.

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS:

Section 1. Those certain Finance Letter Agreements by and between the City of Pearland, the Lower Kirby Municipal Management District and Pearland Municipal Management District No. 1, copies of which are attached hereto as Exhibits "A," "B," "C," "D," "E" and "F" and made a part hereof for all purposes, are hereby authorized and approved.

Section 2. That certain contract for engineering design services, by and between the City of Pearland and LJA Engineering, a copy of which is attached hereto as Exhibit "G" and made a part hereof for all purposes, is hereby authorized and approved.

Section 3. That the City Manager or his designee is hereby authorized to execute and the City Secretary to attest Finance Letter Agreements with the Lower Kirby Municipal Management District and Pearland Municipal Management District No.1, and a contract for engineering design services with LJA Engineering.

PASSED, APPROVED and ADOPTED this the _____ day of _____,
A.D., 2014.

TOM REID
MAYOR

ATTEST:

YOUNG LORFING, TRMC
CITY SECRETARY

APPROVED AS TO FORM:

DARRIN M. COKER
CITY ATTORNEY

LOWER KIRBY PEARLAND MANAGEMENT DISTRICT
c/o Allen Boone Humphries Robinson LLP
3200 Southwest Freeway, Suite 2600
Houston, Texas 77027

_____, 2014

City Manager
City of Pearland, Texas
3519 Liberty Drive
Pearland, TX 77581

Re: Financing for 72.3% share 38.893-acre Detention Pond

To Whom it may concern:

LOWER KIRBY PEARLAND MANAGEMENT DISTRICT (the "District") and THE CITY OF PEARLAND, TEXAS (the "City") entered into a Financing Agreement (the "Agreement") dated February 6, 2014 to provide for the financing and construction of facilities to serve land within the District. The District and the City have determined to proceed with the conveyance of a 38.893-acre detention pond from the City to the District (the "Detention Pond") in accordance with the Agreement. The City has made all payments related to the Detention Pond in the amount of \$_____ and as outlined in the attached Detention Pond Acquisition Cost Exhibit, which is attached hereto as Exhibit "A", and the District agrees to reimburse the City pursuant to the terms of the Agreement for the District's 72.3% share of the Detention Pond, subject to the terms and conditions of the Agreement.

This agreement was duly authorized at a meeting of the Board of Directors of the District held on the ____ day of _____, 2014

Very truly yours,

LOWER KIRBY PEARLAND MANAGEMENT DISTRICT

By: _____
President, Board of Directors

AGREED TO AND ACCEPTED this ____ day of _____, 20__.

City of Pearland, Texas

By: _____
City Manager

PEARLAND MUNICIPAL MANAGEMENT DISTRICT NUMBER 1
c/o Allen Boone Humphries Robinson LLP
3200 Southwest Freeway, Suite 2600
Houston, Texas 77027

_____, 2014

City Manager
City of Pearland, Texas
3519 Liberty Drive
Pearland, TX 77581

Re: Financing for 27.7% share 38.893-acre Detention Pond

To Whom it may concern:

PEARLAND MUNICIPAL MANAGEMENT DISTRICT NO. 1 (the "District") and THE CITY OF PEARLAND, TEXAS (the "City") entered into a Financing Agreement (the "Agreement") dated February 6, 2014 to provide for the financing and construction of facilities to serve land within the District. The District and the City have determined to proceed with the conveyance of a 38.893-acre detention pond from the City to the District (the "Detention Pond") in accordance with the Agreement. The City has made all payments related to the Detention Pond in the amount of \$_____ and as outlined in the attached Detention Pond Acquisition Cost Exhibit, which is attached hereto as Exhibit "A", and the District agrees to reimburse the City pursuant to the terms of the Agreement for the District's 27.7% share of the Detention Pond, subject to the terms and conditions of the Agreement.

This agreement was duly authorized at a meeting of the Board of Directors of the District held on the ___ day of _____, 2014

Very truly yours,

PEARLAND MUNICIPAL MANAGEMENT DISTRICT
NO. 1

By: _____
President, Board of Directors

AGREED TO AND ACCEPTED this ___ day of _____, 20__.

City of Pearland, Texas

By: _____
City Manager

LOWER KIRBY PEARLAND MANAGEMENT DISTRICT
c/o Allen Boone Humphries Robinson LLP
3200 Southwest Freeway, Suite 2600
Houston, Texas 77027

February 6, 2014

City Manager
City of Pearland, Texas
3519 Liberty Drive
Pearland, TX 77581

Re: Financing for 72.3% share of Master Drainage Plan

To Whom it may concern:

Lower Kirby Pearland Management District (the "District") and THE CITY OF PEARLAND, TEXAS (the "CITY") entered into a Financing Agreement (the "Agreement") dated February 6, 2014 to provide for the financing and construction of facilities to serve land within the District. The District and the City have determined to proceed with the Master Drainage Plan (the "Plan") in accordance with the Agreement, which includes a 72.3% share attributable to the District for its share of the Plan. The City will make all payments due to LJA Engineering & Surveying for work related to the Plan and as outlined in the attached Purchase Order, attached hereto as Exhibit "A" for the Plan, and the District agrees to reimburse the City pursuant to the terms of the Agreement for its 72.3% share of the Plan.

This agreement was duly authorized at a meeting of the Board of Directors of the District held on the 6th day of February, 2014

Very truly yours,

LOWER KIRBY PEARLAND MANAGEMENT DISTRICT

By: 
President, Board of Directors

AGREED TO AND ACCEPTED this ___ day of _____, 20__.

City of Pearland, Texas

By: _____
City Manager

PEARLAND MUNICIPAL MANAGEMENT DISTRICT NUMBER 1
c/o Allen Boone Humphries Robinson LLP
3200 Southwest Freeway, Suite 2600
Houston, Texas 77027

February 6, 2014

City Manager
City of Pearland, Texas
3519 Liberty Drive
Pearland, TX 77581

Re: Financing for 27.7% share of Master Drainage Plan

To Whom it may concern:

Pearland Municipal Management District No. 1 (the "District") and THE CITY OF PEARLAND, TEXAS (the "CITY") entered into a Financing Agreement (the "Agreement") dated February 6, 2014 to provide for the financing and construction of facilities to serve land within the District. The District and the City have determined to proceed with the Master Drainage Plan (the "Plan") in accordance with the Agreement, which includes a 27.7% share attributable to the District for its share of the Plan. The City will make all payments due to LJA Engineering & Surveying for work related to the Plan and as outlined in the attached Purchase Order, attached hereto as Exhibit "A" for the Plan, and the District agrees to reimburse the City pursuant to the terms of the Agreement for its 27.7% share of the Plan.

This agreement was duly authorized at a meeting of the Board of Directors of the District held on the 6th day of February, 2014

Very truly yours,

PEARLAND MUNICIPAL MANAGEMENT DISTRICT
NO. 1

By: *Wade D. Royell*

President, Board of Directors

AGREED TO AND ACCEPTED this ___ day of _____, 20__.

City of Pearland, Texas

By: _____

City Manager

LOWER KIRBY PEARLAND MANAGEMENT DISTRICT
c/o Allen Boone Humphries Robinson LLP
3200 Southwest Freeway, Suite 2600
Houston, Texas 77027

_____, 2014

City Manager
City of Pearland, Texas
3519 Liberty Drive
Pearland, TX 77581

Re: Financing for 72.3% share Preliminary Engineering/Phase I Design

To Whom it may concern:

LOWER KIRBY PEARLAND MANAGEMENT DISTRICT (the "District") and THE CITY OF PEARLAND, TEXAS (the "City") entered into a Financing Agreement (the "Agreement") dated February 6, 2014 to provide for the financing and construction of facilities to serve land within the District. The District and the City have determined to proceed with the Preliminary Engineering Report and Phase I design for the Regional Drainage Plan (the "Project") in accordance with the Agreement. The City will make all payments related to the Project in the amount of \$183,031.00 and as outlined in the proposal from LJA Engineering, Inc., which is attached hereto as Exhibit "A", and the District agrees to reimburse the City pursuant to the terms of the Agreement for the District's 72.3% share of the Project.

This agreement was duly authorized at a meeting of the Board of Directors of the District held on the ____ day of _____, 2014

Very truly yours,

LOWER KIRBY PEARLAND MANAGEMENT DISTRICT

By: _____
President, Board of Directors

AGREED TO AND ACCEPTED this ____ day of _____, 20__.

City of Pearland, Texas

By: _____
City Manager

PEARLAND MUNICIPAL MANAGEMENT DISTRICT NUMBER 1
c/o Allen Boone Humphries Robinson LLP
3200 Southwest Freeway, Suite 2600
Houston, Texas 77027

_____, 2014

City Manager
City of Pearland, Texas
3519 Liberty Drive
Pearland, TX 77581

Re: Financing for 27.7% share Preliminary Engineering/Phase I Design

To Whom it may concern:

PEARLAND MUNICIPAL MANAGEMENT DISTRICT NO. 1 (the "District") and THE CITY OF PEARLAND, TEXAS (the "City") entered into a Financing Agreement (the "Agreement") dated February 6, 2014 to provide for the financing and construction of facilities to serve land within the District. The District and the City have determined to proceed with the Preliminary Engineering Report and Phase I design for the Regional Drainage Plan (the "Project") in accordance with the Agreement. The City will make all payments related to the Project in the amount of \$183,031.00 and as outlined in the proposal from LJA Engineering, Inc., which is attached hereto as Exhibit "A", and the District agrees to reimburse the City pursuant to the terms of the Agreement for the District's 27.7% share of the Project.

This agreement was duly authorized at a meeting of the Board of Directors of the District held on the ____ day of _____, 2014

Very truly yours,

PEARLAND MUNICIPAL MANAGEMENT DISTRICT
NO. 1

By: _____
President, Board of Directors

AGREED TO AND ACCEPTED this ____ day of _____, 20__.

City of Pearland, Texas

By: _____
City Manager

February 12, 2014

Ms. Jennifer Lee
Project Manager
City of Pearland
3519 Liberty Drive
Pearland, Texas 77581

Re: Lower Kirby Regional Detention Master Plan and Phase 1 Design
LJA Proposal No. 13-07767

Dear Ms. Lee:

We are pleased to submit this proposal to City of Pearland to develop a Master Plan for the ultimate build out of the Lower Kirby Regional Detention Facility located at the southwest corner of SH 288 and Beltway 8 just north of Clear Creek. LJA recently completed an impact analysis of the project area and will use this knowledge to build on for this next phase of the project.

Based on discussions from the project meeting September 11, 2013, LJA will prepare a scope to develop an analysis of the existing TxDOT ditch, a Master Plan document to assist the City for future development, an analysis of the SH 288 detention requirements, and Phase 1 construction plans. Field survey of the existing TxDOT ditch is included as well as environmental review of the project to obtain a jurisdictional determination of any wetlands in the area and guidance for permitting. Below the items are discussed in detail.

Scope of Services

Preliminary Design Phases Services

Data Collection

1. Attend Design Kick-off meeting with City to review City's objectives
 - a. Refine, define, and agree on project scope and limits
2. Review adjacent projects, current and future, to identify any interplay or impact to or from subject project
 - a. Identify any requirements stemming from this relationship if it exists
3. Identify existing data sources and resources currently held by the City and make arrangements to obtain this information
4. Identify any gaps in this data and make arrangements to supplement through other sources, specifically:
 - a. Surveys
 - b. Environmental

5. Prepare and submit preliminary Engineering Reports consisting of the following:

a. TxDOT Existing Ditch Capacity Analysis

- i. Develop hydrology for current existing drainage flows to the TxDOT ditch for the 1-percent exceedance probability event.
- ii. Field survey will be obtained and used to develop a hydraulic model of the existing TxDOT ditch. The model will use the existing outfall structure without any proposed connections to the future detention basin.
- iii. Using the developed hydraulic model for the 1-percent exceedance probability event, a capacity of the current existing configuration of the ditch will be determined. Based on available conveyance capacity and storage, a developable land area value will be created. This land area value can provide the City guidance on an interim basis for development in the project area.
- iv. A Technical Memorandum will be developed summarizing the findings and presented to the City for review and approval.

b. Drainage Master Plan

- i. Using the recommendations from the July 2013 LJA drainage impact report for Lower Kirby area, a Master Plan for ultimate build out will be developed. This document will provide maximum right-of-way needs for the improved TxDOT ditch and maximum expansion of the existing borrow pit for a regional detention basin.
- ii. Hydrologic and hydraulic models will be developed in a phased manner to allow the City to determine when a new phase of construction will be appropriate.
- iii. Exhibits will be included in the Master Plan for future acquisition of land required for the TxDOT ditch expansion. No metes and bounds description will be included in this effort.
- iv. A report will summarize the phased modeling outcomes and ultimate land requirements for the project. A phasing plan will show the suggested stages of channel/detention development and property exhibits will show the required land from each adjacent property owner. A preliminary construction cost estimate will be included.

Environmental

1. Field environmental work will review the existing TxDOT ditch alignment to include ultimate widths including outfall, review north bank of Clear Creek, and the proposed detention expansion area. The detention area is a review of previous work due to the time limit of any jurisdictional determination for wetlands would have expired.
2. Threatened and endangered species will be reviewed for the study area

3. Cultural resources will be investigated for the project site.
4. A pre-submittal meeting with USACE regulatory personnel will be scheduled to discuss the best Nation Wide Permit to submit for Phase 1.

Coordination

1. Coordinate with City of Pearland, TxDOT, surveying, and environmental consultant throughout the project. Included is a maximum of 6 meetings. Coordination with TxDOT will include time at the beginning of the project to obtain plans and information on the TxDOT channel as well as presenting the proposed scenario and obtaining their approval for improvements to the ditch.

Project Management

1. Submit monthly progress reports to the City including updated schedule. The monthly reports will be broken down by task and will show percent complete for each task as well as budget spent. The reports will be submitted with monthly invoice.
2. Attend monthly progress meetings and prepare agendas, meeting minutes, etc. as required

Design Phase Services

Phase 1 Construction Plans

1. LJA will create plan and profile sheets on 22" x 34" sheet size at a horizontal scale of 1" = 20' and a vertical scale of 1" = 2' for the channel portion of the project. Existing utilities, existing property ownership, proposed channel flowline, proposed drainage structures, and erosion control structures will be shown on the plan and profile sheets. Cross-sections will be cut at 200-foot intervals for the project. Storm Water Pollution Prevention Plan sheets (1" = 100') will be prepared for the channel improvement project including details. Other channel sheets will include drainage area map, miscellaneous detail sheets, typical sections, survey control and standard details. Any wetland areas will be shown on the plans based on GPS information provided by the environmental consultant.
2. At this time, Phase 1 plans will include the cleaning out of the existing TxDOT ditch to provide additional capacity and repairing side slopes along the east side as necessary, replacing and/or upsizing Fruge culvert crossing, the inflow connection between TxDOT ditch and the detention basin, the outfall from the detention basin to TxDOT ditch, and minor grading around detention basin. At this time the west side of the ditch is in good condition and should not require side slope repair effort.
3. 30%, 60% and 90% submittals will be made to the City for review and comment.
4. LJA will attend and present final Phase 1 design of the project at the Technical Review Committee meeting to City staff.
5. Fully develop engineer's construction cost estimate for each item of work including plan quantities.
6. Prepare bid sheet identifying each item and its planned quantity and include supplemental work items.

Additional Services

Field Surveying

1. A detailed topographic survey will be conducted by taking cross sections every 200 feet from 100 feet outside of the existing TxDOT easement both sides north of the Kirby ditch and varying on the TxDOT ditch south of Kirby ditch depending on the proposed ultimate width. Survey will go 50 feet outside of the ultimate width to cover possible revisions. All cross sections are to be surveyed perpendicular to the R.O.W. All abrupt changes in elevations are to be surveyed. At all road crossings, the profile of the road centerline is to be surveyed. The roadway profiles at all crossings are to be surveyed as if the surveyor is looking downstream. All vertical control will be based on NAVD 1988 datum with 2001 adjustment.
2. LJA will contact property owners and obtain right of entry for surveying as well as environmental field work.
3. All adjoining properties for the TxDOT ditch will be researched and property corners located in the field. An overall property map and proposed acquisitions will be developed for the City along the TxDOT ditch. No individual acquisition parcels or metes and bounds descriptions will be completed for this scope

This Scope of Services does **not** include:

- Submittals to FEMA for LOMR or CLOMR of recommended alternative.
- Additional geotechnical effort
- SUE field work or record research for existing utilities.

Project Cost

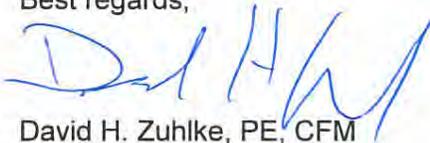
The proposed cost of the project is \$183,031.00. Environmental, Coordination and Project Management services will be completed on a Time and Material, Not to Exceed basis. The remaining tasks will be completed on a Lump Sum basis and invoiced monthly.

Schedule

For the TxDOT Capacity Analysis, the summation memorandum will be completed within 60 days of notice to proceed. The Drainage Master Plan will be completed 60 days after the capacity analysis.

We appreciate the opportunity to submit this proposal, and look forward to working with you on this project. If you have any questions, please call me at 713.953.5076.

Best regards,



David H. Zuhlke, PE, CFM
Division Manager of Water Resources

DHZ/rp



ENVIRONMENTAL CONSULTANTS

Sound Science. Creative Solutions.

Houston Office
7255 Langtry, Suite 100
Houston, TX 77040
Tel 713.934.9900 Fax 713.934.9906
www.swca.com

September 18, 2013

David H. Zuhlke,
Division Manager of Water Resources
LJA Engineering, Inc.
2929 Briarpark Drive Suite 600
Houston, Texas 77042

Re: City of Pearland Regional Detention Facility Permitting

Dear Mr. Zuhlke:

Thank you for the opportunity to propose our environmental consulting services in support of the City of Pearland's (COP) efforts to obtain United States Army Corps of Engineers (USACE) authorization for the development of a regional detention facility near the intersection of the Sam Houston Tollway and State Highway 288. Based on our discussions with LJA Engineering (LJA), SWCA understands that LJA, as the project engineer, intends to construct as many as three new detention ponds, and modify an existing pond in the southwest corner of the property to develop this regional detention facility. The new ponds, to be excavated from within the right-of-way of an existing Texas Department of Transportation (TxDOT) stormwater ditch, will be interconnected and discharge to the existing modified pond. This system of ponds will discharge into the existing TxDOT ditch which ultimately discharges to Clear Creek, a water of the U.S. that flows along the southern boundary of the property and discharges into Clear Lake.

It is our understanding that LJA is requesting that SWCA perform the required natural and cultural resources investigations necessary to achieve regulatory compliance under the Clean Water Act (CWA), and to submit (if required) a Pre-construction Notification (PCN) for Nationwide Permit 7 to the United States Army Corps of Engineers for the construction of an outfall and control structure from the existing pond into the existing TxDOT ditch. Pursuant to this understanding, SWCA has developed the following scope of services to ensure the proposed project is compliant with the regulations and general conditions of the Nationwide Permit program.

TASK 1: WETLAND DELINEATION AND REPORT

In December 2006, SWCA conducted a wetland delineation on the 44-acre parcel in which the COP is proposing to modify the existing detention pond. At that time, SWCA located one small wetland in the southwest corner of the survey tract. Since that time, the USACE has adopted new rules regarding how wetland delineations are to be performed and documented. Therefore, it will be necessary for SWCA to re-delineate the areas previously surveyed as well as the additional

areas identified consistent with the new guidelines and publish our findings within a report suitable for submission in support of a PCN. SWCA understands project area will include:

- The approximately 44-acre COP parcel abutting Clear Creek to the north and south of the Lower Kirby Retention Detention Facility (LKRDA) project area,
- A 200-foot wide corridor (400-foot total) on east and west side of the existing TxDOT ditch between the Sam Houston Tollway access road and the Kirby drainage ditch, and
- A 300-foot wide corridor (600-foot total) on east and west side of the existing TxDOT ditch south of the Kirby drainage ditch to the southern boundary of the LKRD project area.

SWCA will conduct a field wetland and ordinary high water mark (OHWM) delineation following the technical standards and procedures described in the *1987 USACE Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement)*. Based on these guidelines, SWCA will investigate the project area for the presence or absence of areas possessing wetland characteristics: (hydrophytic vegetation, hydric soils, and wetland hydrology), where present, and delineate the boundaries of those areas. The OHWM of any waterbodies within the subject tract boundaries will also be delineated. An OHWM is a line on the banks of water course established by the fluctuations of water as indicated by a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of debris, or other appropriate means that consider the characteristics of the surrounding areas.

In accordance with the Galveston District USACE's *Standard Operating Procedure (SOP) for preparing surveys for jurisdictional delineation verifications with Global Positioning Systems (GPS)*, SWCA will use a Trimble differentially real-time corrected GPS to geographically reference features including data points, wetland boundaries, and OHWM boundaries obtained during the field investigation. The SOP requires the duplication of 10% of wetland boundary points and creating a data set verifying the accuracy of the GPS data.

SWCA will prepare a wetland delineation report summarizing this investigation that describes the waters and wetlands identified within the project area. Estimates of acreage and/or linear-feet of potential "waters of the U.S." based on the field effort will be described. The report will include maps, photos, and representative descriptions of all vegetation community classes encountered.

For budgeting purposes, SWCA estimates that a two-person team will complete the field efforts for the project area in 2 days, assuming no weather-related delays are encountered. The wetland delineation report will be completed three weeks after the field work is finished.

Estimated Cost for Task 1: **\$7138.00**

TASK 2: THREATENED AND ENDANGERED SPECIES EVALUATION

To use NWP for project authorization in waters of the United States, General Condition 17(c) requires non-Federal applicants to identify federally-listed threatened or endangered species and/or their designated critical habitat that may be affected by the proposed work.

SWCA will review the U.S. Fish and Wildlife Service (FWS) and the Texas Parks and Wildlife Department (TPWD) threatened and endangered species lists for Harris County, Texas. Based on this review, SWCA will observe the project site during the delineation field visit, for the presence of listed species and/or potential habitat. SWCA will collect general data on the site characteristics and formulate an opinion on the presence of listed species or their habitats. Additionally, SWCA will prepare and submit a Texas Natural Diversity Database Review request regarding the listed species on the project.

SWCA will discuss our findings and conclusions from the database review and site visit and provide our results in the form of a letter report as supporting documentation for a Pre-Construction Notification (PCN).

Estimated Cost for Task 2: **\$2902.00**

TASK 3: CULTURAL RESOURCE INVESTIGATIONS

To use NWP for project authorization to work within waters of the United States, General Condition 20(c) requires non-Federal applicants to identify culturally significant sites and historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places that might be affected by the proposed work. Therefore it will be necessary to perform the required cultural resource investigation to ensure compliance under this condition.

Task 3a: Review, Pre-field Preparations and Agency Coordination

SWCA will conduct a thorough background archaeological literature and records search of the project area. For this research, an SWCA archaeologist will search site files, records, and maps files on the Texas Historical Commission's (THC's) Texas Archeological Sites Atlas (Atlas) online database for any previously recorded surveys and historic or prehistoric archeological sites located in or near the project area. In addition, the Atlas review will provide the location of any National Register of Historic Places (NRHP) properties, State Antiquities Landmarks (SALs), Official Texas Historical Markers (OTHMs), Registered Texas Historic Landmarks (RTHLs), cemeteries, and local neighborhood surveys.

This task also includes time for the project archaeologist to make arrangements for crew, rentals, etc. as well as coordinating access and timing of the field investigations with the client. Time is also included for the Project Manager to track the budget and project and ensure that invoicing is conducted properly and efficiently. Agency coordination will be primarily conducted by the Principal Investigator (PI), and will include determining the level of regulatory compliance with the THC and fulfilling all project requirements for methods and reporting throughout the course of the project. Because the project is sponsored by a political subdivision of the State of Texas,

the City of Pearland, and will be constructed within one or more public easements, a Texas Antiquities Code (TAC) Permit will be required prior to the onset of any field investigations.

Time estimate: 3-5 days to prepare TAC Permit and obtain requisite signatures; 5-7 days for THC review and authorization.

Estimated Cost for Task 3a: \$1,530.00

Task 3b – Phase I Archeological Survey

Upon receipt of the TAC Permit, SWCA will undertake an intensive archaeological survey of the project area. The survey will be of sufficient intensity to determine the nature, extent, and, if possible, significance of any cultural resources located within the proposed project area. The survey will meet all THC minimum archaeological survey standards for such projects with any exceptions thoroughly documented. The field survey will consist of one team of SWCA archaeologists walking the entire project area. During the survey, the archaeologists will be examining the ground surface for cultural resources. Subsurface explorations to be utilized during the survey include shovel testing. The utilization of shovel tests will be keyed to the level of disturbance of the proposed project and the nature of the soils, geology, and topography.

Shovel tests will be excavated in 20-cm arbitrary levels to 1 m in depth or to culturally sterile deposits, whichever comes first. The matrix will be screened through ¼-inch mesh. The location of each shovel test will be plotted using a GPS receiver, and each test will be recorded on appropriate project field forms. Areas with previously recorded sites or other cultural resources will require additional shovel testing to explore the nature of the cultural deposits. For reference, THC survey standards call for a minimum of 1 shovel test per 2 acres for projects of this size. If sites are encountered, a minimum of 6 shovel tests will be excavated per site. Shovel tests will be excavated to the depth of project impacts. If it is found that they cannot adequately explore project impacts in soils with potential to contain buried archaeological materials, backhoe trenches will be recommended. No backhoe trenching is included in this cost estimate.

If an archaeological site is encountered in the proposed project area during the investigations, it will be explored as much as possible with consideration to land access constraints. Any discovered sites will be assessed in regards to potential significance so that recommendations can be made for proper management (avoidance, non-avoidance, or further work). Additional shovel tests will be conducted per THC standards at any discovered sites to define horizontal and vertical boundaries. Appropriate State of Texas Archaeological Site Data Forms will be filled out for each site discovered during the investigations. A detailed plan map of each site will be produced and locations will be plotted on USGS 7.5-minute topographic maps and relevant project maps.

Time estimate: 1-day effort following issuance of TAC Permit; effort completed within 5-7 days of TAC Permit issuance

Estimated Cost of Task 3b: \$1,682.00

Task 3c – Archeological Report Production

Once the fieldwork has been completed, SWCA will begin work on a report of the investigation for submittal to the client and involved regulatory agencies. The report will be in conformance with all NHPA report guidelines. The report will detail the methodology used in the investigations, background environmental and cultural information, the presence and condition of previously recorded sites and any cultural resources encountered during the archaeological survey, recommendations on the need for further work (if any), and the potential significance of the cultural resources in regards to future development and eligibility for listing on the National Register of Historic Places. Draft copies of the report will be submitted to the client for review and comment. Once this has been accomplished, any appropriate edits will be made and a draft report will be submitted to the THC for review. The Texas Antiquities Code also requires that one hard copy and one electronic copy of the final report be submitted once the project is completed. In addition, all recovered artifacts and documentation must be curated at an approved repository. In this case, if artifacts are recovered and curation is needed, SWCA will use the Texas Archaeological Research Laboratory in Austin. Curation involves preparing the artifacts (washing, labeling, cataloging, etc.) and paying a fee for storage space.

Time estimate: Draft Report delivered within 15 days of completion of all field work

Estimated Cost of Task 3c: \$2,860.00

Estimated Total Cost TASK 3: **\$6,072.00**

TASK 4: PROPOSED STORMWATER POND OUTFALL AND WEIR PCN

The modified detention basin will require an outfall structure to drain into TxDOT Stormwater ditch. SWCA anticipates that the proposed outfall may be authorized by NWP 7. The determination of the appropriate NWP and requirement to submit a PCN depend on project design and anticipated impacts to waters of the United States, as established through the results of the delineation efforts (Task I).

If necessary, SWCA will prepare a PCN for the appropriate NWP. SWCA will coordinate with LJA to obtain necessary project design information including plan and profile drawings of the proposed outfall structure that will be included with the PCN package. The PCN will also include reports of findings for the threatened and endangered species and cultural resources investigations. The wetland delineation report will be an attachment to the PCN. The PCN will be submitted seeking a Preliminary Jurisdictional Determination (PJD), which will expedite processing time but will not allow USACE jurisdiction to be contested. The PJD is typically a

desktop evaluation of the delineation of waters of the United States and does not require a field verification visit with the USACE.

Once a PCN has been submitted to the USACE, they will have 30 days to determine if the PCN is complete or request additional information. SWCA will coordinate with the USACE to ensure that the USACE has received all required information and reduce USACE processing time as much as possible. Although dependant on the USACE's workload at the time of the permit application, USACE-Galveston District processing of an NWP is anticipated to take up to 45 days from the date they have they determined the PCN to be complete to the date of issuing an authorization letter.

If a PCN is determined unnecessary based on project design and impacts to waters of the United States, SWCA will prepare a document justifying the lack of necessity in preparing and submitting a PCN. Justification will be based on NWP language, conditions, and PCN requirements and will also note important NWP conditions that will apply to the project. Although a PCN may not be required, the project will still be authorized under a NWP; therefore, all applicable nationwide and regional conditions will apply to the design and construction of the outfall structure.

Total Cost for Task 4: **\$6,500.00**

ADDITIONAL ASSUMPTIONS

The following assumptions regarding the project were used in developing the scope of work and estimated cost:

1. Each field crew will be able to work full 10-hour days. SWCA field crews will conduct their own morning tailgate safety meetings within this 10-hour day. This estimate does not include additional morning or evening meetings required by the client or land agent.
2. The outfall location will be visually staked or accurate coordinates of the outfall location will be provided prior to conducting the delineation and cultural resources survey.
3. SWCA has not anticipated or assumed the need for client and/or USACE meetings. Such meetings, as necessary or requested, are beyond this scope of work and will be invoiced in accordance with the attached Rate Schedule.
4. LJA will provide engineering plans and cross-sectional drawings of the proposed project, which will incorporate boundaries of waters of the United States;
5. LJA will provide calculations for the approximate amount of material to be placed (cubic yards) below the OHWM;
6. Archaeological artifact curation fees are not included in this proposal. In the unlikely event that artifacts requiring curation are collected, a change order will be necessary to cover the cost of curating them at an approved facility. This will be invoiced at cost plus 10 percent.
7. The proposed discharge effluent will be stormwater only. Wastewater effluent requires a separate permit from the Texas Commission on Environmental Quality and is not considered within this scope of work.

8. This scope of services only covers documentation required to support the submission of a PCN for authorization under a Nationwide Permit. Should this project require an Individual Permit from the USACE Galveston district, SWCA will prepare a separate scope of services and cost estimate to obtain such authorization.

COST AND SCHEDULE

SWCA proposes to invoice our services on a time and materials basis at an estimated cost not to exceed **\$22,612.00** for the services described above. Each of the tasks enumerated above may be performed independently of each other and authorized separately based upon the client's requirements. Invoicing will be once per month.

Services will be rendered per our "Consulting Services Agreement", dated November 30, 2012. If you find the scope of services, terms, and costs of this proposal to be acceptable, please contact me to initiate contracting. SWCA is prepared to begin work immediately following individual authorization from LJA.

SWCA is grateful for the opportunity to provide this scope, schedule and cost estimate. If you have any questions or require any additional information, please call me (281-617-3217) or email (csdavis@swca.com)

Sincerely,
SWCA Environmental Consultants



Scott Davis
Project Manager

cc: Mike Souliere, SWCA (Houston)

City of Pearland Regional Detention Basin
Fee Estimate-Summation

Task	Cost	\$180	\$155	\$127	\$78	\$66	Total Hours
		Project Manager	Senior Engineer	Engineer	CADD/GIS Operator	Clerical	
A TxDOT DITCH CAPACITY ANALYSIS							
A.1 Hydrology	\$4,392	2	24		4		30
A.2 Develop Hydraulic Model	\$11,276	1		80	12		93
A.3 Develop Capacity Development Area	\$7,696	2	8	48			58
A.4 Technical Memorandum	\$3,640	4		16	8	4	32
Subtotal A	\$27,004	9	32	144	24	4	
B DRAINAGE MASTER PLAN							
B.1 Phased Hydrologic Models	\$7,740	1	16	40			57
B.2 Phased Hydraulic Models	\$10,792	1	12	64	8		85
B.3 Ultimate Acquisition Exhibits (Part of Survey Cost)	\$0						0
B.4 Drainage Master Plan Report	\$14,560	12	48	16	24	16	116
Subtotal B	\$33,092	14	76	120	32	16	
C PHASE 1 CONSTRUCTION PLANS							
Cover Sheet	\$746	1		2	4		7
General Notes	\$1,664	2		8	2	2	14
Project Layout	\$1,936	1		4	16		21
TxDOT Plan & Profile (9 sheets)	\$12,432	9		36	80		125
TxDOT Ditch Cross-Sections (200 feet) (4 sheets)	\$4,740	4		12	32		48
Frugé Culvert Crossing	\$3,248	2		8	24		34
Connection to Detention Basin	\$1,936	1		4	16		21
Detention Basin Outfall	\$1,936	1		4	16		21
Detention Basin Layout	\$2,560	1		4	24		29
Detention Basin Grading	\$3,872	2		8	32		42
TxDOT Ditch Outfall Removal	\$1,058	1		2	8		11
TxDOT SWPPP (5 sheets)	\$7,580	2		20	60		82
Detention Basin SWPPP	\$2,444	1		8	16		25
Drainage Details (2sheets)	\$3,756	2		12	24		38
Subtotal C	\$49,908	30	0	132	354	2	
D FIELD SURVEYING							
D.1 Field Topographic Survey of TxDOT Ditch	\$14,580						
D.2 Obtain Right of Entry	\$1,676						
D.3 Property Ownership Exhibits	\$6,943						
Subtotal D	\$23,199	0	0	0	0	0	
E ENVIRONMENTAL							
E.1 Wetland Delineation Report	\$7,138						
E.2 Threatened and Endangered Species	\$2,902						
E.3 Cultural Resources Investigation	\$6,072						
E.4 PCN and Pre Submittal Meeting	\$6,500						
Subtotal E	\$22,612	0	0	0	0	0	
F COORDINATION							
Coordination	\$14,376	56		24	16		96
Subtotal F	\$14,376	56	0	24	16	0	96
G PROJECT MANAGEMENT							
G Project Management	\$12,840	64				20	84
Subtotal G	\$12,840	64	0	0	0	20	
TOTAL	\$183,031	173	108	420	426	42	1265

**City of Pearland
Lower Kirby Regional Detention Facility
Cost by Task**

Item and Description	Unit Cost	Units	Quantity	Total Cost
Task 1: Wetland Delineation and Report				
Environmental Resource Specialist V	105.00	hr	7	735.00
Environmental Resource Specialist IV	93.00	hr	45	4,185.00
Environmental Resource Specialist I	61.00	hr	18	1,098.00
CADD/ GIS Specialist II	71.00	hr	5	355.00
Equipment and Supplies				765.00
		Total	75	<u>7,138.00</u>
Task 2: T&E Species Survey and Report				
Environmental Resource Specialist V	105.00	hr	2	210.00
Environmental Resource Specialist IV	93.00	hr	18	1,674.00
Environmental Resource Specialist I	61.00	hr	10	610.00
CADD/ GIS Specialist II	71.00	hr	2	142.00
Equipment and Supplies				266.00
			32	<u>2,902.00</u>
Task3: Cultural Resources				
3a Review filed Prep & Agency Coordination				
Cultural Resource Specialist VIII	138.00	hr	1	138.00
Cultural Resource Specialist III	83.00	hr	8	664.00
Cultural Resource Specialist I	61.00	hr	4	244.00
CADD/ GIS Specialist II	71.00	hr	2	142.00
Administrative Technician II	61.00	hr	0.5	52.00
Equipment and Supplies				290.00
		Total		<u>1,530.00</u>
3b Phase I Archeological Survey				
Cultural Resource Specialist VIII	138.00	hr	1	138.00
Cultural Resource Specialist III	83.00	hr	2	166.00
Cultural Resource Specialist I	61.00	hr	12	732.00
Cultural Resource Technician I	49.00	hr	12	588.00
Equipment and Supplies				58.00
		Total		<u>1,682.00</u>
3c Archeological Report Production				
Cultural Resource Specialist VIII	138.00	hr	1	138.00
Cultural Resource Specialist III	83.00	hr	6	498.00
Cultural Resource Specialist I	61.00	hr	30	1,830.00
CADD/ GIS Specialist II	71.00	hr	3	213.00
Administrative Technician II	61.00	hr	0.5	52.00
Equipment and Supplies				129.00
		Total		<u>2,860.00</u>

**City of Pearland
Lower Kirby Regional Detention Facility
Cost by Task**

NWP 7 Production

Environmental Resource Specialist V	105.00	hr	8	840.00
Environmental Resource Specialist IV	93.00	hr	40	3,720.00
Environmental Resource Specialist I	61.00	hr	25	1,525.00
CADD/ GIS Specialist II	71.00	hr	4	284.00
Equipment and Supplies				131.00
			Total	<u>6,500.00</u>
			Project Total	<u><u>\$22,612.00</u></u>

City of Pearland Regional Detention Basin
Fee Estimate-Survey Detail

		\$135	\$147	\$133	\$99	\$83	\$120	\$61	\$50	
		Survey	Dept	Survey	Surey	CADD	Project	Clerical	Abstractor	Total
		Crew	Mgr	Mgr	Tech	Tech	Surveyor			Hours
E FIELD SURVEYING										
E.1 Field Topographic Survey of TxDOT Ditch	\$14,580	72		8	17	16	4	5		122
E.2 Obtain Right of Entry	\$1,676		1			9		12	1	23
E.3 Property Ownership Exhibits	\$6,943		2		11	52		4	20	89
Subtotal E	\$23,199	72	2	8	28	77	4	21	21	

New Business Item No. 6

6. **CONSIDERATION AND POSSIBLE ACTION – FIRST READING OF ORDINANCE NO. 532-5 – AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AMENDING ORDINANCE NO. 532, THE *FLOOD HAZARD PREVENTION* ORDINANCE; PROVIDING A PENALTY FOR VIOLATION; HAVING A SAVINGS CLAUSE, A REPEALER CLAUSE, A SEVERABILITY CLAUSE; PROVIDING FOR CODIFICATION, PUBLICATION AND AN EFFECTIVE DATE.**

Mr. Jon R. Branson, Interim City Manager.

**AGENDA REQUEST
BUSINESS OF THE CITY COUNCIL
CITY OF PEARLAND, TEXAS**

AGENDA OF:	ITEM NO.: Ordinance No. 532-5
DATE SUBMITTED: February 25, 2014	DEPT. OF ORIGIN: Engineering&Cap Projs
PREPARED BY: Trent Epperson	PRESENTOR: Mike Hodge
REVIEWED BY: Mike Hodge	REVIEW DATE: February 28, 2014
SUBJECT: Flood Hazard Prevention Ordinance	
EXHIBITS: Ordinance 532- 5	
FUNDING: <input type="checkbox"/> Grant <input type="checkbox"/> Developer/Other <input type="checkbox"/> Cash <input type="checkbox"/> Bonds To Be Sold <input type="checkbox"/> Bonds- Sold <input type="checkbox"/> L/P – Sold <input type="checkbox"/> L/P – To Be Sold	
EXPENDITURE REQUIRED: N/A AMOUNT AVAILABLE: ACCOUNT NO.: ADDITIONAL APPROPRIATION REQUIRED: ACCOUNT NO.: PROJECT NO.:	AMOUNT BUDGETED: PROJECT NO.:
To be completed by Department: Finance X Legal X Ordinance Resolution	

EXECUTIVE SUMMARY

BACKGROUND

The City is a member of the National Flood Insurance Program (NFIP) which enables owners with insurable property (a building and/or its contents) within our community to be eligible for flood insurance policies. As a member of the program, the City is required to adopt floodplain management measures by ordinance that meets or exceeds the minimum NFIP requirements. The City has adopted Ordinance 532-4 which meets these requirements by adopting the current Flood Insurance Studies (FIS) and their associated Floodplain Insurance Rate Maps (FIRM). Proper reference to the current effective FIS and FIRMs must be included in the ordinance.

The effective floodplain maps are issued by the Federal Emergency Management Agency (FEMA) by County. The City is a part of Brazoria County, Harris County, and Fort Bend County. The floodplain maps for Fort Bend County are scheduled to be updated by FEMA effective April 2, 2014.

In order to maintain our eligibility for the NFIP, the City must update Article 3 – Section B of the Ordinance to reference the new effective maps for Fort Bend County. The attached amendment to our Flood Damage Prevention Ordinance includes the required revisions in reference to the new maps for Fort Bend County.

The main changes in the new maps are the inclusion of previous revisions to the floodplain, which were accomplished by Letters of Map Revision (LOMRs). The changes went through a public comment period in 2012 and do not include any known impacts on existing structures.

RECOMMENDED ACTION

Consideration and approval of an ordinance adopting the amendment to the Flood Damage Prevention Ordinance.

ORDINANCE NO. 532-5

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AMENDING ORDINANCE NO. 532, THE *FLOOD HAZARD PREVENTION* ORDINANCE; PROVIDING A PENALTY FOR VIOLATION; HAVING A SAVINGS CLAUSE, A REPEALER CLAUSE, A SEVERABILITY CLAUSE; PROVIDING FOR CODIFICATION, PUBLICATION AND AN EFFECTIVE DATE.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS:

Section 1. That Ordinance No. 532, the Flood Hazard Prevention Ordinance, as the same may have been from time to time amended, is hereby further amended in accordance with Exhibit A attached hereto.

Section 2. Savings. All rights and remedies which have accrued in favor of the City under this Chapter and amendments thereto shall be and are preserved for the benefit of the City.

Section 3. Severability. If any section, subsection, sentence, clause, phrase or portion of this Ordinance is for any reason held invalid, unconstitutional or otherwise unenforceable by any court of competent jurisdiction, such portion shall be deemed a separate, distinct, and independent provision and such holding shall not affect the validity of the remaining portions thereof.

Section 4. Repealer. All ordinances and parts of ordinances in conflict herewith are hereby repealed, but only to the extent of such conflict.

Section 5. Codification. It is the intent of the City Council of the City of Pearland, Texas, that the provisions of this Ordinance shall be codified in the City's official Code of Ordinances as provided hereinabove.

Section 6. Publication/Effective Date. The City Secretary shall cause this Ordinance, or its caption and penalty, to be published in the official newspaper of the City of Pearland, upon passage of such Ordinance. The Ordinance shall then become effective ten (10) days from and after its publication, or the publication of its caption and penalty, in the official City newspaper.

ORDINANCE NO. 532-5

PASSED and APPROVED on First and Only Reading on this the _____ day of _____, A.D., 2014.

TOM REID
MAYOR

ATTEST:

YOUNG LORFING, TRMC
CITY SECRETARY

APPROVED AS TO FORM:

DARRIN M. COKER
CITY ATTORNEY

FLOOD DAMAGE PREVENTION ORDINANCE

ARTICLE I

STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE AND METHODS

SECTION A. STATUTORY AUTHORIZATION

The Legislature of the State of Texas has in the Flood Control Insurance Act, Texas Water Code, Section 16.315, delegated the responsibility of local governmental units to adopt regulations designed to minimize flood losses. Therefore, the City Council of the City of Pearland, Texas does ordain as follows:

SECTION B. FINDINGS OF FACT

(1) The flood hazard areas of the City of Pearland are subject to periodic inundation, which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief, all of which adversely affect the public health, safety and general welfare.

(2) These flood losses are created by the cumulative effect of obstructions in floodplains which cause an increase in flood heights and velocities, and by the occupancy of flood hazard areas by uses vulnerable to floods and hazardous to other lands because they are inadequately elevated, floodproofed or otherwise protected from flood damage.

SECTION C. STATEMENT OF PURPOSE

It is the purpose of this ordinance to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

- (1) Protect human life and health;
- (2) Minimize expenditure of public money for costly flood control projects;
- (3) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

- (4) Minimize prolonged business interruptions;
- (5) Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains;
- (6) Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas; and
- (7) Insure that potential buyers are notified that property is in a flood area.
- (8) Regulate all fill in the Floodplain to ensure that all placed in the Floodplain is mitigated by compensating cut material that is removed from the Floodplain so that no increase of flood levels will result.

SECTION D. METHODS OF REDUCING FLOOD LOSSES

In order to accomplish its purposes, this ordinance uses the following methods:

- (1) Restrict or prohibit uses that are dangerous to health, safety or property in times of flood, or cause excessive increases in flood heights or velocities;
- (2) Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- (3) Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of flood waters;
- (4) Control filling, grading, dredging and other development which may increase flood damage;
- (5) Prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands.
- (6) Ensure that all fill in the Floodplain is mitigated by compensating cut in the floodplain.

ARTICLE 2

DEFINITIONS

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted to give them the meaning they have in common usage and to give this ordinance its most reasonable application.

ALLUVIAL FAN FLOODING - means flooding occurring on the surface of an alluvial fan or similar landform which originates at the apex and is characterized by high-velocity flows; active processes of erosion, sediment transport, and deposition; and unpredictable flow paths.

APEX - means a point on an alluvial fan or similar landform below which the flow path of the major stream that formed the fan becomes unpredictable and alluvial fan flooding can occur.

APPEAL - means a request for a review of the Floodplain Administrator's interpretation of any provisions of this ordinance or a request for a variance.

APPURTENANT STRUCTURE – means a structure which is on the same parcel of property as the principal structure to be insured and the use of which is incidental to the use of the principal structure

AREA OF FUTURE CONDITIONS FLOOD HAZARD – means the land area that would be inundated by the 1-percent-annual chance (100 year) flood based on future conditions hydrology.

AREA OF SHALLOW FLOODING - means a designated AO, AH, AR/AO, AR/AH, or VO zone on a community's Flood Insurance Rate Map (FIRM) with a 1 percent or greater annual chance of flooding to an average depth of 1 to 3 feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

AREA OF SPECIAL FLOOD HAZARD - is the land in the floodplain within a community subject to a 1 percent or greater chance of flooding in any given year. The area may be designated as Zone A on the Flood Hazard Boundary Map (FHBM). After detailed rate making has been completed in preparation for publication of the FIRM, Zone A usually is refined into Zones A, AO, AH, A1-30, AE, A99, AR, AR/A1-30, AR/AE, AR/AO, AR/AH, AR/A, VO, V1-30, VE or V.

BASE FLOOD - means the flood having a 1 percent chance of being equaled or exceeded in any given year.

BASE FLOOD ELEVATION (BFE) – The elevation shown on the Flood Insurance Rate Map (FIRM) and found in the accompanying Flood Insurance Study (FIS) for Zones A, AE, AH, A1-A30, AR, V1-V30, or VE that indicates the water surface elevation resulting from the flood that has a 1% chance of equaling or exceeding that level in any given year - also called the Base Flood.

BASEMENT - means any area of the building having its floor subgrade (below ground level) on all sides.

BREAKAWAY WALL – means a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.

CRITICAL FEATURE - means an integral and readily identifiable part of a flood protection system, without which the flood protection provided by the entire system would be compromised.

CUT - means the excavation of earth or other solid material from below the ground surface elevation prior to or during construction.

DEVELOPMENT - means any man-made change to improved and unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.

ELEVATED BUILDING – means, for insurance purposes, a non-basement building, which has its lowest elevated floor, raised above ground level by foundation walls, shear walls, posts, piers, pilings, or columns.

EXISTING CONSTRUCTION - means for the purposes of determining rates, structures for which the "start of construction" commenced before the effective date of the FIRM or before January 1, 1975, for FIRMs effective before that date. "Existing construction" may also be referred to as "existing structures."

EXISTING MANUFACTURED HOME PARK OR SUBDIVISION - means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is

completed before the effective date of the floodplain management regulations adopted by a community.

EXPANSION TO AN EXISTING MANUFACTURED HOME PARK OR SUBDIVISION - means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

FILL - means the placement of earth or other solid material above the natural ground surface elevation prior to or during construction.

FLOOD OR FLOODING - means a general and temporary condition of partial or complete inundation of normally dry land areas from:

- (1) the overflow of inland or tidal waters.
- (2) the unusual and rapid accumulation or runoff of surface waters from any source.

FLOOD ELEVATION STUDY – means an examination, evaluation and determination of flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determination of mudslide (i.e., mudflow) and/or flood-related erosion hazards.

FLOOD INSURANCE RATE MAP (FIRM) - means an official map of a community, on which the Federal Emergency Management Agency has delineated both the special flood hazard areas and the risk premium zones applicable to the community.

FLOOD INSURANCE STUDY (FIS) – see *Flood Elevation Study*

FLOODPLAIN OR FLOOD-PRONE AREA - means any land area susceptible to being inundated by water from any source (see definition of flooding).

FLOODPLAIN ADMINISTRATOR – means the City Engineer of the City of Pearland or his designee.

FLOODPLAIN MANAGEMENT - means the operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works and floodplain management regulations.

FLOODPLAIN MANAGEMENT REGULATIONS - means zoning ordinances, subdivision regulations, building codes, health regulations, special purpose

ordinances (such as a floodplain ordinance, grading ordinance and erosion control ordinance) and other applications of police power. The term describes such state or local regulations, in any combination thereof, which provide standards for the purpose of flood damage prevention and reduction.

FLOOD PROTECTION SYSTEM - means those physical structural works for which funds have been authorized, appropriated, and expended and which have been constructed specifically to modify flooding in order to reduce the extent of the area within a community subject to a "special flood hazard" and the extent of the depths of associated flooding. Such a system typically includes hurricane tidal barriers, dams, reservoirs, levees or dikes. These specialized flood modifying works are those constructed in conformance with sound engineering standards.

FLOOD PROOFING - means any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

FLOODWAY – see *Regulatory Floodway*

FUNCTIONALLY DEPENDENT USE - means a use, which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, but does not include long-term storage or related manufacturing facilities.

HIGHEST ADJACENT GRADE - means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

HISTORIC STRUCTURE - means any structure that is:

(1) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;

(2) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;

(3) Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or

(4) Individually listed on a local inventory or historic places in communities with historic preservation programs that have been certified either:

(a) By an approved state program as determined by the Secretary of the Interior or;

(b) Directly by the Secretary of the Interior in states without approved programs.

LEVEE - means a man-made structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water so as to provide protection from temporary flooding.

LEVEE SYSTEM - means a flood protection system which consists of a levee, or levees, and associated structures, such as closure and drainage devices, which are constructed and operated in accordance with sound engineering practices.

LOWEST FLOOR - means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking or vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor; provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirement of Section 60.3 of the National Flood Insurance Program regulations.

MANUFACTURED HOME - means a structure transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. The term "manufactured home" does not include a "recreational vehicle".

MANUFACTURED HOME PARK OR SUBDIVISION - means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

MEAN SEA LEVEL - means, for purposes of the National Flood Insurance Program, the North American Vertical Datum (NAVD) of 1988 or other datum,

to which base flood elevations shown on a community's Flood Insurance Rate Map are referenced.

NEW CONSTRUCTION - means, for the purpose of determining insurance rates, structures for which the "start of construction" commenced on or after the effective date of an initial FIRM or after December 31, 1974, whichever is later, and includes any subsequent improvements to such structures. For floodplain management purposes, "new construction" means structures for which the "start of construction" commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures.

NEW MANUFACTURED HOME PARK OR SUBDIVISION - means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of floodplain management regulations adopted by a community.

RECREATIONAL VEHICLE - means a vehicle which is (i) built on a single chassis; (ii) 400 square feet or less when measured at the largest horizontal projections; (iii) designed to be self-propelled or permanently towable by a light duty truck; and (iv) designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

REGULATORY FLOODWAY - means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

RIVERINE - means relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.

SPECIAL FLOOD HAZARD AREA - see *Area of Special Flood Hazard*

START OF CONSTRUCTION - (for other than new construction or substantial improvements under the Coastal Barrier Resources Act (Pub. L. 97-348)), includes substantial improvement and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition placement, or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work

beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for basement, footings, piers or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

STRUCTURE – means, for floodplain management purposes, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home.

SUBSTANTIAL DAMAGE - means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

SUBSTANTIAL IMPROVEMENT - means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before "start of construction" of the improvement. This term includes structures which have incurred "substantial damage", regardless of the actual repair work performed. The term does not, however, include either: (1) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions or (2) Any alteration of a "historic structure", provided that the alteration will not preclude the structure's continued designation as a "historic structure."

VARIANCE – means a grant of relief by a community from the terms of a floodplain management regulation. (For full requirements see Section 60.6 of the National Flood Insurance Program regulations.)

VIOLATION - means the failure of a structure or other development to be fully compliant with the community's floodplain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in Section 60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), (e)(4), or (e)(5) is presumed to be in violation until such time as that documentation is provided.

WATER SURFACE ELEVATION - means the height, in relation to the North American Vertical Datum (NAVD) of 1988 (or other datum, where specified), of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

ARTICLE 3

GENERAL PROVISIONS

SECTION A. LANDS TO WHICH THIS ORDINANCE APPLIES

The ordinance shall apply to all areas of special flood hazard with the jurisdiction of the City of Pearland.

SECTION B. BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD

The areas of special flood hazard identified by the Federal Emergency Management Agency in the current scientific and engineering report entitled, "The Flood Insurance Study (FIS), Brazoria County, Texas and Incorporated Areas, Volume 1 of 2," dated September 22, 1999 with accompanying Flood Insurance Rate Maps dated June 05, 1989 and September 22, 1999.; "Flood Insurance Study, Fort Bend County, Texas and Incorporated Areas," dated April 2, 2014 with accompanying Flood Insurance Rate Maps dated April 02, 2014; "Flood Insurance Study, Harris County, Texas and Incorporated Areas, Volumes 4 of 8," dated June 18, 2007 with accompanying Flood Insurance Rate Maps dated June 18, 2007; and any revisions thereto are hereby adopted by reference and declared to be a part of this ordinance.

SECTION C. ESTABLISHMENT OF DEVELOPMENT PERMIT

A Floodplain Development Permit shall be required to ensure conformance with the provisions of this ordinance.

SECTION D. COMPLIANCE

No structure or land shall hereafter be located, altered, or have its use changed without full compliance with the terms of this ordinance and other applicable regulations.

SECTION E. ABROGATION AND GREATER RESTRICTIONS

This ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this ordinance and another ordinance, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

SECTION F. INTERPRETATION

In the interpretation and application of this ordinance, all provisions shall be; (1) considered as minimum requirements; (2) liberally construed in favor of the governing body; and (3) deemed neither to limit nor repeal any other powers granted under State statutes.

SECTION G. WARNING AND DISCLAIMER OR LIABILITY

The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. On rare occasions greater floods can and will occur and flood heights may be increased by man-made or natural causes. This ordinance does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of the community or any official or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made hereunder.

ARTICLE 4

ADMINISTRATION

SECTION A. DESIGNATION OF THE FLOODPLAIN ADMINISTRATOR

The Floodplain Administrator is hereby appointed to administer and implement the provisions of this ordinance and other appropriate sections of 44 CFR (Emergency Management and Assistance - National Flood Insurance Program Regulations) pertaining to floodplain management.

SECTION B. DUTIES & RESPONSIBILITIES OF THE FLOODPLAIN ADMINISTRATOR

Duties and responsibilities of the Floodplain Administrator shall include, but not be limited to, the following:

(1) Maintain and hold open for public inspection all records pertaining to the provisions of this ordinance.

(2) Review permit application to determine whether to ensure that the proposed building site project, including the placement of manufactured homes, will be reasonably safe from flooding.

(3) Review, approve or deny all applications for development permits required by adoption of this ordinance.

(4) Review permits for proposed development to assure that all necessary permits have been obtained from those Federal, State or local governmental agencies (including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334) from which prior approval is required.

(5) Where interpretation is needed as to the exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions) the Floodplain Administrator shall make the necessary interpretation.

(6) Notify, in riverine situations, adjacent communities and the State Coordinating Agency which is the Texas Water Development Board (TWDB) and also the Texas Commission on Environmental Quality (TCEQ), prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency.

(7) Assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained.

(8) When base flood elevation data has not been provided in accordance with Article 3, Section B, the Floodplain Administrator shall obtain, review and reasonably utilize any base flood elevation data and floodway data available from a Federal, State or other source, in order to administer the provisions of Article 5.

(9) When a regulatory floodway has not been designated, the Floodplain Administrator must require that no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

(10) Under the provisions of 44 CFR Chapter 1, Section 65.12, of the National Flood Insurance Program regulations, a community may approve certain development in Zones A1-30, AE, AH, on the community's FIRM which increases the water surface elevation of the base flood by more than 1 foot, provided that the community first completes all of the provisions required by Section 65.12.

(11) Assure that all quantities of fill or other added volume in the Floodplain are computed and mitigated by an equal or greater quantity of cut or other reduced volume in the Floodplain

SECTION C. PERMIT PROCEDURES

(1) Application for a Floodplain Development Permit shall be presented to the Floodplain Administrator on forms furnished by him/her and may include, but not be limited to, plans in duplicate drawn to scale showing the location, dimensions, and elevation of proposed landscape alterations, existing and proposed structures, including the placement of manufactured homes, and the location of the foregoing in relation to areas of special flood hazard. Additionally, the following information is required:

(a) Elevation (in relation to mean sea level), of the lowest floor (including basement) of all new and substantially improved structures;

(b) Elevation in relation to mean sea level to which any nonresidential structure shall be floodproofed;

(c) A certificate from a registered professional engineer or architect that the nonresidential floodproofed structure shall meet the floodproofing criteria of Article 5, Section B (2);

(d) Description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development;

(e) Maintain a record of all such information in accordance with Article 4, Section (B)(1);

(2) Approval or denial of a Floodplain Development Permit by the Floodplain Administrator shall be based on all of the provisions of this ordinance and the following relevant factors:

(a) The danger to life and property due to flooding or erosion damage;

(b) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;

(c) The danger that materials may be swept onto other lands to the injury of others;

(d) The compatibility of the proposed use with existing and anticipated development;

(e) The safety of access to the property in times of flood for ordinary and emergency vehicles;

(f) The costs of providing governmental services during and after flood conditions including maintenance and repair of streets and bridges, and public utilities and facilities such as sewer, gas, electrical and water systems;

(g) The expected heights, velocity, duration, rate of rise and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site;

(h) The necessity to the facility of a waterfront location, where applicable;

(i) The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use.

(j) The relationship of the proposed use to the comprehensive plan for that area.

(3) The provisions of this ordinance regulating mitigation of the 100-year Floodplain shall not apply to developments for which a master drainage plan has been previously adopted.

SECTION D. VARIANCE PROCEDURES

(1) The Building Board of Adjustment and Appeals as established by the City of Pearland shall hear and render judgment on requests for variances from the requirements of this ordinance.

(2) The Building Board of Adjustment and Appeals shall hear and render judgment on an appeal only when it is alleged there is an error in any requirement, decision, or determination made by the Floodplain Administrator in the enforcement or administration of this ordinance.

(3) Any person or persons aggrieved by the decision of the Building Board of Adjustment and Appeals may appeal such decision in the courts of competent jurisdiction.

(4) The Floodplain Administrator shall maintain a record of all actions involving an appeal and shall report variances to the Federal Emergency Management Agency upon request.

(5) Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places, without regard to the procedures set forth in the remainder of this ordinance.

(6) Variances may be issued for new construction and substantial improvements to be erected on a lot of 1/2 acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing the relevant factors in Section C (2) of this Article have been fully considered. As the lot size increases beyond the 1/2 acre, the technical justification required for issuing the variance increases.

(7) Upon consideration of the factors noted above and the intent of this ordinance, the Building Board of Adjustment and Appeals may attach such conditions to the granting of variances as it deems necessary to further the purpose and objectives of this ordinance (Article 1, Section C and D).

(8) Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.

(9) Variances may be issued for the repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.

[10) Prerequisites for granting variances:

(a) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

(b) Variances shall only be issued upon: (i) showing a good and sufficient cause; (ii) a determination that failure to grant the variance would result in exceptional hardship to the applicant, and (iii) a determination that the granting of a variance will not result in increased flood heights, additional

threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

(c) Any application to which a variance is granted shall be given written notice that the structure will be permitted to be built with the lowest floor elevation below the base flood elevation, and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.

(11) Variances may be issued by a community for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that (i) the criteria outlined in Article 4, Section D (1)-(9) are met, and (ii) the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

ARTICLE 5

PROVISIONS FOR FLOOD HAZARD REDUCTION

SECTION A. GENERAL STANDARDS

In all areas of special flood hazards the following provisions are required for all new construction and substantial improvements:

(1) All new construction or substantial improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;

(2) All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;

(3) All new construction or substantial improvements shall be constructed with materials resistant to flood damage;

(4) All new construction or substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding;

(5) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;

(6) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from the systems into flood waters; and,

(7) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

SECTION B. SPECIFIC STANDARDS

In all areas of special flood hazards where base flood elevation data has been provided as set forth in (i) Article 3, Section B, (ii) Article 4, Section B (8), or (iii) Article 5, Section C (3), the following provisions are required:

(1) **Residential Construction** - new construction and substantial improvement of any residential structure shall have the lowest floor (including basement), elevated to a minimum of one foot above the base flood elevation. A registered professional engineer, architect, or land surveyor shall submit a certification to the Floodplain Administrator that the standard of this subsection as proposed in Article 4, Section C (1) a., is satisfied.

(2) **Nonresidential Construction** - new construction and substantial improvements of any commercial, industrial or other nonresidential structure shall either have the lowest floor (including basement) elevated to or above the base flood level or together with attendant utility and sanitary facilities, be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered professional engineer or architect shall develop and/or review structural design, specifications, and plans for the construction, and shall certify that the design and methods of construction are in accordance with accepted standards of practice as outlined in this subsection. A record of such certification which includes the specific elevation (in relation to mean sea level) to which such structures are floodproofed shall be maintained by the Floodplain Administrator.

(3) **Enclosures** - new construction and substantial improvements, with fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a

registered professional engineer or architect or meet or exceed the following minimum criteria:

(a) A minimum of two openings on separate walls having a total net area of not less than 1 square inch for every square foot of enclosed area subject to flooding shall be provided.

(b) The bottom of all openings shall be no higher than 1 foot above grade.

(c) Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

(4) Manufactured Homes -

(a) Require that all manufactured homes to be placed within Zone A on a community's FHBM or FIRM shall be installed using methods and practices which minimize flood damage. For the purposes of this requirement, manufactured homes must be elevated and anchored to resist flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable State and local anchoring requirements for resisting wind forces.

(b) Require that manufactured homes that are placed or substantially improved within Zones A1-30, AH, and AE on the community's FIRM on sites (i) outside of a manufactured home park or subdivision, (ii) in a new manufactured home park or subdivision, (iii) in an expansion to an existing manufactured home park or subdivision, or (iv) in an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as a result of a flood, be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated to or above the base flood elevation and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

(c) Require that manufactured homes be placed or substantially improved on sites in an existing manufactured home park or subdivision with Zones A1-30, AH and AE on the community's FIRM that are not subject to the provisions of paragraph (4) of this section be elevated so that either:

(i) the lowest floor of the manufactured home is at a minimum of one foot above the base flood elevation, or

(ii) the manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches in height above grade and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

(5) **Recreational Vehicles** - Require that recreational vehicles placed on sites within Zones A1-30, AH, and AE on the community's FIRM either (i) be on the site for fewer than 180 consecutive days, or (ii) be fully licensed and ready for highway use, or (iii) meet the permit requirements of Article 4, Section C (1), and the elevation and anchoring requirements for "manufactured homes" in paragraph (4) of this section. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions.

SECTION C. STANDARDS FOR SUBDIVISION PROPOSALS

(1) All subdivision proposals including the placement of manufactured home parks and subdivisions shall be consistent with Article 1, Sections B, C, and D of this ordinance.

(2) All proposals for the development of subdivisions including the placement of manufactured home parks and subdivisions shall meet Floodplain Development Permit requirements of Article 3, Section C; Article 4, Section C; and the provisions of Article 5 of this ordinance.

(3) Base flood elevation data shall be generated for subdivision proposals and other proposed development including the placement of manufactured home parks and subdivisions which is greater than 50 lots or 5 acres, whichever is lesser, if not otherwise provided pursuant to Article 3, Section B or Article 4, Section B (8) of this ordinance.

(4) All subdivision proposals including the placement of manufactured home parks and subdivisions shall have adequate drainage provided to reduce exposure to flood hazards.

(5) All subdivision proposals including the placement of manufactured home parks and subdivisions shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize or eliminate flood damage.

SECTION D. STANDARDS FOR AREAS OF SHALLOW FLOODING (AO/AH ZONES)

Located within the areas of special flood hazard established in Article 3, Section B, are areas designated as shallow flooding. These areas have special flood hazards associated with flood depths of 1 to 3 feet where a clearly defined channel does not exist, where the path of flooding is unpredictable, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow; therefore, the following provisions apply:

(1) All new construction and substantial improvements of residential structures have the lowest floor (including basement) elevated to or above the base flood elevation or the highest adjacent grade at least as high as the depth number specified in feet on the community's FIRM (at least 2 feet if no depth number is specified).

(2) All new construction and substantial improvements of non-residential structures;

(a) have the lowest floor (including basement) elevated to or above the base flood elevation or the highest adjacent grade at least as high as the depth number specified in feet on the community's FIRM (at least 2 feet if no depth number is specified), or

(b) together with attendant utility and sanitary facilities be designed so that below the base specified flood depth in an AO Zone, or below the Base Flood Elevation in an AH Zone, level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads of effects of buoyancy.

(3) A registered professional engineer or architect shall submit a certification to the Floodplain Administrator that the standards of this Section, as proposed in Article 4, Section C are satisfied.

(4) Require within Zones AH or AO adequate drainage paths around structures on slopes, to guide flood waters around and away from proposed structures.

SECTION E. FLOODWAYS

Floodways - located within areas of special flood hazard established in Article 3, Section B, are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles and erosion potential, the following provisions shall apply:

(1) Encroachments are prohibited, including fill, new construction, substantial improvements and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge.

(2) If Article 5, Section E (1) above is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Article 5.

(3) Under the provisions of 44 CFR Chapter 1, Section 65.12, of the National Flood Insurance Program Regulations, a community may permit encroachments within the adopted regulatory floodway that would result in an increase in base flood elevations, provided that the community first completes all of the provisions required by Section 65.12.

SECTION F. CERTIFICATION BY CITY SECRETARY

The City Secretary is hereby directed to file certified copies of this ordinance with the following agencies: State Clearing House-Budget & Planning Office; Texas natural Resource Conservation Commission; Federal Insurance Agency; and Houston – Galveston Area Council.

SECTION G. VIOLATION AND PENALTY

(1) Any person, firm or corporation who shall violate any of the provisions of this ordinance or fail to comply therewith or who shall violate or fail to comply with any order or regulations made thereunder, or who shall build in violation of any detailed statement of specification of plans submitted and approved thereunder, or any certificate or permit issued thereunder, shall, for each and every violation and noncompliance respectively be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than \$25.00 nor more than \$200.00, and each and every day that such violation or noncompliance shall exist shall be deemed a separate offense.

(2) But in case any person, firm or corporation violates any of the provisions of this ordinance or fails to comply therewith, the City of Pearland, in addition to imposing the penalties provided, may institute any appropriate action or proceedings in Court to prevent, restrain, correct, or abate or to prevent any illegal act, conduct, business, or use in or about any land, and the definition of any violation of the terms of this ordinance as a misdemeanor, shall not preclude the City of Pearland from invoking the civil remedies given it by

law in such cases, but same shall be cumulative of and in addition to the penalties prescribed for such violation.

SECTION H. ENACTMENT

Savings. All rights and remedies which have accrued in favor of the City under this Chapter and amendments thereto shall be and are preserved for the benefit of the City.

Severability. If any section, subsection, sentence, clause, phrase or portion of this Ordinance is for any reason held invalid, unconstitutional or otherwise unenforceable by any court of competent jurisdiction, such portion shall be deemed a separate, distinct, and independent provision and such holding shall not affect the validity of the remaining portions thereof.

Repealer. All ordinances and parts of ordinances in conflict herewith are hereby repealed, but only to the extent of such conflict.

Codification. It is the intent of the City Council of the City of Pearland, Texas, that the provisions of this Ordinance shall be codified in the City's official Code of Ordinances as provided hereinabove.

Publication/Effective Date. The City Secretary shall cause this Ordinance, or its caption and penalty, to be published in the official newspaper of the City of Pearland, upon passage of such Ordinance. The Ordinance shall then become effective ten (10) days from and after its publication, or the publication of its caption and penalty, in the official City newspaper.

Declaration of Emergency. The Council finds and determines that the need to preserve the availability of national flood insurance for the citizens of Pearland, by complying with current FEMA regulations, bears directly upon the health, safety and welfare of the citizenry; and therefore this Ordinance shall be adopted as an emergency measure, and that the rule requiring this Ordinance to be read on two (2) separate occasions be, and the same is hereby waived."

New Business Item No. 7

7. **CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-18** – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO ENTER INTO A DEVELOPMENT AGREEMENT ASSOCIATED WITH HUGHES RANCH ROAD PROJECT.
Mr. Jon R. Branson, Interim City Manager.

**AGENDA REQUEST
BUSINESS OF THE CITY COUNCIL
CITY OF PEARLAND, TEXAS**

AGENDA OF:	March 10, 2014	ITEM NO.:	Resolution No. R2014-18
DATE SUBMITTED:	February 11, 2014	DEPT. OF ORIGIN:	Engineering & Cap Projects
PREPARED BY:	Trent Epperson	PRESENTOR:	Mike Hodge
REVIEWED BY:	Mike Hodge	REVIEW DATE:	February 28, 2014
SUBJECT: Development Agreement with MHI Partnership, Ltd			
EXHIBITS: Resolution, A – Development Agreement			
FUNDING:			
<input type="checkbox"/> Grant <input type="checkbox"/> Developer/Other <input type="checkbox"/> Cash <input type="checkbox"/> Bonds To Be Sold <input type="checkbox"/> Bonds- Sold <input type="checkbox"/> L/P – Sold <input type="checkbox"/> L/P – To Be Sold			
EXPENDITURE REQUIRED: \$165,000.00		AMOUNT BUDGETED: \$0	
AMOUNT AVAILABLE: \$0		PROJECT NO.: TR1101	
ACCOUNT NO.: 50-0000-565.03-00			
ADDITIONAL APPROPRIATION REQUIRED: \$165,000 Transfer from			
ACCOUNT NO.: 203-0000-565.01-01			
PROJECT NO.: TR1304 – CR59 Expansion			
To be completed by Department:			
X Finance	X Legal	Ordinance	X Resolution

EXECUTIVE SUMMARY

BACKGROUND

In anticipation of the development of Avalon Terrace, the City entered into a Strategic Partnership Agreement (SPA) with Brazoria County Municipal Utility District No. 16 on September 27, 2004, which is attached as Exhibit C to this Agreement. One of the items included in the SPA was the shared responsibility between the City and MHI for construction of the segment of Hughes Ranch Road between Stone Road and Max Road. The SPA states that whichever entity develops along that portion of Hughes Ranch Road would be responsible for initiating the construction of the road with both entities contributing towards 50% of the cost. The City entered into a Development Agreement with MHI on February 12, 2012 through R2012-20 which formalized the requirements for the construction of the first two of four ultimate lanes of the road.

The first two lanes were constructed by the City under the contract for the Hickory Slough Detention Pond at Max Road. The developer has reimbursed the City for 50% of those

expenditures. The funds were included in the CIP under project TR1101 CR403 MUD16 SPA Agreement. During the FY2014 CIP budget preparation, it was not expected that the developer would move forward with the remaining two lanes of the roadway during this fiscal year and funds were not appropriated for the City's 50% share of Phase II. Funds are available from the CR59 project which is about \$800,000 under budget due to favorable bids and land acquisition costs.

MHI has already moved forward with the design and construction of the final two lanes of Hughes Ranch Road. The intent of this Development Agreement is to formalize the requirements illustrated in the SPA and provide the documentation necessary to fulfill the City's responsibility under the SPA. The City will be responsible for reimbursing MHI for 50% of the costs of the design and construction of the remaining two lanes, which is estimated to be \$165,000.

RECOMMENDED ACTION

Consideration and approval of a resolution approving a Development Agreement with MHI Partnership, Ltd. and authorizing the City Manager to execute the agreement and transferring funds from CR59 Expansion (TR1304) to CR403 Project (TR1101)

RESOLUTION NO. R2014-18

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND,
TEXAS, AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO
ENTER INTO A DEVELOPMENT AGREEMENT ASSOCIATED WITH
HUGHES RANCH ROAD PROJECT.**

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS:

Section 1. That certain Development Agreement, a copy of which is attached hereto as Exhibit "A" and made a part hereof for all purposes, is hereby authorized and approved.

Section 2. That the City Manager or his designee is hereby authorized to execute and the City Secretary to attest a Development Agreement.

PASSED, APPROVED and ADOPTED this the _____ day of _____,
A.D., 2014.

TOM REID
MAYOR

ATTEST:

YOUNG LORFING, TRMC
CITY SECRETARY

APPROVED AS TO FORM:

DARRIN M. COKER
CITY ATTORNEY

DEVELOPMENT AGREEMENT
(EXHIBIT A TO RESOLUTION R-2014-____)

This Agreement is entered into this _____ day of _____, 2014, by and between the CITY OF PEARLAND, TEXAS, (hereinafter "City"), and MHI PARTNERSHIP, LTD. (hereinafter "Developer").

WHEREAS, City desires the construction of the remaining 2 lanes of the 4 lane Hughes Ranch Road Project (hereinafter "Road Improvements") as more accurately shown on Exhibit "A" attached hereto; and

WHEREAS, the Road Improvements are part of the Strategic Partnership Agreement ("SPA") attached hereto as Exhibit "B" authorizing the Developer to construct such Road Improvements, and requiring City to reimburse Developer for one-half (1/2) the costs of construction of the Road Improvements. The City and Developer shall share in the design and construction costs equally as outlined in the SPA; and

WHEREAS, City and Developer desire an agreement to set forth their respective responsibilities with regard to providing the Improvements.

W I T N E S S E T H :

NOW THEREFORE, in consideration of the foregoing premises and other good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, it is hereby agreed as follows:

1. Developer's Responsibilities:
 - A. Developer shall be responsible for designing and constructing the Road Improvements.
 - B. Design of the Road Improvements shall be complete within ninety (90) days of the effective date of this Agreement. Upon the approval of the plans and specifications by City, Developer shall obtain competitive bids for the construction of the Road Improvements. Developer and the City shall review the bids and Developer shall award a construction contract to the successful bidder within thirty (30) days following approval of the plans and specifications of the Improvements by City. City reserves the right to reject any and all bids for the construction of the Road Improvements. Following award of the bid by Developer, Developer shall cause construction of the Road Improvements to commence within sixty (60) days, and Developer shall cause the Road Improvements to be completed in accordance with the plans and specifications within a reasonable period of time.

2. City's Responsibilities: City, within thirty (30) days following receipt of copies of the

invoices or expenses paid, by Developer, for the Roadway Improvements shall deposit funds with Developer that are equal to one-half of the amount of the invoice, but not to exceed \$165,000.

3. The initial term of this Agreement shall be for a period of eighteen (18) months, commencing on the ____ day of _____, 2014, and terminating on the ____ day of _____, 2014, provided, however, that this Agreement shall be automatically renewed in one (1) month increments until all of the obligations of the parties hereunder have been fully discharged or specifically waived in writing by the beneficiary thereof.
4. This Agreement may only be amended, modified, or supplemented by written agreement and signed by both parties.
5. No assignment by a party hereto of any rights under or interests in this agreement 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 this Agreement.
6. Nothing herein is intended to supersede or waive any City ordinance or regulation pertaining to such construction.
7. Whenever possible, each provision of this Agreement shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is prohibitive or invalid under applicable law, such provision shall be ineffective to the extent of such provision or invalidity, without invalidating the remainder of such provision or the remaining provisions of this Agreement.
8. This Agreement shall be construed and enforced in accordance with and governed by the laws of the State of Texas.
9. To accomplish execution of this Agreement, it may be executed in multiple counterparts.
10. The Parties agree that any suit arising out of or related to this Agreement shall be filed in Brazoria County Texas.
11. All notices which are required or may be given pursuant to this Agreement shall be in writing and shall be sufficient if delivered personally or by first class mail, postage prepaid, return receipt requested, or by a nationally recognized courier, to the parties and their attorneys at the addresses set out below or such other addresses as the parties or their attorneys may hereafter notify one another:

If to City:

City of Pearland

Attn: Interim City Manager Jon Branson
3519 Liberty Drive
Pearland, TX 77581

If to Developer: _____

Notice delivered in accordance with the terms hereof shall be effective upon receipt.

In witness whereof, the parties have hereunto set their hands and signatures on the date first above mentioned.

By: _____

Name: _____

Its: _____

CITY OF PEARLAND,
a Texas municipal corporation

By: _____
Jon Branson,
Interim City Manager

ATTEST:

Young Lorfing
City Secretary

New Business Item No. 8

8. **CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-21** – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, CONVEYING AN EASEMENT FOR CERTAIN ELECTRIC UTILITIES. *Mr. Jon R. Branson, Interim City Manager.*

**AGENDA REQUEST
BUSINESS OF THE CITY COUNCIL
CITY OF PEARLAND, TEXAS**

AGENDA OF: March 10, 2014	ITEM NO.: Resolution No. R2014-21
DATE SUBMITTED: February 26, 2014	DEPARTMENT OF ORIGIN: Engineering & Capital Projects
PREPARED BY: Anthony Vu	PRESENTOR: Mike Hodge
REVIEWED BY: Mike Hodge	REVIEW DATE: 28 February 2014
SUBJECT: CenterPoint Blanket Easement for City of Pearland Fire & EMS Station 3	
EXHIBITS: Resolution 2014-21 ; A- Short Form Blanket Easement	
EXPENDITURE REQUIRED: N/A AMOUNT AVAILABLE: ACCOUNT NO.:	AMOUNT BUDGETED: PROJECT NO.:
ADDITIONAL APPROPRIATION REQUIRED: ACCOUNT NO.: PROJECT NO.:	
To be completed by Department: <input type="checkbox"/> Finance <input checked="" type="checkbox"/> Legal <input type="checkbox"/> Ordinance <input checked="" type="checkbox"/> Resolution	

EXECUTIVE SUMMARY

Centerpoint Energy has requested the City grant an unobstructed, perpetual blanket easement for the Fire & EMS Station 3 project located at the North East corner of FM 518 and Yost Boulevard. The proposed blanket easement is necessary for CenterPoint to provide electrical services for the construction site and future Fire & EMS Station 3. After construction the blanket easement will be released upon execution and delivery of a new defined easement, which will be located on the final location of the electrical infrastructure. There is no cost associated with the blanket easement.

The Short Form Blanket Easement, Survey and Map are attached.

RECOMMENDED ACTION

Staff recommends granting a Short Form Blanket Easement to Centerpoint Energy, for the Fire & EMS Station 3 project and authorizing the City Manager to execute the easement.

RESOLUTION NO. R2014-21

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, CONVEYING AN EASEMENT FOR CERTAIN ELECTRIC UTILITIES.

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS:

Section 1. That certain Easement attached hereto as Exhibit "A" and made a part hereof for all purposes, is hereby conveyed to CenterPoint Energy.

PASSED, APPROVED, AND ADOPTED this _____ day of _____, A.D., 2014.

TOM REID
MAYOR

ATTEST:

YOUNG LORFING, TRMC
CITY SECRETARY

APPROVED AS TO FORM:

DARRIN M. COKER
CITY ATTORNEY

**SHORT FORM BLANKET EASEMENT
3-PHASE OVERHEAD AND UNDERGROUND**

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

STATE OF TEXAS }
 } KNOW ALL PERSONS BY THESE PRESENTS:
COUNTY OF HARRIS }

THAT, City of Pearland, a political subdivision of the State of Texas, hereinafter referred to as "Grantor", whether one or more, for and in consideration of the sum of ONE DOLLAR (\$1.00) CASH to Grantor paid by CenterPoint Energy Houston Electric, LLC, its successors and assigns, hereinafter referred to as "Grantee", whose principal address is P. O. Box 1700, Houston, Texas 77251-1700, has **GRANTED, SOLD AND CONVEYED** and by these presents, does **GRANT, SELL AND CONVEY** unto said Grantee, all or in part, a perpetual **blanket** easement, hereinafter referred to as the "Easement", for electric distribution and related communication facilities consisting of a variable number of wires and cables and all necessary and desirable equipment and appurtenances, including, but not limited to, towers or poles made of wood, metal or other materials, props and guys, hereinafter referred to as "Facilities", lying on, over, under, and across the following described lands owned by Grantor, ("Grantor's Property"), to wit:

That certain 0.467-acre tract of land out of the w. D. C. Hall League, Abstract 70, in Brazoria County, Texas, being the same property described as Parcel "A" in a deed from John B. Yost, et ux. to City of Pearland, dated April 21, 2004 and filed for record under County Clerk's File 2004027034 in the Official Public Records of Brazoria County, Texas, (the "Easement Area").

above the ground and extending upward, hereinafter collectively referred to as "Grantee's Exclusive Easement Area", and, (iv) doing so does not, in the sole opinion of Grantee, endanger or interfere with the efficient, safe and proper operation and maintenance of Grantee's Facilities.

Grantor herein covenants and agrees that, in the event that any third party facilities or obstructions are located within Grantee's Exclusive Easement Area, Grantor will take immediate action to remove and/or relocate said facilities and/or obstructions to a location outside of Grantee's Exclusive Easement Area at Grantor's sole cost and expense.

If Grantor, its successors or assigns should, at any future date, request that the Easement Area herein granted be further defined, Grantee agrees, at Grantor's expense, to prepare a new, defined easement described by a sealed survey sketch. Defined easements shall be unobstructed and may be further described by, but not limited to, the following descriptions:

- 1.) A ten (10) foot wide easement (for above and below ground facilities);
- 2.) A ten (10) foot wide easement together with ten (10) foot aerial easements adjoining both sides of said ten (10) foot wide easement (for above ground and overhead facilities that are not along a perimeter);
- 3.) A ten (10) foot wide easement together with an adjoining eleven (11) foot, six (6) inch wide aerial easement (for above ground and overhead perimeter facilities);
- 4.) A fourteen (14) foot wide easement together with an adjoining seven (7) foot, six (6) inch wide aerial easement (for above ground and overhead perimeter facilities);

Grantee further agrees to release this Easement upon execution and delivery of the new defined easement by Grantor.

In the event that Grantor, its successors and assigns, desires that Grantee's Facilities be relocated, then Grantee agrees to relocate said Facilities provided that Grantor furnishes a suitable and feasible site or location for such relocation and, provided that

The Easement Area herein granted is a blanket easement and shall apply only insofar as the boundaries of Grantor's Property will permit. Grantee further reserves the right to extend services and drops within Grantor's Property and to adjacent land owners from said Facilities.

Grantor or its successors or assigns shall observe and exercise all notification laws as per the Underground Facility Damage Prevention and Safety Act, also known as "ONE CALL" & "CALL BEFORE YOU DIG" when working in or near the Easement Area.

To the extent that such laws and codes apply to Grantor, its successors and assigns, Grantor, its successors and assigns shall observe all safety codes and laws which apply to working along, within and or near the Easement Area and Facilities during construction activities and safe clearance from such Facilities, including O.S.H.A., Chapter 752 of the Texas Health and Safety Code, the National Electric Code, and the National Electrical Safety Code. Grantor, its successors or assigns, is hereby obligated to place National Electrical Safety Code notices into Community Deed Restrictions when the Easement Area falls within residential developments.

Grantor herein reserves the right to grant easements in favor of third parties across the herein described Easement Area in a near perpendicular fashion to Grantee's Facilities, the approximate locations of which are shown on Exhibit "A", attached hereto and made a part hereof, provided (i) no other utilities are permitted to cross within a vertical distance of twenty-four (24) inches of Grantee's below ground Facilities, (ii) no other facilities or structures shall be permitted longitudinally within a distance of five (5) feet of the centerline of any of Grantee's below ground and above ground Facilities, (iii) no other utilities or structures shall be permitted longitudinally within a distance of fifteen (15) feet of the centerline of any of Grantee's overhead Facilities, beginning at a plane sixteen (16) feet

Grantor, its successors and assigns, shall, if requested by Grantee, furnish to Grantee a suitable and acceptable easement covering the new location. Any and all costs associated with relocating said Facilities will be at Grantor's sole expense.

Grantee shall also have reasonable rights of ingress and egress to and from said Easement Area, together with reasonable working space, for the purposes of erecting, installing, operating, maintaining, replacing, inspecting, and removing said Facilities, together with the additional right to remove from said Easement Area, all bushes, trees and parts thereof, or other structures which, in the opinion of Grantee, endanger or may interfere with the efficiency, safe and proper operation, and maintenance of said Facilities.

TO HAVE AND TO HOLD the above described Easement, together with all and singular the rights and appurtenances thereto in anywise belonging, unto Grantee forever, and Grantor does hereby bind itself and its successors, heirs, assigns, and legal representatives, to fully warrant and forever defend all and singular the above described Easement and rights unto said Grantee, against every person whomsoever lawfully claiming or to claim the same or any part thereof, by, through or under Grantor, but not otherwise.

**ATTACHMENT
AFFIDAVIT**

STATE OF TEXAS }

COUNTY OF BRAZORA }

BEFORE me the undersigned authority on this day personally appeared

_____ the _____

of City of Pearland, hereinafter referred to as Affiant, who being duly sworn, deposes and says that Affiant is the current owner of the tract of land described in an easement instrument executed by the same on even date herewith, said tract of land is further described as follows:

That certain 0.467-acre tract of land out of the w. D. C. Hall League, Abstract 70, in Brazoria County, Texas, being the same property described as Parcel "A" in a deed from John B. Yost, et ux. to City of Pearland, dated April 21, 2004 and filed for record under County Clerk's File 2004027034 in the Official Public Records of Brazoria County, Texas.

Affiant further says that the said premises have been held by Affiant, that possession thereof has been peaceable and undisturbed, and that the title thereto has never been disputed or questioned to Affiant's knowledge, nor does Affiant know of any facts by reason of which said possession or title might be disturbed or questioned, or by reason of which any claim to said premises, or any part thereof, might arise or be set up adverse to this Affiant.

EXECUTED this _____ day of _____, 20__.

City of Pearland, a political subdivision of the State of Texas

BY: _____
Signature

Title

Name typed or printed

SUBSCRIBED and SWORN before me this ____ day of _____, 20__.

Notary's Signature

Name typed or printed

Commission Expires

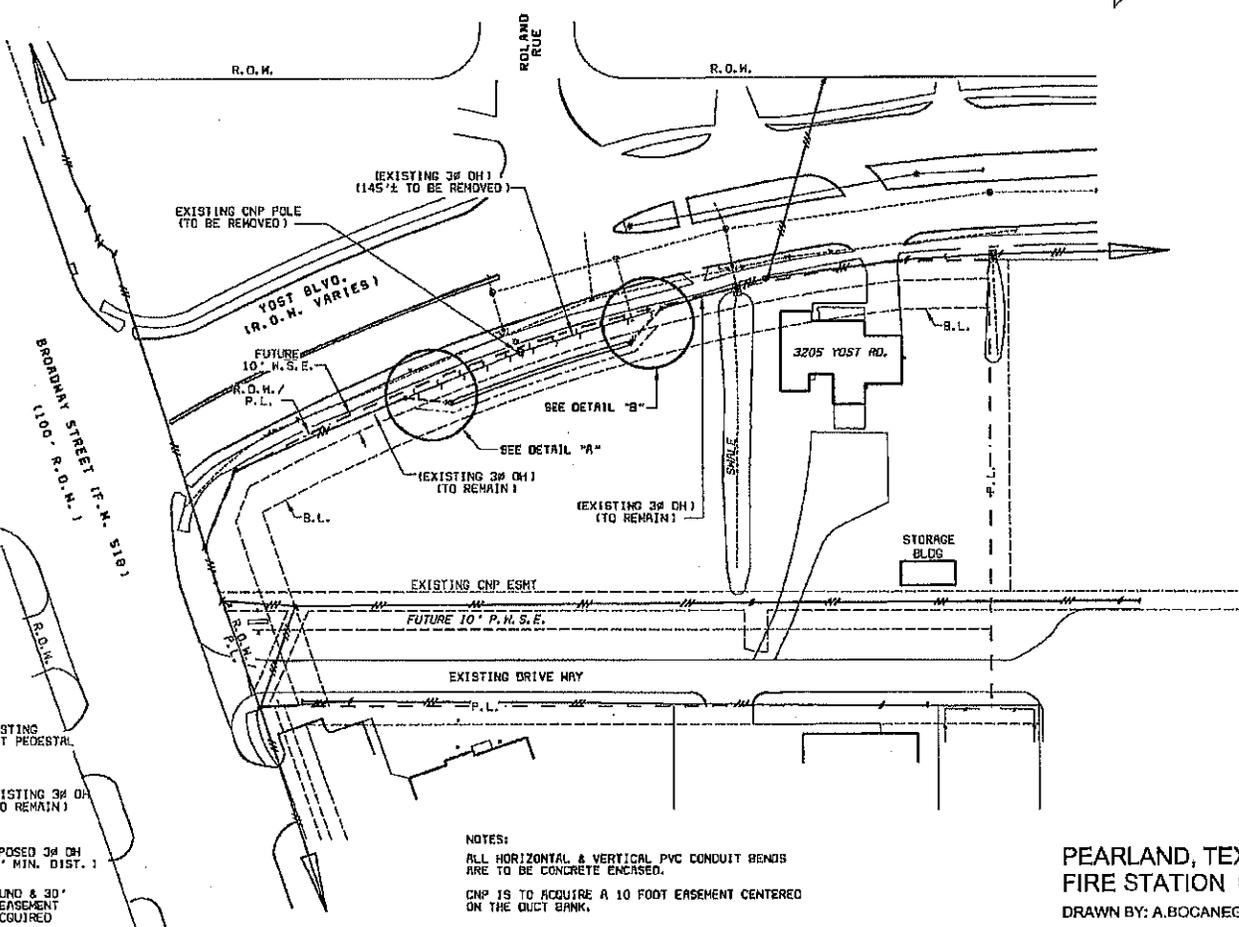
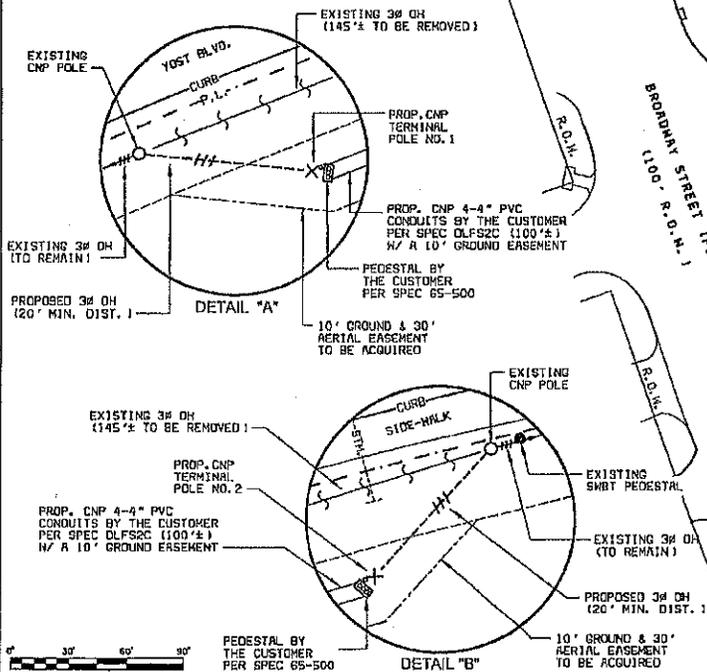
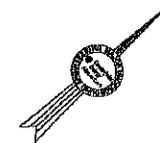
**AFTER RECORDING RETURN TO:
SURVEYING & RIGHT OF WAY
CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC
P. O. BOX 1700
HOUSTON, TX 77251-1700**

EXHIBIT "A"

SHEET: 1 OF 1

CenterPoint Energy MAJOR UNDERGROUND ENGINEERING WORKING SKETCH

LAMBERT NO.	KEY MAP	CIRCUIT	FUNCTIONAL LOCATION	SCALE	JOB NO.
5748A1	608-Q	MY02	UDG-005320	1"=60'	68546296



NOTES:
ALL HORIZONTAL & VERTICAL PVC CONDUIT BENDS ARE TO BE CONCRETE ENCASED.
CNP IS TO ACQUIRE A 10 FOOT EASEMENT CENTERED ON THE DUCT BANK.

PEARLAND, TEXAS
FIRE STATION #3
DRAWN BY: A.BOGANEGRA

New Business Item No. 9

9. **CONSIDERATION AND POSSIBLE ACTION – FIRST READING OF ORDINANCE NO. 943-21** – AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AMENDING FIGURE 7.2, THOROUGHFARE PLAN, OF THE CITY'S COMPREHENSIVE PLAN AS A GUIDE FOR PRESERVING A SENSE OF COMMUNITY, ATTRACTIVENESS AND SAFETY IN PEARLAND; CONTAINING A SAVINGS CLAUSE, A SEVERABILITY CLAUSE, AND A REPEALER CLAUSE; PROVIDING FOR AN EFFECTIVE DATE AND FOR CODIFICATION. *Mr. Jon R. Branson, Interim City Manager.*

**BUSINESS OF THE CITY COUNCIL
CITY OF PEARLAND, TEXAS**

AGENDA OF: March 10, 2014	ITEM NO.: Ordinance No. 943-21
DATE SUBMITTED: February 24, 2014	DEPT. OF ORIGIN: Planning
PREPARED BY: Johnna Matthews	PRESENTOR: Mike Hodge
REVIEWED BY: Mike Hodge	REVIEW DATE: February 28, 2014
SUBJECT: A request of the City of Pearland to amend the Thoroughfare Plan. General Location: The amendment will affect multiple roadways within the City of Pearland.	
Attachments: 1. Ordinance No. 943-21-2014-03-24 and Exhibits (A. Legal Ad; B. Planning and Zoning Commission Recommendation Letter; and C. Proposed Thouroughfare Plan) 2. Existing Thoroughfare Plan 3. Proposed Thoroughfare Plan 4. P&Z Recommendation Letter 5. Joint Public Hearing Staff Report	
EXPENDITURE REQUIRED: N/A AMOUNT AVAILABLE: N/A ACCOUNT NO.: N/A	AMOUNT BUDGETED: N/A PROJECT NO.: N/A
ADDITIONAL APPROPRIATION REQUIRED: N/A ACCOUNT NO.: N/A PROJECT NO.: N/A	
To be completed by Department: <input type="checkbox"/> Finance <input type="checkbox"/> Legal <input type="checkbox"/> Ordinance <input type="checkbox"/> Resolution	

EXECUTIVE SUMMARY

SUMMARY: The City of Pearland is proposing amendments to the Thoroughfare Plan which will have the effect of updating classifications of roadways based on developments that have occurred and realigning various roadways within the City. Specifically, the proposed amendment includes the following changes:

1. Prior to development, minor collectors show general connectivity. After development, the exact layout of the street is identified. The proposed amendment will show the exact alignment and layout of minor collectors. An example of these amendments include minor collectors in recently developed residential areas such as Shadow Creek Ranch and Southern Trails.
2. The Thoroughfare Plan currently identifies streets which connect through existing developments. The proposed amendment will remove these prohibited connections. An example of this amendment is the removal of the major collector shown on the existing Thoroughfare Plan off of Cullen Parkway to the east just north of the Public Safety Building. This major collector is shown on top of an existing cemetery.
3. There are currently existing roadways identified on the Thoroughfare Plan as roadways “to be widened.” As a result of development and CIP’s, these roadways have been reconstructed and sufficient right-of-way has been acquired. The proposed amendment will change the classification from “to be widened” to “sufficient width.” Some examples of these amendments include the following CIP projects:
 - Walnut Street from Veterans Dr to SH35;
 - Business Center Drive from CR 59 towards Broadway to the north; and
 - Orange Street from Hatfield Road to SH35.
4. As a result of various alignment studies, Pearland Parkway (Dixie Farm Road to FM 2351) and Dixie Farm Road (Veterans Street to SH-35), have been realigned. The proposed amendment will show the realignment.
5. As a result of various alignment studies, Max Road and McHard Road have been realigned. The proposed amendment will show the realignment.

A workshop was held before the City Council on June 17, 2013 and before the Planning and Zoning Commission on February 3, 2014. A joint public hearing was held on February 17, 2014.

STAFF RECOMMENDATION: Staff recommends approval of the amendments to the Thoroughfare Plan, as proposed.

PLANNING AND ZONING COMMISSION DISCUSSION: At the regular meeting of the Planning and Zoning Commission on February 17, 2014, Commissioner Daniel Tunstall

made a motion to approve the proposed amendments to the Thoroughfare Plan. The motion was seconded by Commissioner Elizabeth McLane. Following a brief discussion the motion passed with a vote of 7-0.

STAFF RECOMMENDATION TO COUNCIL: Consider the proposed Thoroughfare Plan amendments.

ATTACHMENT 1
ORDINANCE NO. 943-21-2014-03-24

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, AMENDING FIGURE 7.2, THOROUGHFARE PLAN, OF THE CITY'S COMPREHENSIVE PLAN AS A GUIDE FOR PRESERVING A SENSE OF COMMUNITY, ATTRACTIVENESS AND SAFETY IN PEARLAND; CONTAINING A SAVINGS CLAUSE, A SEVERABILITY CLAUSE, AND A REPEALER CLAUSE; PROVIDING FOR AN EFFECTIVE DATE AND FOR CODIFICATION.

WHEREAS, Texas Local Government Code Section 211.004 requires a municipality desiring to regulate the use of land within its corporate limits to adopt a comprehensive plan for future development; and

WHEREAS, on December 13, 1999, the City Council adopted a comprehensive plan setting goals, objectives, policies and criteria for Pearland's physical growth; and

WHEREAS, accommodating anticipated growth while preserving a sense of community is critical to the City's proper development; and

WHEREAS, on February 17, 2014, a Joint Public Hearing was held before the Planning and Zoning Commission and the City Council of the City of Pearland, Texas, notice being given by publication in the official newspaper of the City, the affidavit of publication being attached hereto and made a part hereof for all purposes as Exhibit "A"; and

WHEREAS, on February 18, 2014, the Planning and Zoning Commission of the City submitted its report and recommendation to the City Council regarding the proposed amendment to the Thoroughfare Plan, whereby the Commission recommended approval of the amendment to the Thoroughfare Plan, said

ORDINANCE NO. XX

recommendation attached hereto and made a part hereof for all purposes as Exhibit “B” and;

WHEREAS, upon receipt of the report from the Planning and Zoning Commission, City Council considered this application and the recommendation of the Planning and Zoning Commission at regular meetings on March 10, 2014 and March 24, 2014; and

WHEREAS, the City Council having fully heard the testimony and argument of all interested parties, and having been fully advised on the premises, finds that in the case of the application of the City of Pearland to amend the Thoroughfare Plan, attached as Exhibit “C,” presented which, in the judgment of the City Council, would justify the approval of said application; now, therefore,

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS:

Section 1. That City Council hereby amends Figure 7.2, *Thoroughfare Plan*, of the City’s Comprehensive Plan, attached hereto as Exhibit “A,” as a guide for accommodating anticipated growth while preserving a sense of community in Pearland.

Section 2. Savings. All rights and remedies which have accrued in favor of the City under this Chapter and amendments thereto shall be and are preserved for the benefit of the City.

Section 3. Severability. If any section, subsection, sentence, clause, phrase or portion of this Ordinance is for any reason held invalid, unconstitutional or otherwise unenforceable by any court of competent jurisdiction, such portion shall be deemed a

ORDINANCE NO. XX

separate, distinct, and independent provision and such holding shall not affect the validity of the remaining portions thereof.

Section 4. Repealer. All ordinances and parts of ordinances in conflict herewith are hereby repealed but only to the extent of such conflict.

Section 5. Codification. It is the intent of the City Council of the City of Pearland, Texas, that the provisions of this Ordinance shall be codified in the City's official Code of Ordinances as provided hereinabove.

Section 6. Effective Date. The Ordinance shall become effective immediately upon its passage and approval on second and final reading.

PASSED and APPROVED ON SECOND AND FINAL READING this the 24th day of March, A.D., 2014

TOM REID
MAYOR

ATTEST:

YOUNG LORFING, TRMC
CITY SECRETARY

APPROVED AS TO FORM:

DARRIN M. COKER
CITY ATTORNEY

ORDINANCE NO. XX

**EXHIBIT A
LEGAL AD**

**NOTICE OF A JOINT PUBLIC HEARING OF
THE CITY COUNCIL**

AND

THE PLANNING AND ZONING COMMISSION

OF THE CITY OF PEARLAND, TEXAS

**CITY OF PEARLAND – THOROUGHFARE
PLAN UPDATE**

Notice is hereby given that on February 17, 2014 at 6:30 p.m., the City Council and Planning and Zoning Commission of the City of Pearland, in Brazoria, Harris and Fort Bend Counties, Texas, will conduct a joint public hearing in the Council Chambers of City Hall, located at 3519 Liberty Drive, Pearland, Texas, on the request of the City of Pearland for an amendment to the City's Master Thoroughfare Plan.

At said hearing, all interested parties shall have the right and opportunity to appear and be heard on the subject. For additional information, please contact the Engineering Department at 281-652-1637.

Andrea Broughton
City Engineer

**EXHIBIT B
PLANNING AND ZONING COMMISSION RECOMMENDATION LETTER**



Planning & Zoning Commission

Recommendation Letter

February 18, 2014

Honorable Mayor and City Council Members
3519 Liberty Drive
Pearland, TX 77581

Re: Recommendation on Thoroughfare Plan Amendment

Honorable Mayor and City Council Members:

At their meeting on February 17, 2014, the Planning and Zoning Commission considered the following:

A request of the City of Pearland to amend the Thoroughfare Plan.

GENERAL LOCATION: The request will affect multiple roadways throughout the City of Pearland.

Following a brief staff presentation at the regular meeting of the Planning and Zoning Commission on February 17, 2014, Commissioner Daniel Tunstall made a motion to approve the proposed amendments to the Thoroughfare Plan. The motion was seconded by Commissioner Elizabeth McLane. The motion passed 7-0.

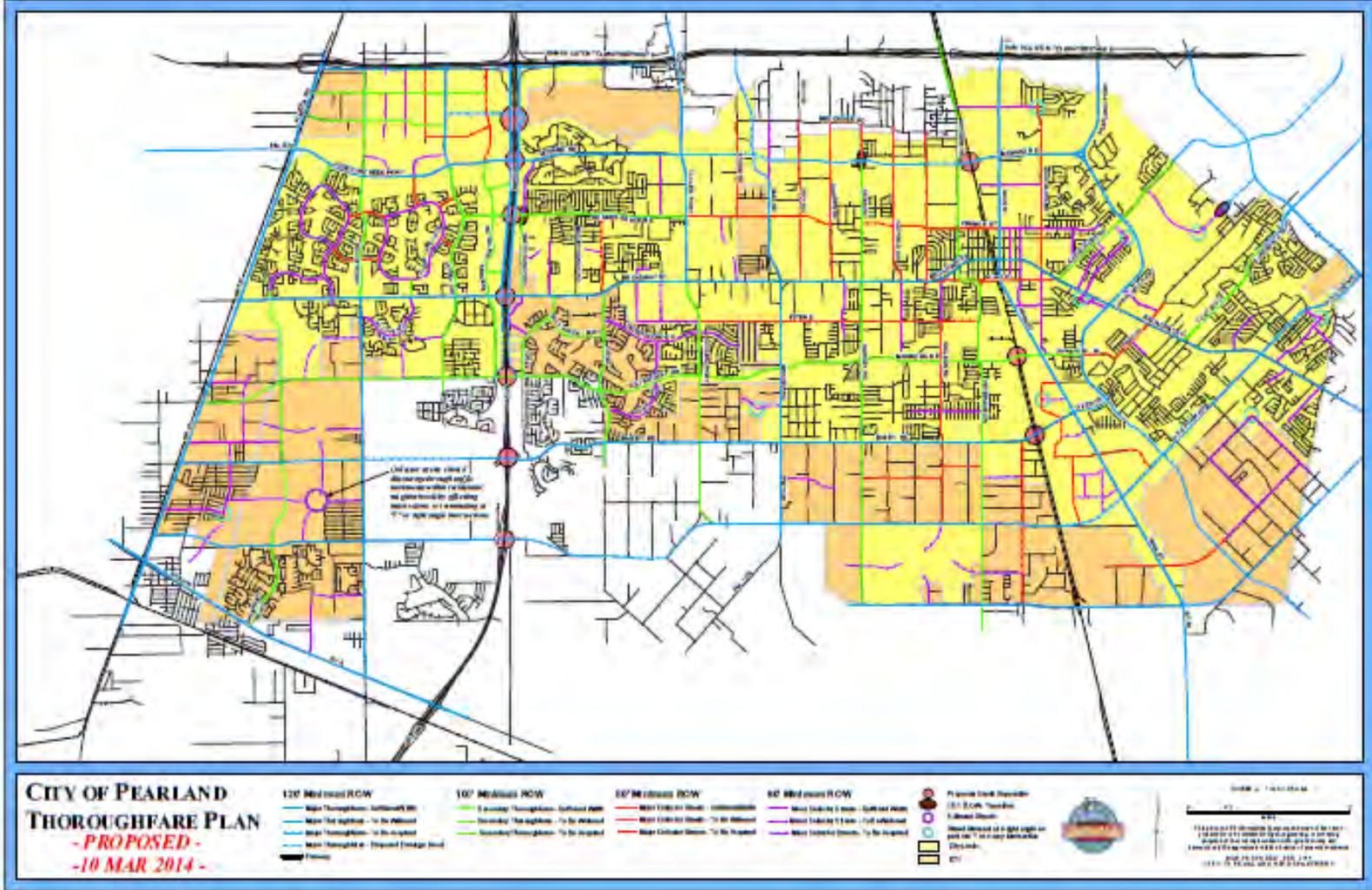
Sincerely,

Johnna Matthews
Senior Planner
On behalf of the Planning and Zoning Commission

ORDINANCE NO. XX

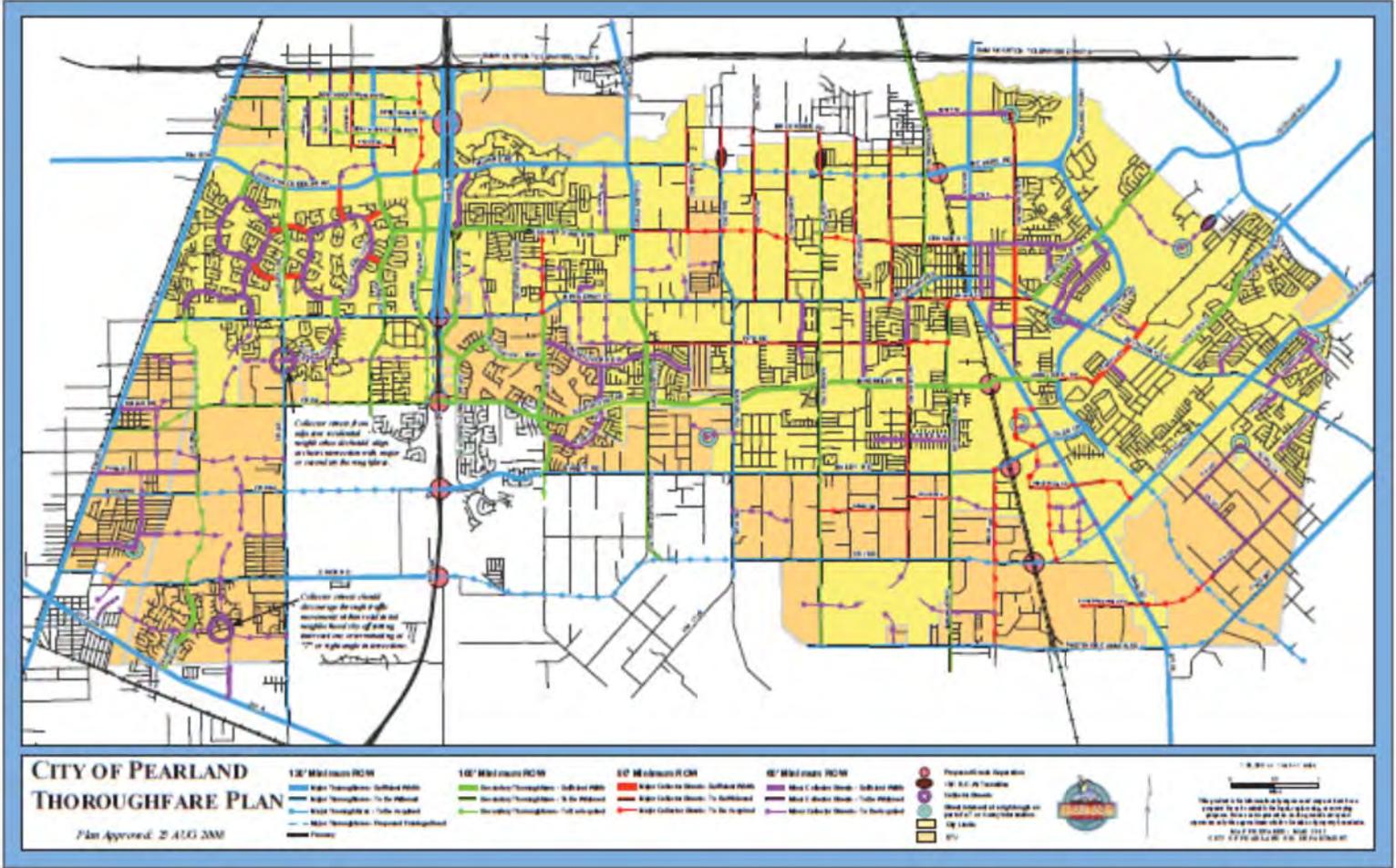
ORDINANCE NO. XX

**EXHIBIT C
THOROUGHFARE PLAN**

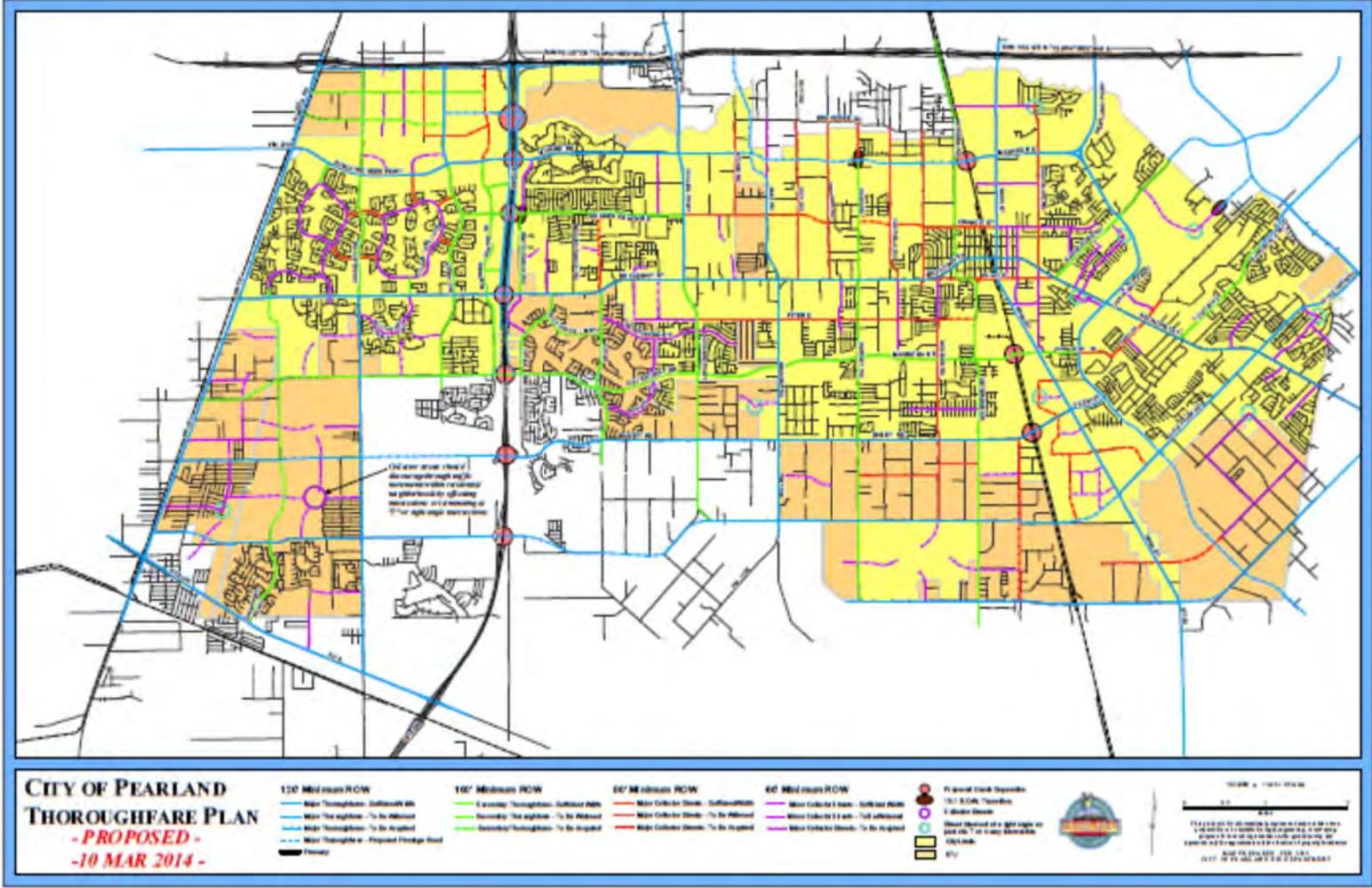


ORDINANCE NO. XX

**ATTACHMENT 2
EXISTING THOROUGHFARE PLAN**



ATTACHMENT 3
PROPOSED THOROUGHFARE PLAN



ATTACHMENT 4
PLANNING AND ZONING COMMISSION RECOMMENDATION LETTER



Planning & Zoning Commission

Recommendation Letter

February 18, 2014

Honorable Mayor and City Council Members
3519 Liberty Drive
Pearland, TX 77581

Re: Recommendation on Thoroughfare Plan Amendment

Honorable Mayor and City Council Members:

At their meeting on February 17, 2014, the Planning and Zoning Commission considered the following:

A request of the City of Pearland to amend the Thoroughfare Plan.

GENERAL LOCATION: The request will affect multiple roadways throughout the City of Pearland.

Following a brief staff presentation at the regular meeting of the Planning and Zoning Commission on February 17, 2014, Commissioner Daniel Tunstall made a motion to approve the proposed amendments to the Thoroughfare Plan. The motion was seconded by Commissioner Elizabeth McLane. The motion passed 7-0.

Sincerely,

Johnna Matthews
Senior Planner
On behalf of the Planning and Zoning Commission

ATTACHMENT 5
JOINT PUBLIC HEARING STAFF REPORT



JOINT PUBLIC HEARING AGENDA ITEM
MEETING OF FEBRUARY 17, 2014

Thoroughfare Plan Amendment

A request of the City of Pearland to amend the Thoroughfare Plan.

APPROVAL PROCESS: After the Joint Public Hearing, the requested Conditional Use Permit application will be considered as follows:

Planning and Zoning Commission:	February 17, 2014*
City Council First Reading:	March 10, 2014*
City Council Second Reading:	March 24, 2014*

(*dates subject to change)

SUMMARY: A Thoroughfare Plan is a transportation planning tool that identifies and classifies thoroughfares in the City that will support the City's development goals and mobility along with connectivity throughout the City. It is instrumental in identifying, and prioritizing projects for 5-Year Capital Improvement Projects (CIP). The City of Pearland's objective is to amend the Thoroughfare Plan every three (3) to four (4) years, based on development activity, land use studies, environmental issues, etc. The City of Pearland is proposing amendments to the Thoroughfare Plan which will have the effect of updating classifications of roadways based on developments that

have occurred and realigning various roadways within the City. Specifically, the proposed amendment will include the following changes to the Thoroughfare Plan.

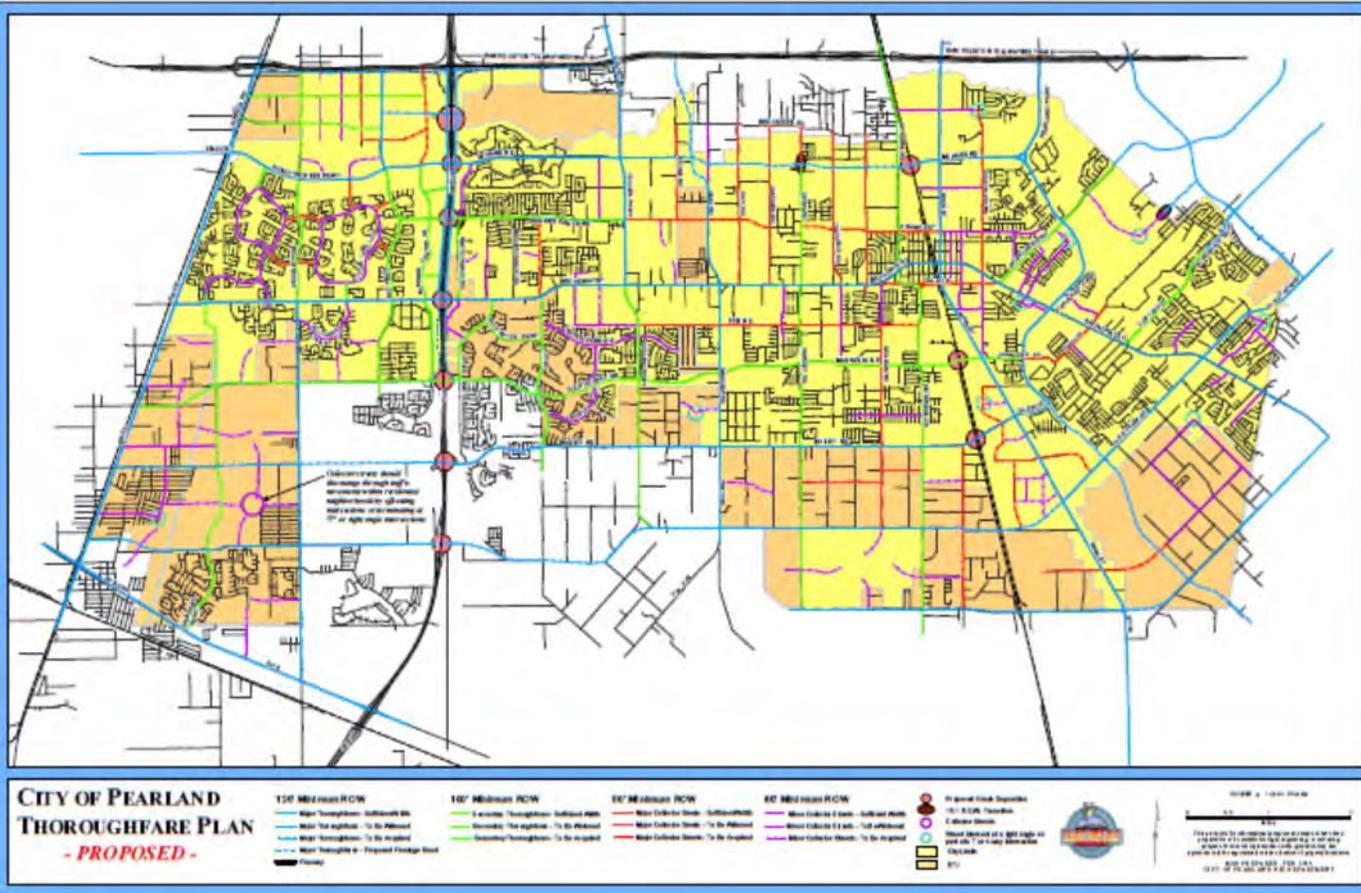
1. Prior to development, minor collectors show general connectivity. After development, the exact layout of the street is identified. The proposed amendment will show the exact alignment and layout of minor collectors. An example of these amendments include minor collectors in recently developed residential areas such as Shadow Creek Ranch and Southern Trails.
2. The Thoroughfare Plan currently identifies streets which connect through existing developments. The proposed amendment will remove these prohibited connections. An example of this amendment is the removal of the major collector shown on the existing Thoroughfare Plan off of Cullen Parkway to the east just north of the Public Safety Building. This major collector is shown on top of an existing cemetery.
3. There are currently existing roadways identified on the Thoroughfare Plan as roadways “to be widened.” As a result of development and CIP’s, these roadways have been reconstructed and sufficient right-of-way has been acquired. The proposed amendment will change the classification from “to be widened” to “sufficient width.” Some examples of these amendments include the following CIP projects:
 - Walnut Street from Veterans Dr to SH35;
 - Business Center Drive from CR 59 towards Broadway to the north; and
 - Orange Street from Hatfield Road to SH35.
4. As a result of various alignment studies, Pearland Parkway (Dixie Farm Road to FM 2351) and Dixie Farm Road (Veterans Street to SH-35), have been realigned. The proposed amendment will show the realignment.
5. As a result of various alignment studies, Max Road and McHard Road have been realigned. The proposed amendment will show the realignment.

A workshop was held before the City Council on June 17, 2013 and before the Planning and Zoning Commission on February 3, 2014.

STAFF RECOMMENDATION: Staff recommends approval of the amendments to the Thoroughfare Plan, as proposed.

SUPPORTING DOCUMENTS

- Existing Thoroughfare Plan
- Proposed Thoroughfare Plan (Mark-Up)
- Proposed Thoroughfare Plan



New Business Item No. 10

10. **CONSIDERATION AND POSSIBLE ACTION – RESOLUTION NO. R2014-22** – A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, APPROVING A BOND ORDER OF BRAZORIA COUNTY MUNICIPAL UTILITY DISTRICT NO. 6 AUTHORIZING THE ISSUANCE OF APPROXIMATELY \$8,175,000 UNLIMITED TAX REFUNDING BONDS, SERIES 2014. *Mr. Darrin Coker, City Attorney.*

**AGENDA REQUEST
BUSINESS OF THE CITY COUNCIL
CITY OF PEARLAND, TEXAS**

AGENDA OF: 2-10-2014	ITEM NO.: Resolution No. R2014-22
DATE SUBMITTED:	DEPARTMENT OF ORIGIN: Legal
PREPARED BY: Darrin Coker	PRESENTOR: Darrin Coker
REVIEWED BY: NA	REVIEW DATE: NA
SUBJECT: MUD 6 Bonds	
EXHIBITS: R2014-22; Bond Summary; MUD Map	
EXPENDITURE REQUIRED: AMOUNT AVAILABLE: ACCOUNT NO.:	AMOUNT BUDGETED: PROJECT NO.:
ADDITIONAL APPROPRIATION REQUIRED: ACCOUNT NO.: PROJECT NO.:	
To be completed by Department: <input type="checkbox"/> Finance <input checked="" type="checkbox"/> Legal <input type="checkbox"/> Ordinance <input checked="" type="checkbox"/> Resolution	

EXECUTIVE SUMMARY

Brazoria County Municipal Utility District No. 6 ("District"), located just east of SH 288, is seeking the Council's consent to proceed with the refunding of the District's Series 2004 and 2004-A Bonds. The purpose of the refunding is to lower the District's annual debt service. The proposed issuance of refunding bonds would not extend the maturity date of the Bonds beyond the original maturity date, and is expected to result in an estimated savings of \$752,336 which is 8.05% of the Bonds being refunded. The MUDs Financial Advisor will be present to answer any questions you may have.

RESOLUTION NO. R2014-22

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS, APPROVING A BOND ORDER OF BRAZORIA COUNTY MUNICIPAL UTILITY DISTRICT NO. 6 AUTHORIZING THE ISSUANCE OF APPROXIMATELY \$8,175,000 UNLIMITED TAX REFUNDING BONDS, SERIES 2014.

WHEREAS, the Brazoria County Municipal Utility District No. 6 (the "District") is located within the extraterritorial jurisdiction of the City of Pearland, Texas (the "City"); and

WHEREAS, by Resolution No. R 86-7, dated February 10, 1986, the City consented to the creation of the District, and placed certain conditions on the issuance of bonds by the District, including the approval by the City Council of the District's issuance of such bonds; and

WHEREAS, the City Council has considered the District's proposed \$8,175,000 Unlimited Tax Refunding Bonds, Series 2014, and has found it to be acceptable; now, therefore,

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF PEARLAND, TEXAS:

Section 1. All of the matters and facts set forth in the preamble hereof are true and correct.

Section 2. The bond order of the board of directors of Brazoria County Municipal Utility District No. 6, authorizing the issuance of its \$8,175,000 Unlimited Tax Refunding Bonds, Series 2014, is hereby approved.

Section 3. This Resolution shall take effect immediately from and after its passage in accordance with the provisions of the Charter of the City of Pearland and it is accordingly so resolved.

PASSED, APPROVED and ADOPTED this the _____ day of _____, A. D., 2014.

RESOLUTION NO. R2014-22

TOM REID
MAYOR

ATTEST:

YOUNG LORFING, TRMC
CITY SECRETARY

APPROVED AS TO FORM:

DARRIN M. COKER
CITY ATTORNEY



RBC Capital Markets®

Eugene B. Shepherd
Managing Director
Fixed Income Banking
1001 Fannin Street, Suite 1200
Houston, Texas 77002

Phone: (713) 651-3338
Fax: (713) 651-3347
Eugene.Shepherd@rbccm.com

February 27, 2014

Mr. Darrin M. Coker
City Attorney
City of Pearland
3519 Liberty Drive
Pearland, TX 77581

Re: \$8,175,000 (approximate) Brazoria County Municipal Utility District No. 6
Unlimited Tax Refunding Bonds, Series 2014

Dear Mr. Coker:

At the regular monthly Board of Directors Meeting of the Brazoria County Municipal Utility District No. 6 (the "District"), the Board authorized our firm and Bond Counsel, Schwartz, Page & Harding, L.L.P. to proceed with the details relating to a refunding of the District's Series 2004 and 2004-A Bonds. The purpose of the refunding would be to lower the District's total debt service payments without increasing the final maturity of the Bonds.

The District respectfully requests Council's review and approval of the request to issue Series 2014 Refunding Bonds. The Bonds should be sold during the month of March, 2014. Review and approval by the Council at the earliest Council meeting would be greatly appreciated.

I am enclosing a summary of the results of the refunding. The reduction in total debt service is approximately \$752,336, which is 8.05% of the Bonds being refunded. The average maturity of the refunding bonds is 6.79 years. The average life of the Bonds being refunded is 6.93 years.

Thank you very much for your consideration of our request. If you have any questions, please do not hesitate in telephoning me at 713/651-3338.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Eugene B. Shepherd'.

Eugene B. Shepherd
Managing Director

EBS/rr

cc: Peter Harding, Schwartz, Page & Harding, L.L.P.
S. David Smalling

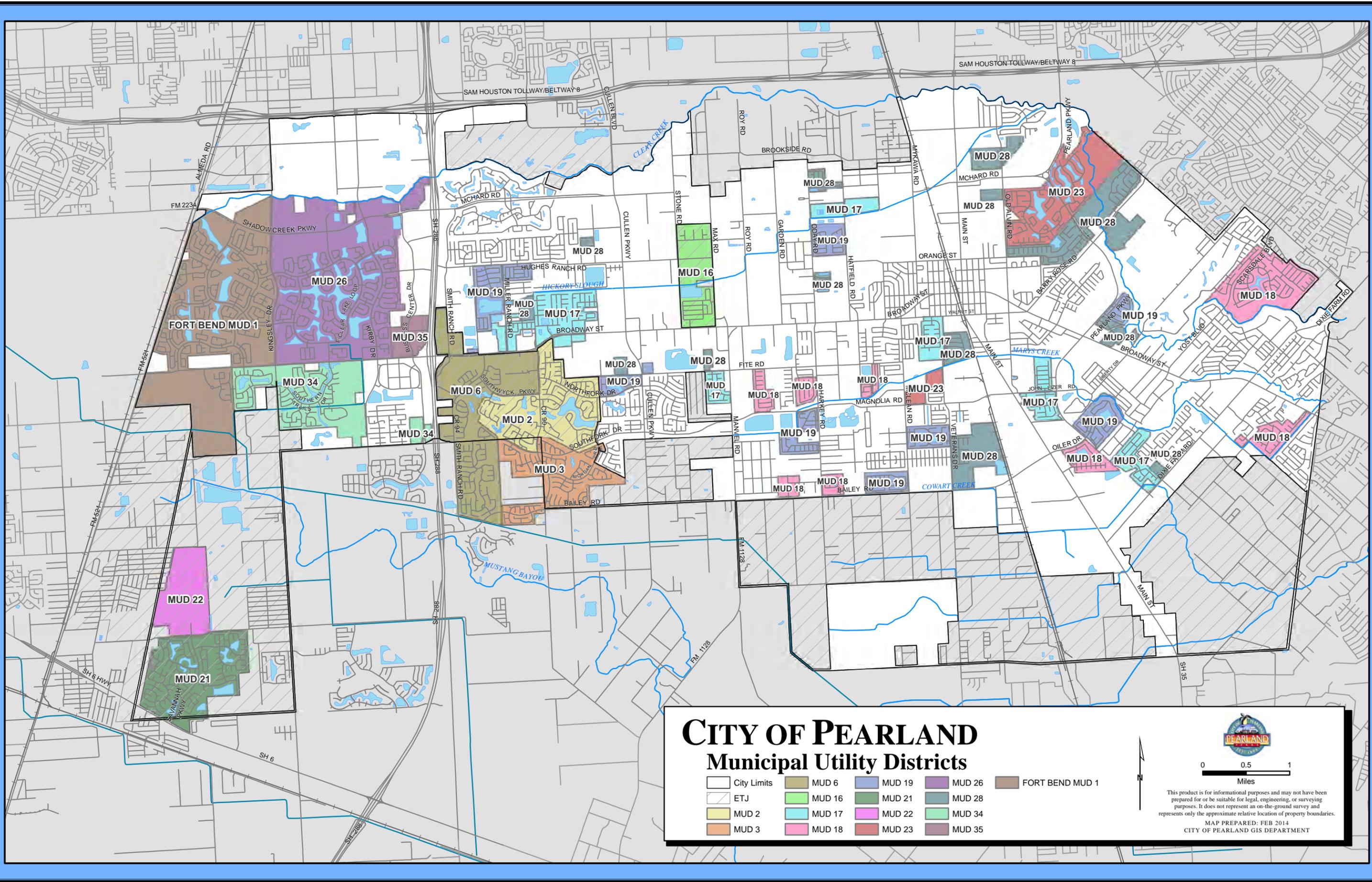
SUMMARY OF REFUNDING BONDS RESULTS

Bond Program Enhancement – Refunding For Interest Cost Savings

REFUNDING BONDS, SERIES 2014	
Principal Amount of Bonds to be Refunded	\$ 7,935,000
Principal Amount of Refunding Bonds	\$ 8,175,000
All-In True Interest Rate on Refunding Bonds	3.1588%
Average Coupon on Refunded Bonds	4.7739%
Average Life of Refunding Bonds	6.790 yrs
Average Life of Refunded Bonds	6.932 yrs
Total Debt Service Savings	\$ 752,336
Average Annual Savings	\$ 75,234
Net Present Value Savings	\$ 639,150 (a)
Present Value Savings as a Percent of Principal Amount of Bonds Being Refunded	8.0548%

a) Net present value savings are net of transaction expenses. There is approximately \$75,104 of negative arbitrage in the refunding escrow.





CITY OF PEARLAND

Municipal Utility Districts

- | | | | | |
|-------------|--------|--------|--------|-----------------|
| City Limits | MUD 6 | MUD 19 | MUD 26 | FORT BEND MUD 1 |
| ETJ | MUD 16 | MUD 21 | MUD 28 | |
| MUD 2 | MUD 17 | MUD 22 | MUD 34 | |
| MUD 3 | MUD 18 | MUD 23 | MUD 35 | |



This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries.

MAP PREPARED: FEB 2014
CITY OF PEARLAND GIS DEPARTMENT

New Business Item No. 11

11. **CONSIDERATION AND POSSIBLE ACTION – REGARDING ECONOMIC DEVELOPMENT NEGOTIATIONS.** *City Council.*

New Business Item No. 12

12. **CONSIDERATION AND POSSIBLE ACTION – REGARDING
POTENTIAL LITIGATION ASSOCIATED WITH COLE'S FLEA MARKET.**
City Council.