

**REVIEW BY FORT BEND COUNTY  
COMMISSIONERS COURT**

**Fort Bend County 10A**  
**Engineering Department**  
301 Jackson Suite 401  
Richmond, Texas 77469  
281.633.7500  
Permits@fortbendcountytexas.gov

**Right of Way Permit**  
 **Commercial Driveway Permit**  
Permit No: 2018-20155

**Applicant:** Resicom, Inc.

**Job Location Site:** Clear Creek Lateral VI-A, Pearland, TX 77584

**Bond No.**                      **Date of Bond:** 4/12/2018 **Amount:** \$5,000.00

The above applicant came to make use of certain Fort Bend County property subject to, "The Order Regulating the Laying, Construction, Maintenance, and Repair of Buried Cables, Conduits, and Pole Lines, In, Under, Across or Along Roads, Streets, Highways, and Drainage Ditches in Fort Bend County, Texas, Under the Jurisdiction of the Commissioners Court of Fort Bend County, Texas," as passed by the Commissioners Court of Fort Bend County, Texas, of the Minutes of the Commissioners Court of Fort Bend County, Texas, to the extent that such order is not inconsistent with Chapter 181, Vernon's Texas Statutes and Codes Annotated.

**Notes:**

1. Evidence of review by the Commissioners Court must be kept on the job site and failure to do so constitutes grounds for job shutdown.
2. Written notices are required:
  - a. 48 hours in advance of construction start up, and
  - b. When construction is completed and ready for final inspection, submit notification to Permit Administrator thru MyGovernmentOnline.org portal.
3. This permit expires one (1) year from date of permit if construction has not commenced.

On this 1st day of May, 2018, Upon Motion of Commissioner Meyers, seconded by Commissioner Morales, duly put and carried, it is ORDERED, ADJUDGED AND DECREED that said notice of said above purpose is hereby acknowledged by the Commissioners Court of Fort Bend County, Texas, and that said notice be placed on record according to the regulation order thereof.

**Signature**

Presented to Commissioners Court and approved.

By: Rick J Staigle, PE, PTOE  
County Engineer

Date Recorded 5-7-2018 Comm. Court No. 10A

By: Mark Vogler  
Drainage District Engineer/Manager

Clerk of Commissioners Court  
By: Aracely Wallis  
Deputy



**PERMIT APPLICATION REVIEW FORM FOR  
CABLE, CONDUIT, AND POLE LINE ACTIVITY  
IN FORT BEND COUNTY**

**Fort Bend County  
Engineering Department**  
301 Jackson Suite 401  
Richmond, Texas 77469  
281.633.7500  
Permits@fortbendcountytexas.gov

- Right of Way Permit**
- Commercial Driveway Permit**

Permit No: 2018-20155

The following "Notice of Proposed Cable, Conduit, and/or Pole Line activity in Fort Bend County" and accompanying attachments have been reviewed and the notice conforms to appropriate regulations set by Commissioner's Court of Fort Bend County, Texas.

**(1) COMPLETE APPLICATION FORM:**

- a. Name of road, street, and/or drainage ditch affected.
- b. Vicinity map showing course of directions
- c. Plans and specifications

**(2) BOND:**

- County Attorney, approval when applicable.
- Perpetual bond currently posted.      Bond No: \_\_\_\_\_ Amount: \_\_\_\_\_
- Performance bond submitted.      Bond No: [REDACTED] Amount: \$5,000.00
- Cashier's Check      Check No: \_\_\_\_\_ Amount: \_\_\_\_\_

**(3) DRAINAGE DISTRICT APPROVAL (WHEN APPLICABLE):**

*Mark Vagle*  
\_\_\_\_\_  
Drainage District Approval

\_\_\_\_\_  
Date

**We have reviewed this project and agree it meets minimum requirements.**

*Rich J. Staigle, PE, PTOE*  
\_\_\_\_\_  
Permit Administrator

4/23/2018  
\_\_\_\_\_  
Date

**PERFORMANCE BOND COVERING ALL CABLE, CONDUIT AND/OR POLE LINE  
ACTIVITY IN, UNDER, ACROSS OR ALONG FORT BEND COUNTY ROADS  
AUTHORIZED**

BOND NO. \_\_\_\_\_  
THE STATE OF TEXAS §  
COUNTY OF FORT BEND §

KNOW ALL MEN BY THESE PRESENTS:

THAT WE, \_\_\_\_\_ Resicom, Inc. whose address is \_\_\_\_\_ Bellaire, TX 77401, Texas, hereinafter called the Principal, and \_\_\_\_\_ The Guarantee Co. Of North America USA, a Corporation existing under and by virtue of the laws of the State of Michigan and authorized to do an indemnifying business in the State of Texas, and whose principal office is located at \_\_\_\_\_ One Towne Square Ste 1470, Southfield, MI 48076, whose officer residing in the State of Texas, authorized to accept service in all suits and actions brought within said State is TX and whose address is 1999 Bryan St, Ste 900 Dallas, TX 75201 hereinafter called the Surety, and held and firmly bound unto, Robert E. Hebert, County Judge of Fort Bend County, Texas, or his successors in office, in the full sum of Five Thousand Dollars Dollars (\$ 5,000 ) current, lawful money of the United States of America, to be paid to said Robert E. Hebert, County Judge of Fort Bend County, Texas, or his successors in office, to which payment well and truly to be made and done, we, the undersigned, bind ourselves and each of us, our heirs, executors, administrators, successors, assigns, and legal representatives, jointly and severally, by these presents.

THE CONDITION OF THIS BOND IS SUCH THAT, WHEREAS, the above bounden principal contemplates laying, constructing, maintaining and/or repairing one or more cables, conduits, and/or pole lines in, under, across and/or along roads, streets and highways in the County of Fort Bend, and the State of Texas, under the jurisdiction of the Commissioners' Court of Fort Bend County, Texas, pursuant to the Commissioners' Court order adopted on the 1st day of December, A.D. 1980, recorded in Volume 13, of the Commissioners' Court Minutes of Fort Bend County, Texas, regulating same, which Commissioners' Court order is hereby referred to and made a part hereof for all purposes as though fully set out herein;

AND WHEREAS, the principal desires to provide Fort Bend County with a performance bond covering all such cable, conduit and/or pole line activity;

NOW, THEREFORE, if the above bounden principal shall faithfully perform all its cable, conduit and/or pole line activity (including, but not limited to the laying, construction, maintenance and/or repair of cables, conduits and/or pole lines) in, under, across and/or along roads, streets and highways in the County of Fort Bend and State of Texas, under the jurisdiction of the Commissioners Court of Fort Bend County, Texas, pursuant to and in accordance with minimum requirements and conditions of the above mentioned Commissioners' Court order set forth and specified to be by said principal done and performed, at the time and in the manner therein specified, and shall pay over and make good and reimburse Fort Bend County, all loss and damages which Fort Bend County may sustain by reason of any failure or default on the part of said principal, then this obligation shall be null and void, otherwise to remain in full force and effect.

This bond is payable at the County Courthouse in the County of Fort Bend and State of Texas.

It is understood that at any time Fort Bend County deems itself insecure under this bond, it may require further and/or additional bonds of the principal.

EXECUTED this 12th day of April, 2018

Resicom, Inc.

PRINCIPAL

BY

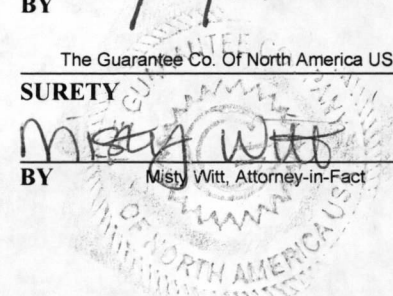
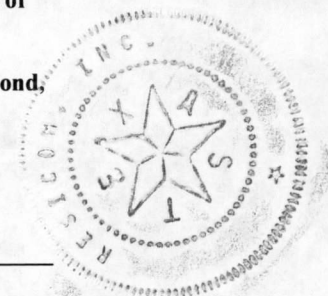
The Guarantee Co. Of North America USA

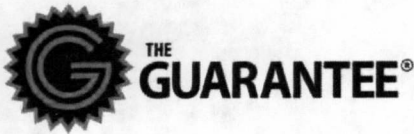
SURETY

BY

Misty Witt, Attorney-in-Fact

CCM 5-1-2018 # 10A  
Fort Bend County Clerk  
Return Admin Serv Coord  
Permit# 2018-20155 RAC





**POWER OF ATTORNEY**

**POWER OF ATTORNEY NUMBER (must match bond number on bond):** [REDACTED]

Fort Bend County Cable Line Performance Bond  
Five Thousand Dollars (\$5,000.00)

**KNOW ALL BY THESE PRESENTS:** That **THE GUARANTEE COMPANY OF NORTH AMERICA USA**, a corporation organized and existing under the laws of the State of Michigan, having its principal office in Southfield, Michigan, does hereby constitute and appoint

Misty Witt, The Woodlands, TX

its true and lawful attorney(s)-in-fact to execute, seal and deliver for and on its behalf as surety, any and all bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof, which are or may be allowed, required or permitted by law, statute, rule, regulation, contract or otherwise.

The execution of such instrument(s) in pursuance of these presents, shall be as binding upon **THE GUARANTEE COMPANY OF NORTH AMERICA USA** as fully and amply, to all intents and purposes, as if the same had been duly executed and acknowledged by its regularly elected officers at the principal office.

The Power of Attorney is executed and may be certified so, and may be revoked, pursuant to and by authority of Article IX, Section 9.03 of the By-Laws adopted by the Board of Directors of **THE GUARANTEE COMPANY OF NORTH AMERICA USA** at a meeting held on the 31<sup>st</sup> day of December, 2003. The President, or any Vice President, acting with any Secretary or Assistant Secretary, shall have power and authority:

1. To appoint Attorney(s)-in-fact, and to authorize them to execute on behalf of the Company, and attach the Seal of the Company thereto, bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof, and
2. To revoke, at any time, any such Attorney-in-fact and revoke the authority given, except as provided below
3. In connection with obligations in favor of the Florida Department of Transportation only, it is agreed that the power and authority hereby given to the Attorney-in-Fact includes any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts required by the State of Florida Department of Transportation. It is fully understood that consenting to the State of Florida Department of Transportation making payment of the final estimate to the Contractor and/or its assignee, shall not relieve this surety company of any of its obligations under its bond.
4. In connection with obligations in favor of the Kentucky Department of Highways only, it is agreed that the power and authority hereby given to the Attorney-in-Fact cannot be modified or revoked unless prior written personal notice of such intent has been given to the Commissioner – Department of Highways of the Commonwealth of Kentucky at least thirty (30) days prior to the modification or revocation.

Further, this Power of Attorney is signed and sealed by facsimile pursuant to resolution of the Board of Directors of the Company adopted at a meeting duly called and held on the 6th day of December 2011, of which the following is a true excerpt:

RESOLVED that the signature of any authorized officer and the seal of the Company may be affixed by facsimile to any Power of Attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, contracts of indemnity and other writings obligatory in the nature thereof, and such signature and seal when so used shall have the same force and effect as though manually affixed.

IN WITNESS WHEREOF, **THE GUARANTEE COMPANY OF NORTH AMERICA USA** has caused this instrument to be signed and its corporate seal to be affixed by its authorized officer, this 1<sup>st</sup> day of March, 2018.



**THE GUARANTEE COMPANY OF NORTH AMERICA USA**

*Stephen C. Ruschak*

*Randall Musselman*

STATE OF MICHIGAN  
County of Oakland

Stephen C. Ruschak, President & Chief Operating Officer

Randall Musselman, Secretary

On this 1st day of March, 2018 before me came the individuals who executed the preceding instrument, to me personally known, and being by me duly sworn, said that each is the herein described and authorized officer of The Guarantee Company of North America USA; that the seal affixed to said instrument is the Corporate Seal of said Company; that the Corporate Seal and each signature were duly affixed by order of the Board of Directors of said Company.



Cynthia A. Takai  
Notary Public, State of Michigan  
County of Oakland  
My Commission Expires February 27, 2024  
Acting in Oakland County

IN WITNESS WHEREOF, I have hereunto set my hand at The Guarantee Company of North America USA offices the day and year above written.

*Cynthia A. Takai*

I, Randall Musselman, Secretary of **THE GUARANTEE COMPANY OF NORTH AMERICA USA**, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney executed by **THE GUARANTEE COMPANY OF NORTH AMERICA USA**, which is still in full force and effect.

IN WITNESS WHEREOF, I have thereunto set my hand and attached the seal of said Company this 12<sup>th</sup> day of April 2018



*Randall Musselman*

Randall Musselman, Secretary



## TEXAS CONSUMER NOTICE

### 1. IMPORTANT NOTICE

To obtain information or make a complaint:

2. You may contact your **agent** at:

3. You may call The Guarantee Company of North America USA's toll-free telephone number for information or to make a complaint at: 1-866-328-0567

4. You may also write to The Guarantee Company of North America USA at:

One Towne Square, Suite 1470  
Southfield, Michigan 48076  
Web: [www.theguaranteeus.com](http://www.theguaranteeus.com)  
E-mail: [Info@theguaranteeus.com](mailto:Info@theguaranteeus.com)  
Fax: 248-750-0431

5. You may contact the Texas Department of Insurance to obtain information on companies, coverages, rights or complaints at: 1-800-252-3439

6. You may write the Texas Department of Insurance:  
333 Guadalupe Street  
P.O. Box 149104  
Austin, TX 78701  
Fax: (512) 490-1007  
Web: <http://www.tdi.texas.gov>  
E-mail: [ConsumerProtection@tdi.texas.gov](mailto:ConsumerProtection@tdi.texas.gov)

### 7. PREMIUM OR CLAIM DISPUTES:

Should you have a dispute concerning your premium or about a claim you should contact the (agent) (company) (agent or the company) first. If the dispute is not resolved, you may contact the Texas Department of Insurance.

### 8. ATTACH THIS NOTICE TO YOUR POLICY:

This notice is for information only and does not become a part or condition of the attached document.

### AVISO IMPORTANTE

Para obtener informacion o para someter una queja:

Puede comunicarse con su **agente** al

Usted puede llamar al numero de telefono gratis de The Guarantee Company of North America USA's para informacion o para someter una queja al: 1-866-328-0567

Usted tambien puede escribir a The Guarantee Company of North America USA;

One Towne Square, Suite 1470  
Southfield, Michigan 48076  
Web: [www.theguaranteeus.com](http://www.theguaranteeus.com)  
E-mail: [Info@theguaranteeus.com](mailto:Info@theguaranteeus.com)  
Fax: 248-750-0431

Puede comunicarse con el Departamento de Seguros de Texas para obtener informacion acerca de companias, coberturas, derechos o quejas al: 1-800-252-3439

Puede escribir al Departamento de Seguros de Texas:  
333 Guadalupe Street  
P.O. Box 149104  
Austin, TX 78701  
Fax: (512) 490-1007  
Web: <http://www.tdi.texas.gov>  
E-mail: [ConsumerProtection@tdi.texas.gov](mailto:ConsumerProtection@tdi.texas.gov)

### DISPUTAS SOBRE PRIMAS O RECLAMOS:

Si tiene una disputa concerniente a su prima o a un reclamo, debe comunicarse con el (agente) (la compania) agente o la compania) primero. Si no se resuelve la disputa, puede entonces comunicarse con el departamento (TDI).

UNA ESTE AVISO A SU POLIZA: Este aviso es solo para proposito de informacion y no se convierte en parte o condicion del document adjunto.

FILED AND RECORDED  
OFFICIAL PUBLIC RECORDS

*Laura Richard*

Laura Richard, County Clerk

Fort Bend County Texas

May 04, 2018 01:06:32 PM



FEE: \$0.00

ER

**2018048108**

# City of Pearland, Texas

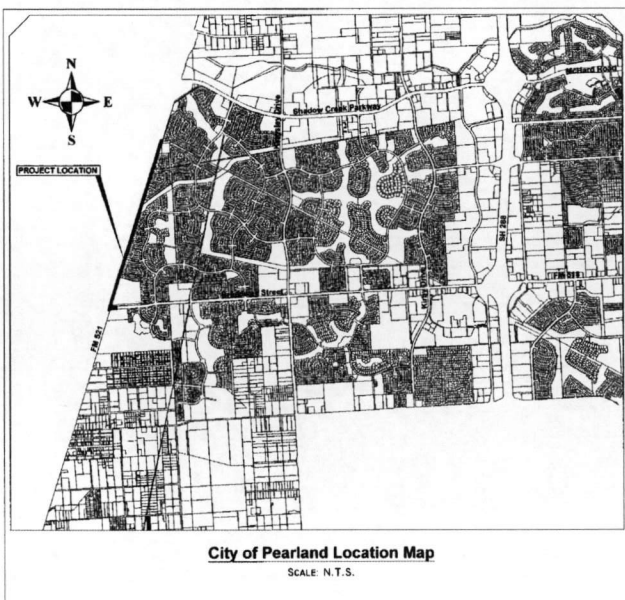
## FM 521 Water Line

### (Broadway to Mooring Pointe)

COP Project Number: WA1505

Bid Number: 1018-08

October 2017



MAYOR  
Tom Reid  
COUNCIL

Position 1	Tony Carbone
Position 2, Mayor Pro Tem	Derrick Reed
Position 3	Gary Moore
Position 4	Keith Ordeneaux
Position 5	J David Little
Position 6	Trent Perez
Position 7	Woody Owens

CITY MANAGER

Clay Pearson

ASST. CITY MANAGER

Trent Epperson

DEPUTY CITY MANAGER

Jon Branson

Director of Engineering

Robert Upton, P.E.

Director of Public Works

Eric Wilson



#### Drawing List

- 1 Cover
- 2 General Notes
- 3 Survey Control Map Sheet Sheet 1 of 2
- 4 Survey Control Map Sheet Sheet 2 of 2
- 5 Strip Map
- 6 Sheet Layout I
- 7 Sheet Layout II
- 8 Sheet Layout III
- 9 Broadway Street, Sta. 1+00 to End
- 10 FM 521, Sta. 1+00 to Sta. 5+50
- 11 FM 521, Sta. 5+50 to Sta. 10+00
- 12 FM 521, Sta. 10+00 to Sta. 14+50
- 13 FM 521, Sta. 14+50 to Sta. 19+00
- 14 FM 521, Sta. 19+00 to Sta. 23+50
- 15 FM 521, Sta. 23+50 to Sta. 28+00
- 16 FM 521, Sta. 28+00 to Sta. 32+50
- 17 FM 521, Sta. 32+50 to Sta. 37+00
- 18 FM 521, Sta. 37+00 to Sta. 41+50
- 19 FM 521, Sta. 41+50 to Sta. 46+00
- 20 FM 521, Sta. 46+00 to Sta. 50+50
- 21 FM 521, Sta. 50+50 to Sta. 55+00
- 22 FM 521, Sta. 55+00 to Sta. 59+50
- 23 FM 521, Sta. 59+50 to Sta. 64+00
- 24 FM 521, Sta. 64+00 to Sta. 68+50
- 25 FM 521, Sta. 68+50 to Sta. 73+00
- 26 FM 521, Sta. 73+00 to Sta. 77+50
- 27 FM 521, Sta. 77+50 to End
- 27A F.O. Conduit Layout I
- 27B F.O. Conduit Layout II
- 28 TxDOT TCP Conventional Road/Shoulder Work Traffic Control (1-1)-12
- 29 Typical Flagging or Moving Operation Detail
- 30 FM 521 - Storm Water Pollution Prevention Plan I
- 31 FM 521 - Storm Water Pollution Prevention Plan II
- 32 Storm Water Pollution Prevention Plan Details
- 33 TxDOT Water Line Standard WLS-11
- 34 City of Pearland Water Line Details I
- 35 City of Pearland Water Line Details II
- 36 Miscellaneous Details I
- 37 Miscellaneous Details II



SUBMITTED BY:

*David Kasper*

David Kasper, P.E.  
ARKK Engineers, LLC

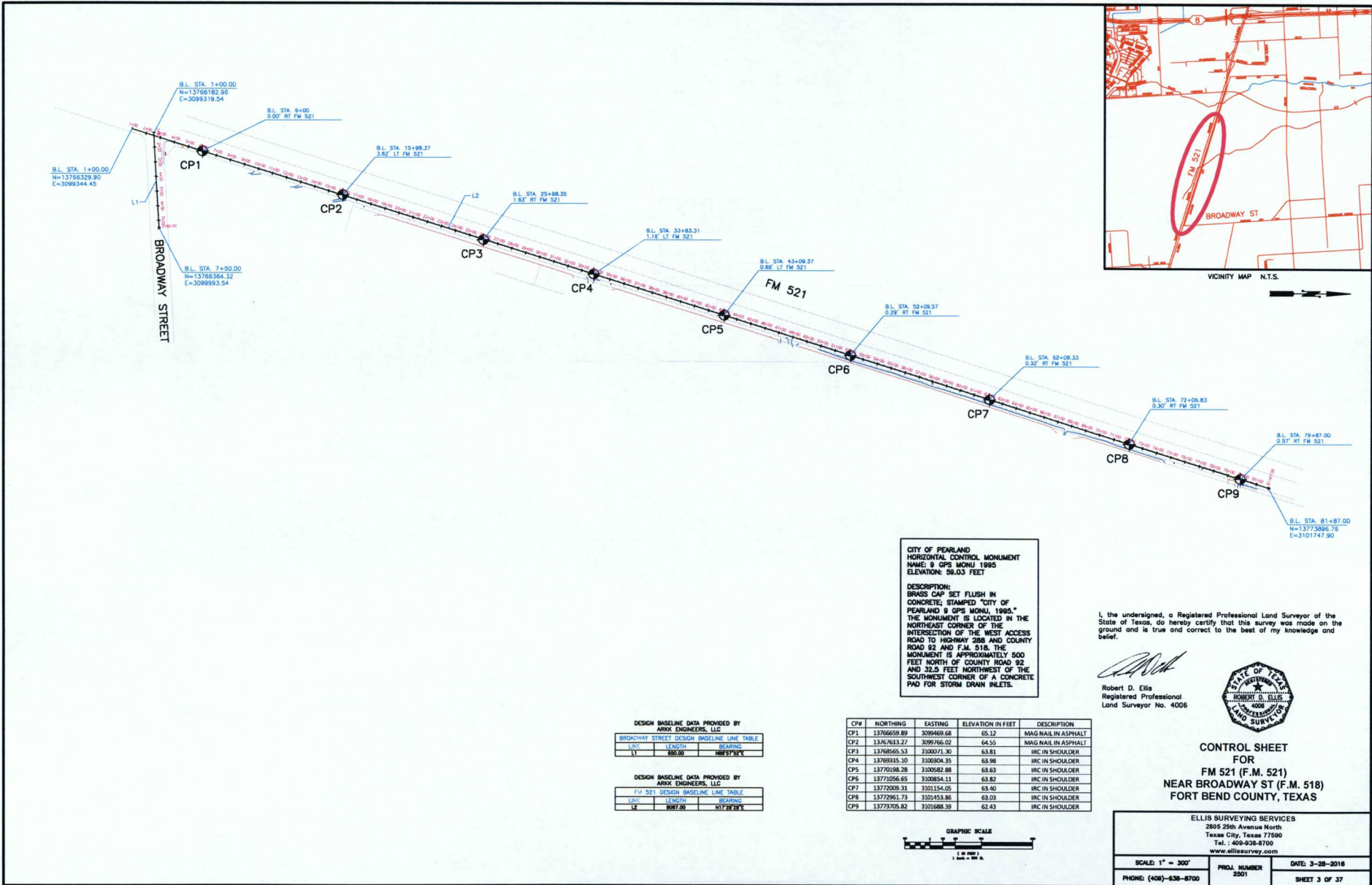
DATE: 10/19/2017

*Robert Upton*

Robert Upton, P.E.  
Director of Engineering

DATE: 10/19/17





CITY OF PEARLAND  
 HORIZONTAL CONTROL MONUMENT  
 NAME: 9 GPS MONU 1985  
 ELEVATION: 96.03 FEET

DESCRIPTION:  
 BRASS CAP SET FLUSH IN  
 CONCRETE; STAMPED "CITY OF  
 PEARLAND 9 GPS MONU 1985."  
 THE MONUMENT IS LOCATED IN THE  
 NORTHEAST CORNER OF THE  
 INTERSECTION OF THE WEST ACCESS  
 ROAD TO HIGHWAY 288 AND COUNTY  
 ROAD 92 AND F.M. 518. THE  
 MONUMENT IS APPROXIMATELY 500  
 FEET NORTH OF COUNTY ROAD 92  
 AND 32.5 FEET NORTHWEST OF THE  
 SOUTHWEST CORNER OF A CONCRETE  
 PAD FOR STORM DRAIN INLETS.

I, the undersigned, a Registered Professional Land Surveyor of the State of Texas, do hereby certify that this survey was made on the ground and is true and correct to the best of my knowledge and belief.

*Robert D. Ellis*  
 Robert D. Ellis  
 Registered Professional  
 Land Surveyor No. 4006



CONTROL SHEET  
 FOR  
 FM 521 (F.M. 521)  
 NEAR BROADWAY ST (F.M. 518)  
 FORT BEND COUNTY, TEXAS

DESIGN BASELINE DATA PROVIDED BY  
 ARKX ENGINEERS, LLC

BROADWAY STREET DESIGN BASELINE LINE TABLE		
LINE	LENGTH	BEARING
LT	850.00	N69°37'30"E

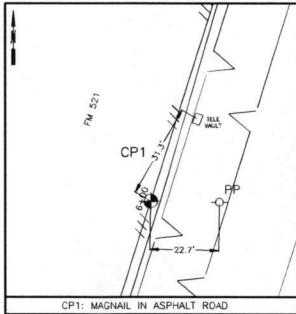
DESIGN BASELINE DATA PROVIDED BY  
 ARKX ENGINEERS, LLC

FM 521 DESIGN BASELINE LINE TABLE		
LINE	LENGTH	BEARING
LT	2007.00	N17°28'30"E

CP#	NORTHING	EASTING	ELEVATION IN FEET	DESCRIPTION
CP1	13766659.89	3094469.68	65.12	MAG NAIL IN ASPHALT
CP2	13767633.27	3099766.02	64.55	MAG NAIL IN ASPHALT
CP3	13768555.53	3100071.30	63.81	IRC IN SHOULDER
CP4	13769315.10	3100304.35	63.98	IRC IN SHOULDER
CP5	13770198.28	3100582.88	63.63	IRC IN SHOULDER
CP6	13771056.65	3100854.11	63.82	IRC IN SHOULDER
CP7	13772009.31	3101154.05	63.40	IRC IN SHOULDER
CP8	13772961.73	3101453.86	63.03	IRC IN SHOULDER
CP9	13773905.82	3101688.39	62.43	IRC IN SHOULDER

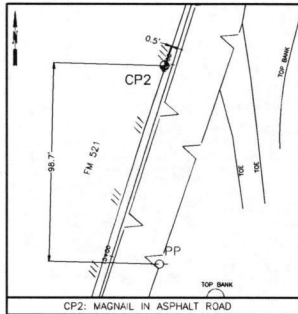


ELLIS SURVEYING SERVICES 2805 25th Avenue North Texas City, Texas 77590 Tel.: 409-928-8700 www.ellisurvey.com		
SCALE: 1" = 300'	PROJ. NUMBER: 2501	DATE: 3-28-2018
PHONE: (409)-638-8700		SHEET 3 OF 37



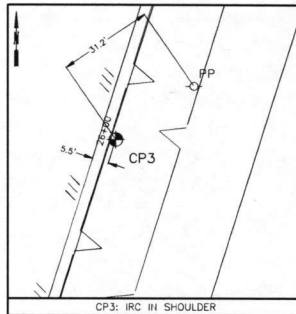
CP1: MAGNAIL IN ASPHALT ROAD

SCALE: 1"= 20'



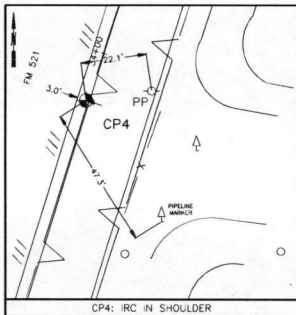
CP2: MAGNAIL IN ASPHALT ROAD

SCALE: 1"= 30'



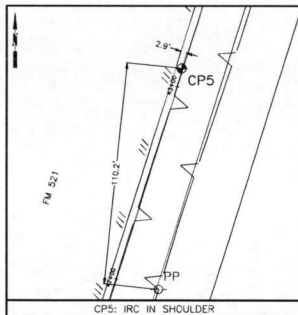
CP3: IRC IN SHOULDER

SCALE: 1"= 20'



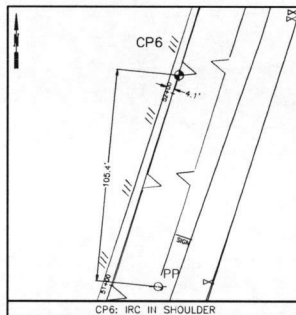
CP4: IRC IN SHOULDER

SCALE: 1"= 20'



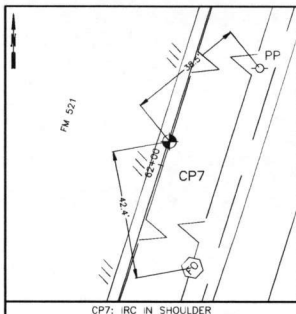
CP5: IRC IN SHOULDER

SCALE: 1"= 30'



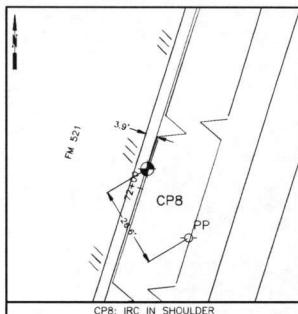
CP6: IRC IN SHOULDER

SCALE: 1"= 30'



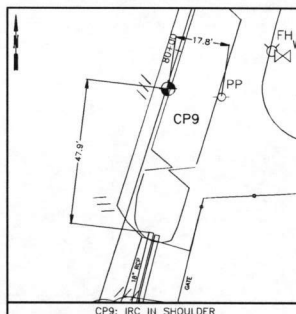
CP7: IRC IN SHOULDER

SCALE: 1"= 20'



CP8: IRC IN SHOULDER

SCALE: 1"= 20'



CP9: IRC IN SHOULDER

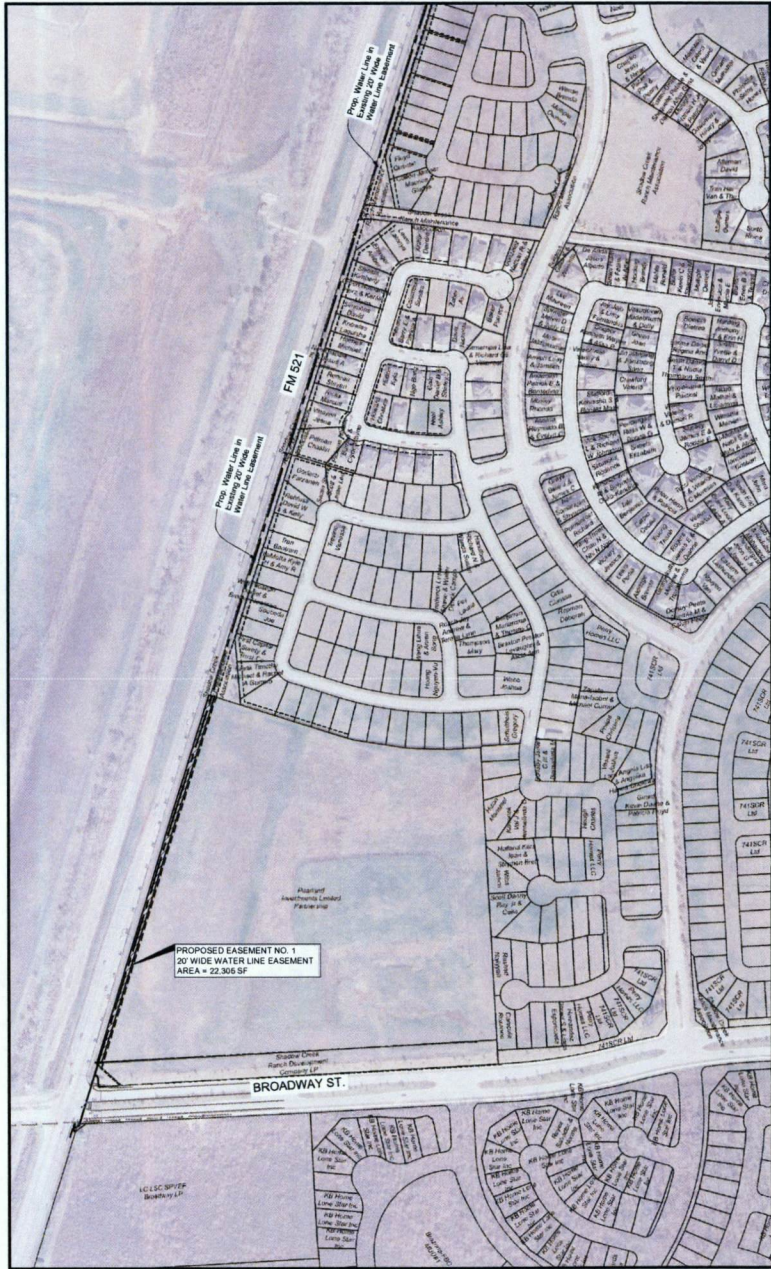
SCALE: 1"= 20'

CP#	NORTHING	EASTING	ELEVATION IN FEET	DESCRIPTION
CP1	13766595.89	3099469.68	65.12	MAG NAIL IN ASPHALT
CP2	13767613.27	3099766.02	64.55	MAG NAIL IN ASPHALT
CP3	13768565.53	3100071.30	63.81	IRC IN SHOULDER
CP4	13769315.10	3100304.35	63.98	IRC IN SHOULDER
CP5	13770198.28	3100582.88	63.63	IRC IN SHOULDER
CP6	13771056.65	3100854.11	63.82	IRC IN SHOULDER
CP7	13772029.31	3101154.05	63.40	IRC IN SHOULDER
CP8	13772961.73	3101453.86	63.03	IRC IN SHOULDER
CP9	13773705.82	3101688.39	62.43	IRC IN SHOULDER

CONTROL SHEET FOR  
FM 521 (F.M. 521)  
NEAR BROADWAY ST (F.M. 518)  
FORT BEND COUNTY, TEXAS

ELLIS SURVEYING SERVICES  
2805 25th Avenue North  
Texas City, Texas 77590  
Tel. : 409-828-8700  
www.ellisurvey.com

SCALE: AS SHOWN	PROJ. NUMBER 2501	DATE: 3-28-2016
PHONE: (409)-938-8700		SHEET 4 OF 37



PH.	DESCRIPTION	DATE	DWN.	CHK.



10/19/2017



7322 Southwest Freeway, Suite 1040 • Houston, Texas 77074  
 (713) 620-2725 • www.arkkengineers.com • TX PE Form No. 13872

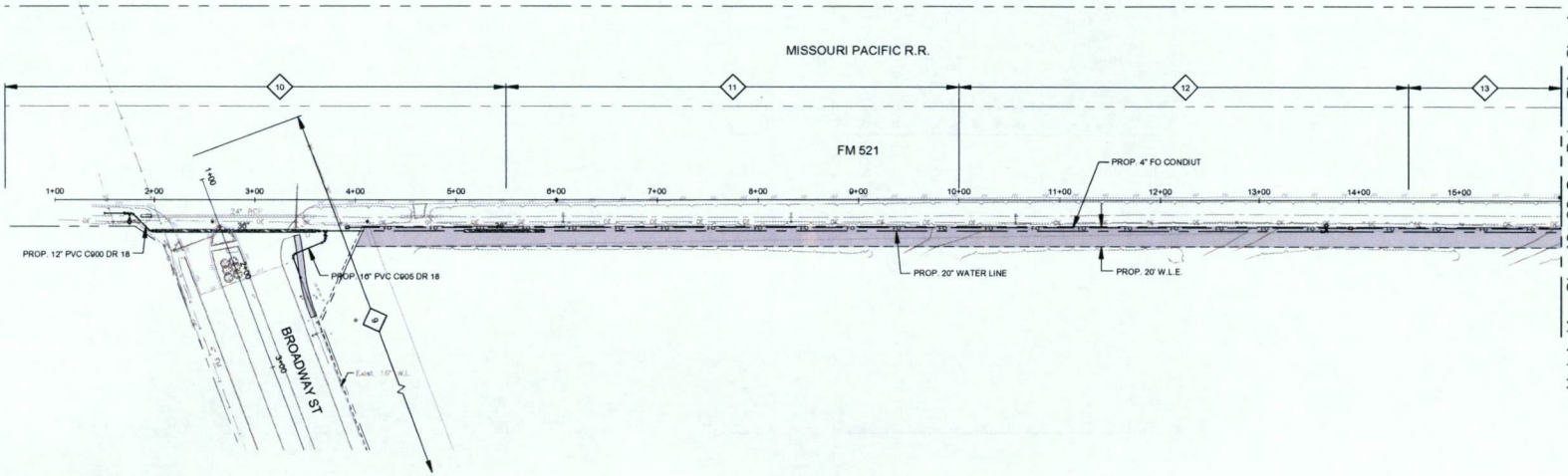


City of Pearland, Texas  
 FM 521 Water Line  
 (Broadway to Measuring Point)

FM 521 Strip Map

Job No.: 16-012	Scale: 1" = 200'	SHEET
Date: October 2017		5
Drawn By: D. Kasper		OF 37
Check By: M. Brown		

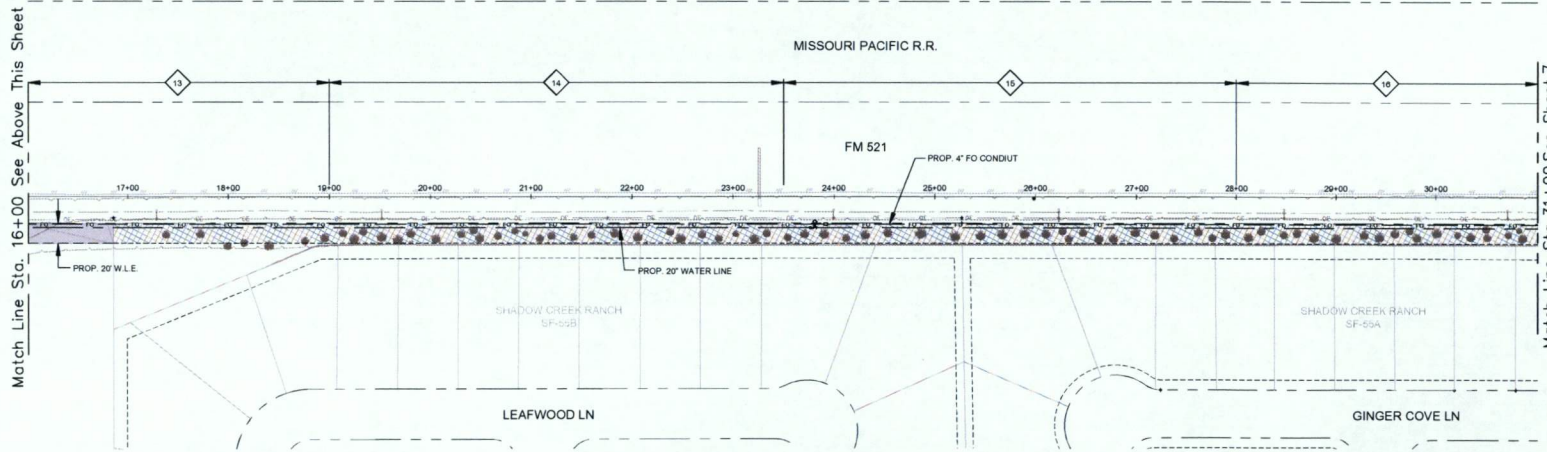
BENCHMARK:  
SEE SURVEY CONTROL MAP SHEETS 3-4



Match Line Sta. 16+00 See Below This Sheet

**LEGEND**

- SHEET NUMBER
- PROP. VALVE
- PROP. FIRE HYDRANT
- PROP. WATER LINE
- PROP. FIBER OPTIC CONDUIT
- PROP. CASING
- PROP. WATER LINE ESMT.
- EXIST. WATER & SEWER ESMT.



Match Line Sta. 16+00 See Above This Sheet

Match Line Sta. 31+00 See Sheet 7

NO.	DESCRIPTION	DATE	DWN.	CHK.



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(713) 400-3700 • www.arkkengineers.com 470 PE Firm No. 13873



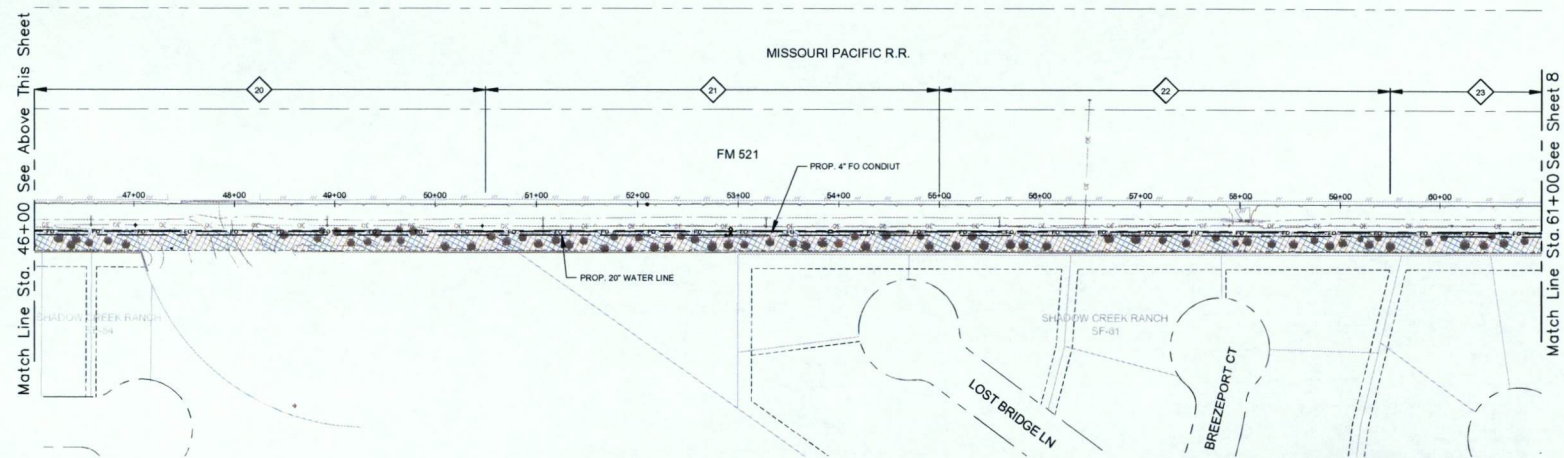
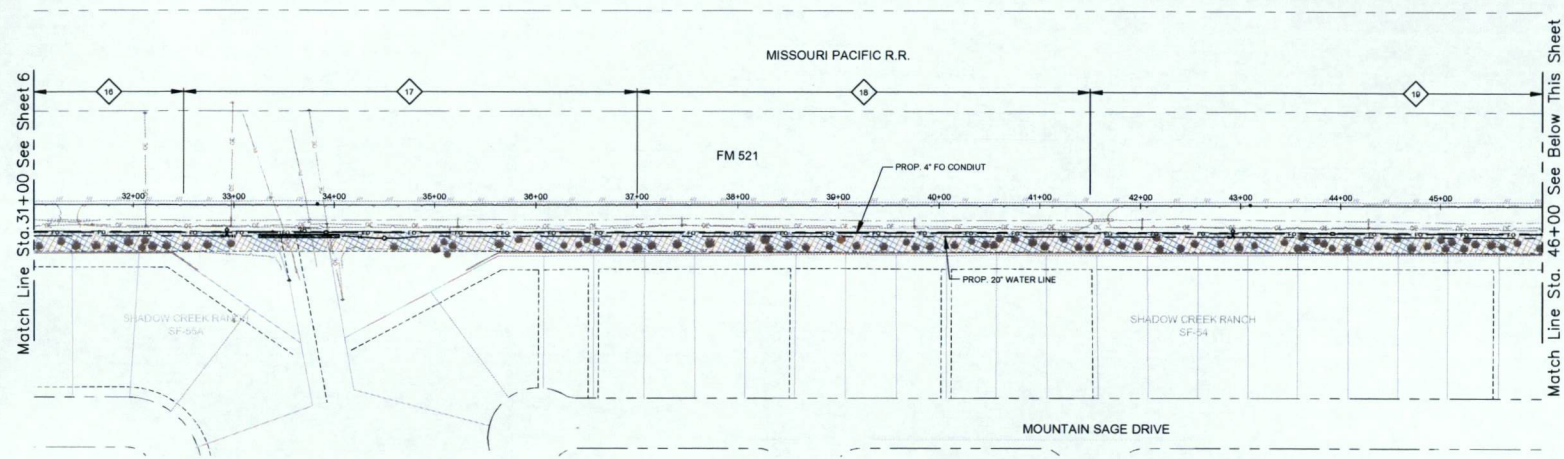
City of Pearland, Texas

FM 521 Water Line  
(Broadway to Mooring Pointe)

Project Layout I

Job No.: 16-012	Scale: 1" = 60'	SHEET
Date: October 2017		6
Drawn By: C. Chudoba	One Inch	
Check By: M. Brown		
		OF 37

BENCHMARK:  
SEE SURVEY CONTROL MAP SHEETS 3-4



**LEGEND**

- SHEET NUMBER
- PROP. VALVE
- PROP. FIRE HYDRANT
- PROP. WATER LINE
- PROP. FIBER OPTIC CONDUIT
- PROP. CASING
- PROP. WATER LINE ESMT.
- EXIST. WATER & SEWER ESMT.

NO.	DESCRIPTION	DATE	DWN.	CHK.



*David W. Kasper*  
10/19/2017

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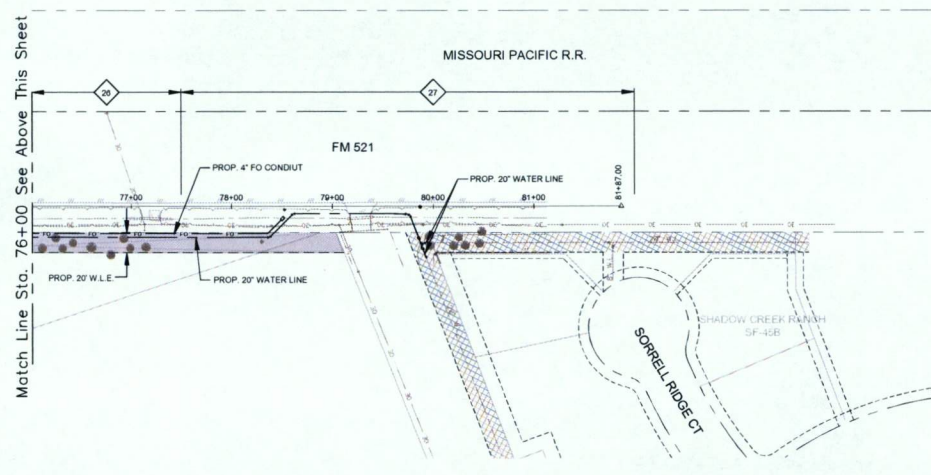
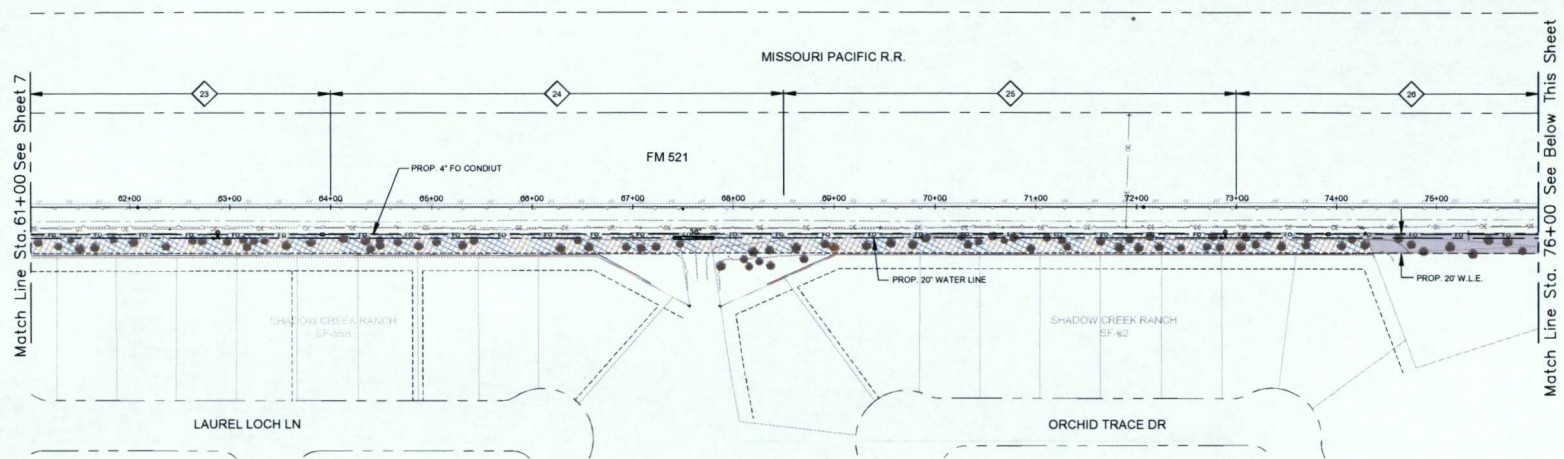


City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Moving Pointe)

Project Layout II

Job No.: 16-012	Scale: HORIZ 1" = 60'	SHEET
Date: October 2017	VERT	7
Drawn By: C. Chudoba	One Inch	OF 37
Check By: M. Brown		

BENCHMARK:  
SEE SURVEY CONTROL MAP SHEETS 2-4



**LEGEND**

	SHEET NUMBER
	PROP. VALVE
	PROP. FIRE HYDRANT
	PROP. WATER LINE
	PROP. FIBER OPTIC CONDUIT
	PROP. CASING
	PROP. WATER LINE ESMT.
	EXIST. WATER & SEWER ESMT.

NO.	DESCRIPTION	DATE	DWN.	CHK.

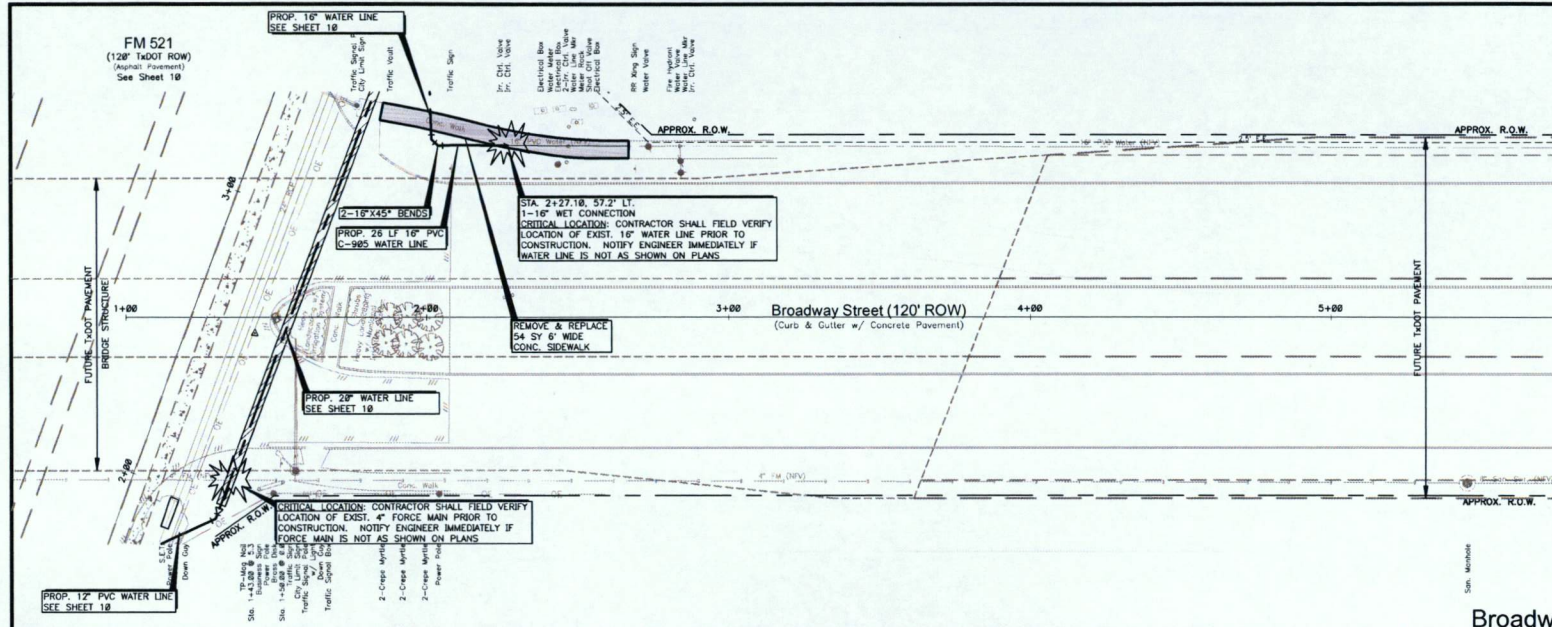
Professional Engineer Seal for David W. Kasper, State of Texas, License No. 86204, dated 10/19/2017.

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**PEARLAND**  
City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mooring Pointe)

**Project Layout III**

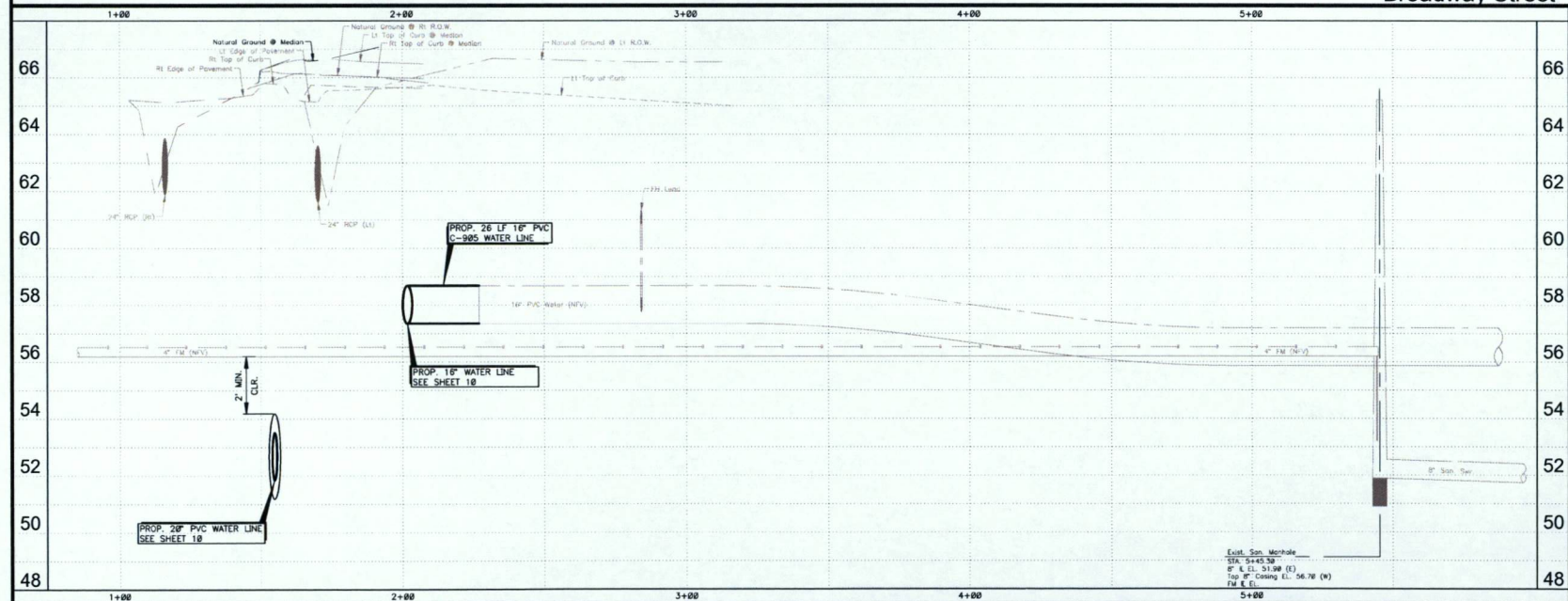
Job No.: 16-012	Scale: 1" = 60'	SHEET
Date: October 2017	One Inch	<b>8</b>
Drawn By: C. Chudoba	Checked By: M. Brown	OF 37



- NOTES**
1. THE CONTRACTOR IS MADE AWARE OF AREAS WHERE EXISTING UTILITIES OCCUR, BUT NOT LIMITED TO GAS, SANITARY, ELECTRIC AND STORM. CROSS AND/OR ARE IN CLOSE PROXIMITY TO THE EXISTING AND PROPOSED WATERLINE. THE CONTRACTOR SHALL VERIFY CLEARANCES OF THE PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING. THE CONTRACTOR SHALL COORDINATE WITH THE PERTINENT UTILITY AND AGENCIES THAT ALL PRECAUTIONS ARE TAKEN TO MAINTAIN THE INTENSITY OF THE UTILITY DURING CONSTRUCTION. NO ADDITIONAL PAYMENT SHALL BE MADE FOR INCREASED LEVELS OF CONSTRUCTION EFFORTS DUE TO EXISTENCE OF UTILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLAN DRAWING. EXPENSES BY THE CONTRACTOR FOR INFORMATION PROVIDED ON THE DRAWINGS WILL IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF VERIFICATION PRIOR TO CONSTRUCTION.
  2. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL FOR THE PROJECT. ALL TRAFFIC CONTROL SHALL MEET TMC03, LATEST REVISION, AND BE PAID SAFE. THIS MAY INCLUDE BUT IS NOT LIMITED TO SIGNS, BARRICADES & PILEAGE BARRIERS, CERTIFIED FLAGMEN OR UNIFORMED OFFICERS, ARROW BOARDS, AND OTHER DEVICES TO ALLOW FOR A SMOOTH FLOW OF TRAFFIC DURING CONSTRUCTION.
  3. THE CONTRACTOR SHALL BE AWARE THAT THE EXISTING UTILITIES, INCLUDING PIPELINES, HAVE NOT BEEN FIELD VERIFIED. THE CONTRACTOR SHALL CONTACT ALL ENTITIES AND VERIFY LOCATION OF ALL UTILITIES AND PIPELINES IN THE FIELD PRIOR TO CONSTRUCTION. (NO SEPARATE PAY).
  4. ALL WATER MAINS AND SERVICE LINES SHALL BE TESTED AND DISINFECTED AS PER THE SPECIFICATIONS.
  5. THE LOCATION OF PROPOSED FIRE HYDRANTS AND VALVES SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE VERIFIED AND CONFIRMED WITH THE CITY REPRESENTATIVE PRIOR TO INSTALLATION.
  6. THE CONTRACTOR SHALL PROTECT ALL TREES WITHIN AND IN THE VICINITY OF THE CONSTRUCTION AREA.
  7. THE LANDSCAPE IRRIGATION SYSTEM SHOWN ON THE PLANS ARE NOT COMPLETE AND MUST BE VERIFIED BY THE CONTRACTOR IN THE FIELD. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE HOME OWNERS ASSOCIATION, FOR VERIFICATION OF IRRIGATION SYSTEMS ALONG THE WATER LINE ALIGNMENT. PRIOR TO COMMENCING CONSTRUCTION, CONTRACTOR TO CONDUCT AN INVESTIGATION OF THE EXISTING IRRIGATION SYSTEM AND VERIFYING ITS FUNCTIONALITY. THE CONTRACTOR SHALL REPAIR ANY DAMAGES CAUSED TO THE EXISTING IRRIGATION SYSTEM TO THE SATISFACTION OF THE OWNER.
  8. THE CONTRACTOR SHALL NOT DISPOSE OF SUPER-CHLORINATED WATER DIRECTLY TO STORM SEWER OR NATURAL DRAINAGE. THE CONTRACTOR IS RESPONSIBLE TO HAVE A PLAN IN PLACE TO DE-CHLORINATE AND DISPOSAL (NO SEPARATE PAY).

**LEGEND**

FUTURE 12'0" DETENTION
FUTURE 12'0" PAVEMENT
FUTURE 12'0" SIDEWALK
EXISTING EASEMENT
PROP. 20" WATER LINE EXIST.
POSSIBLE TREE REMOVAL
PROP. SIDEWALK



NO.	DESCRIPTION	DATE	DWN.	CHK.

10/19/2017

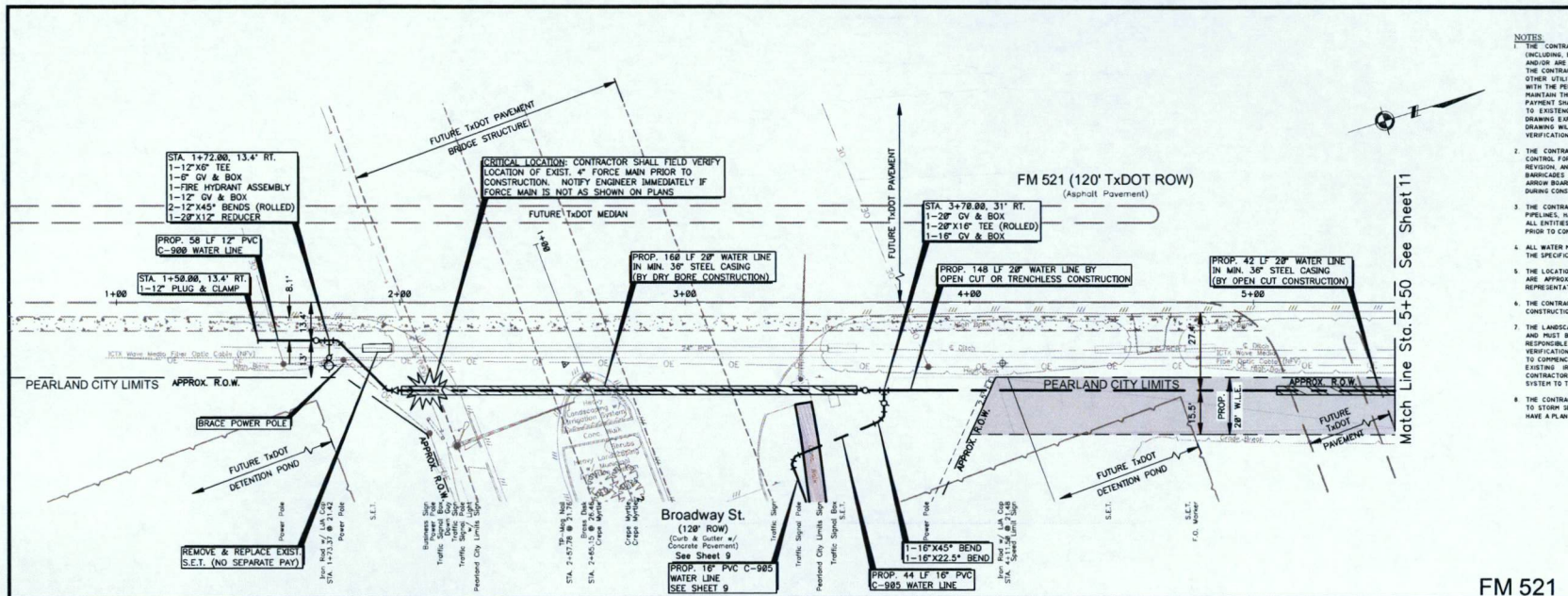
7322 Southwest Freeway, Suite 1040 • Houston, Texas 77074  
713.620.2725 • www.arkkengineers.com • 474 41 Form No. 13872

City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mount Pointe)

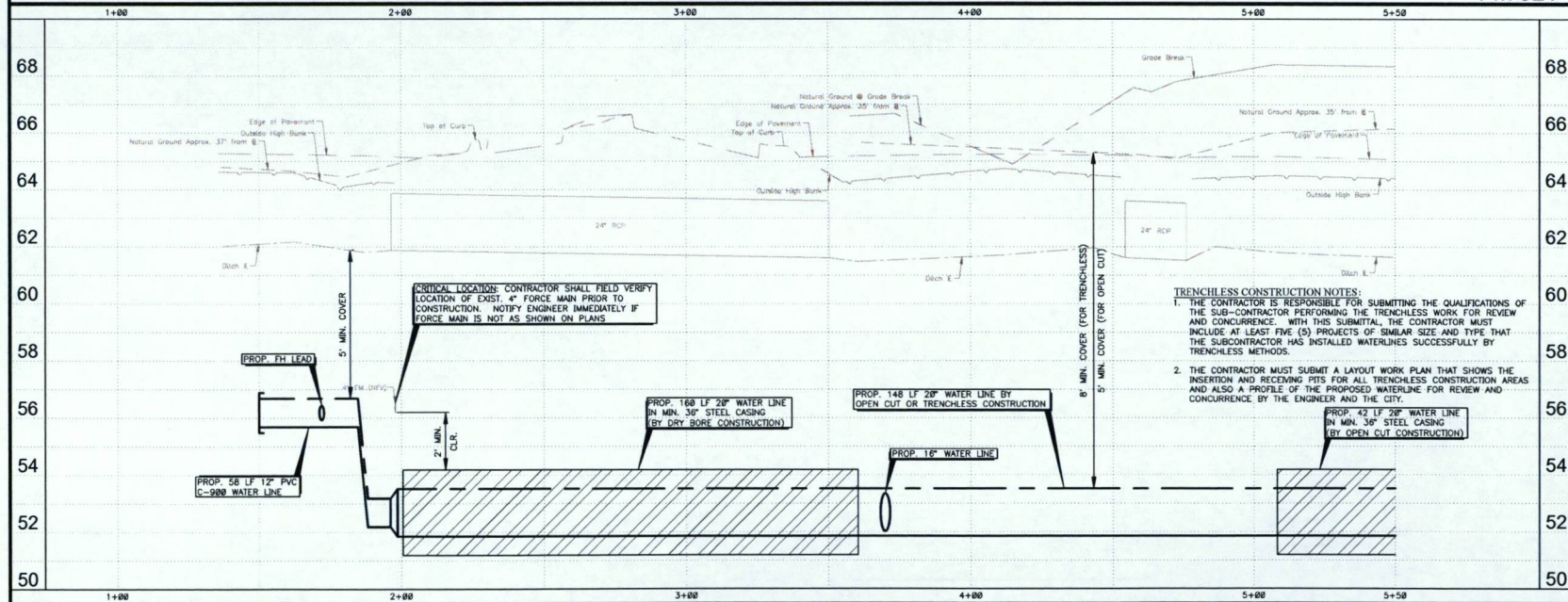
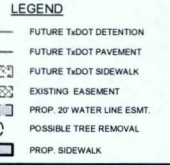
Broadway Street  
Sta. 1+00 to End

Job No.: 16-D12	Scale: HORIZ. 1" = 20'	SHEET 9
Date: October 2017	VERT. 1" = 2'	
Drawn By: C. Choudhury	Checked By: M. Brown	OF 37

Coord. San. Morphology  
Sta. 5+45.50  
Top of 16" PVC Water (NV) 56.78 (W)  
FM 521



- NOTES**
1. THE CONTRACTOR IS MADE AWARE OF AREAS WHERE EXISTING UTILITIES (INCLUDING, BUT NOT LIMITED TO GAS, SANITARY, ELECTRIC AND STORM) CROSS AND/OR ARE IN CLOSE PROXIMITY TO THE EXISTING AND PROPOSED WATERLINE. THE CONTRACTOR SHALL VERIFY CLEARANCES OF THE PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING. THE CONTRACTOR SHALL COORDINATE WITH THE PERTINENT UTILITY AND ENSURE THAT ALL CONSTRUCTION EFFORTS DUE TO EXISTENCE OF UTILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLAN DRAWINGS EXPANDED BY THE CONTRACTOR THAT THE INFORMATION PROVIDED ON THE DRAWING WILL IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF VERIFICATION PRIOR TO CONSTRUCTION.
  2. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL FOR THE PROJECT. ALL TRAFFIC CONTROL SHALL MEET TRITC'S LATEST REVISION AND BE MADE SAFE. THIS MAY INCLUDE BUT IS NOT LIMITED TO SIGNS, BARRICADES, A MESSAGE BOARD, CERTIFIED FLAGMEN OR UNIFORMED OFFICERS, BARRIERS, AND OTHER DEVICES TO ALLOW FOR A SMOOTH FLOW OF TRAFFIC DURING CONSTRUCTION.
  3. THE CONTRACTOR SHALL BE AWARE THAT THE EXISTING UTILITIES, INCLUDING PIPELINES, HAVE NOT BEEN FIELD VERIFIED. THE CONTRACTOR SHALL CONTACT ALL ENTITIES AND VERIFY LOCATION OF ALL UTILITIES AND PIPELINES IN THE FIELD PRIOR TO CONSTRUCTION. (NO SEPARATE PAY)
  4. ALL WATER MAINS AND SERVICE LINES SHALL BE TESTED AND DISINFECTED AS PER THE SPECIFICATIONS.
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  8. THE CONTRACTOR SHALL NOT DISPOSE OF SUPER-SATURATED WATER DIRECTLY TO STORM SEWER OR WATER DRAINAGE. THE CONTRACTOR IS RESPONSIBLE TO HAVE A PLAN IN PLACE TO DE-CALCULATE AND DISPOSAL. (NO SEPARATE PAY)



- TRENCHLESS CONSTRUCTION NOTES:**
1. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THE QUALIFICATIONS OF THE SUB-CONTRACTOR PERFORMING THE TRENCHLESS WORK FOR REVIEW AND CONCURRENCE. WITH THIS SUBMITTAL, THE CONTRACTOR MUST INCLUDE AT LEAST FIVE (5) PROJECTS OF SIMILAR SIZE AND TYPE THAT THE SUBCONTRACTOR HAS INSTALLED WATERLINES SUCCESSFULLY BY TRENCHLESS METHODS.
  2. THE CONTRACTOR MUST SUBMIT A LAYOUT WORK PLAN THAT SHOWS THE INSERTION AND RECEIVING PITS FOR ALL TRENCHLESS CONSTRUCTION AREAS AND ALSO A PROFILE OF THE PROPOSED WATERLINE FOR REVIEW AND CONCURRENCE BY THE ENGINEER AND THE CITY.

**FM 521**

Match Line Sta. 5+50 See Sheet 11

DATE: 10/19/2017

DESIGNER: DAVID W. KASPER, LEONARDI ENGINEERS

PROJECT: ARKK ENGINEERS

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City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mooring Point)

FM 521  
Sta. 1+00 to Sta. 5+50

Job No. 16-012  
Date: October 2017  
Des. By: C. Chudoba  
Chd. By: M. Brown

Scale:  
HORIZ 1" = 20'  
VERT 1" = 2'  
1" = 1" (One Inch)

SHEET  
**10**  
OF 37

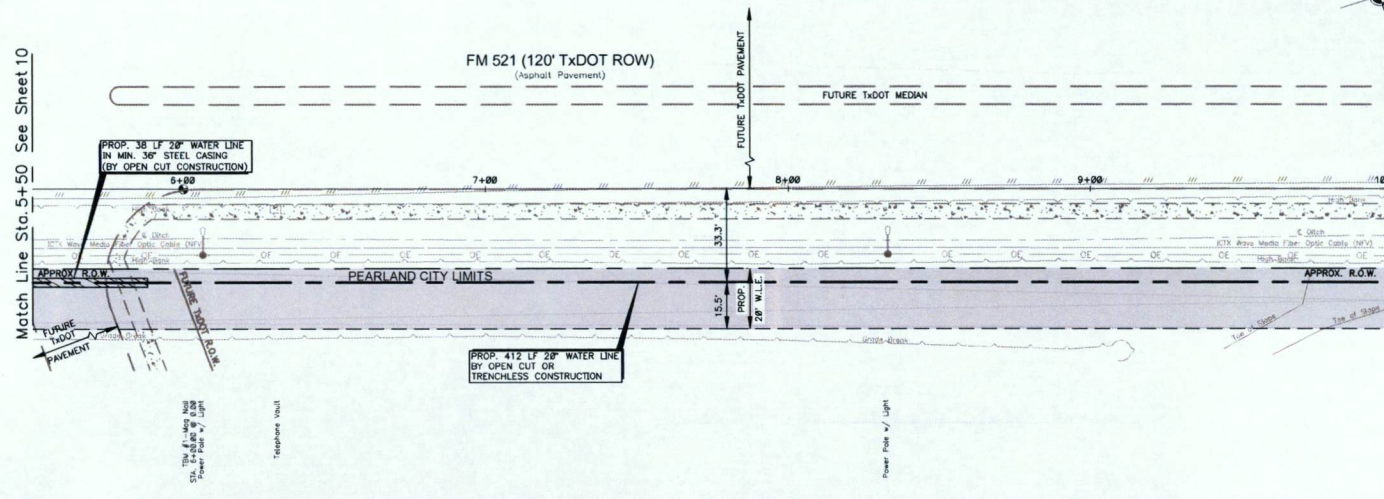
BENCHMARK  
SEE SURVEY CONTROL MAP SHEETS 3-4

- NOTES**
- THE CONTRACTOR IS MADE AWARE OF AREAS WHERE EXISTING UTILITIES, INCLUDING, BUT NOT LIMITED TO GAS, SANITARY, ELECTRIC AND STORM, CROSS AND/OR ARE IN CLOSE PROXIMITY TO THE EXISTING AND PROPOSED WATERLINE. THE CONTRACTOR SHALL VERIFY CLEARANCES OF THE PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING. THE CONTRACTOR SHALL COORDINATE WITH THE PERTINENT UTILITY AND ENSURE THAT ALL PRECONSTRUCTION AND MAINTAIN THE INTEGRITY OF THE UTILITY DURING CONSTRUCTION. NO ADDITIONAL PAYMENT SHALL BE MADE FOR INCREASED LEVEL OF CONSTRUCTION EFFORTS DUE TO EXISTENCE OF UTILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLAN. DRAWINGS EXPANDED BY THE CONTRACTOR. THE INFORMATION PROVIDED ON THE DRAWINGS WILL IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF VERIFICATION PRIOR TO CONSTRUCTION.
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  - THE CONTRACTOR SHALL BE AWARE THAT THE EXISTING UTILITIES, INCLUDING PIPELINES, HAVE NOT BEEN FIELD VERIFIED. THE CONTRACTOR SHALL CONTACT ALL ENTITIES AND VERIFY LOCATION OF ALL UTILITIES AND PIPELINES IN THE FIELD PRIOR TO CONSTRUCTION. (NO SEPARATE PAY)
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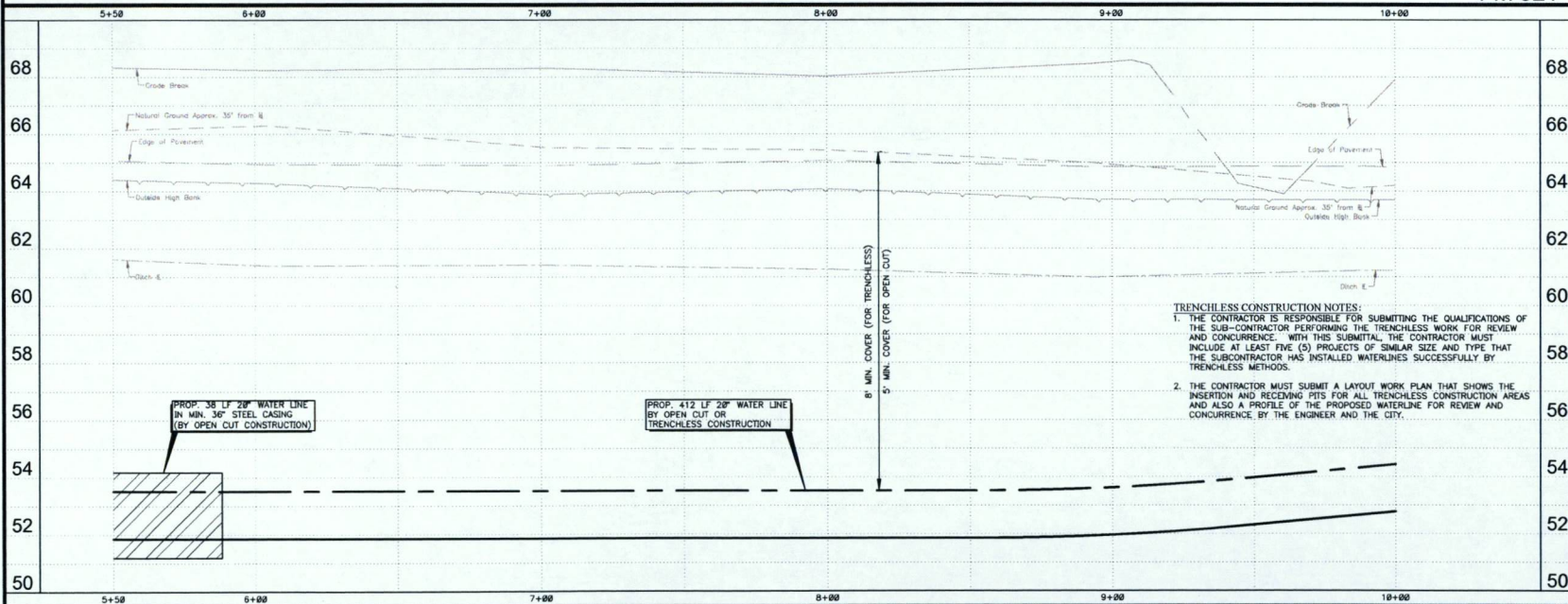
Match Line Sta. 5+50 See Sheet 10

Match Line Sta. 10+00 See Sheet 12



- LEGEND**
- FUTURE TxDOT DETENTION
  - FUTURE TxDOT PAVEMENT
  - FUTURE TxDOT SIDEWALK
  - EXISTING EASEMENT
  - PROP. 20" WATER LINE ESMT.
  - POSSIBLE TREE REMOVAL
  - PROP. SIDEWALK

FM 521



- TRENCHLESS CONSTRUCTION NOTES:**
- THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THE QUALIFICATIONS OF THE SUB-CONTRACTOR PERFORMING THE TRENCHLESS WORK FOR REVIEW AND CONCURRENCE. WITH THIS SUBMITTAL, THE CONTRACTOR MUST INCLUDE AT LEAST FIVE (5) PROJECTS OF SIMILAR SIZE AND TYPE THAT THE SUBCONTRACTOR HAS INSTALLED WATERLINES SUCCESSFULLY BY TRENCHLESS METHODS.
  - THE CONTRACTOR MUST SUBMIT A LAYOUT WORK PLAN THAT SHOWS THE INSERTION AND RECEIVING PITS FOR ALL TRENCHLESS CONSTRUCTION AREAS AND ALSO A PROFILE OF THE PROPOSED WATERLINE FOR REVIEW AND CONCURRENCE BY THE ENGINEER AND THE CITY.

NO.	DESCRIPTION	DATE	DWN.	CHK.

18/19/2017

**DAVID W. KASPER**  
REGISTERED PROFESSIONAL ENGINEER  
NO. 62048  
STATE OF TEXAS

**ARKENGINEERS**  
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(713) 620-2725 • www.arkengineers.com 475 E. From St. 13872

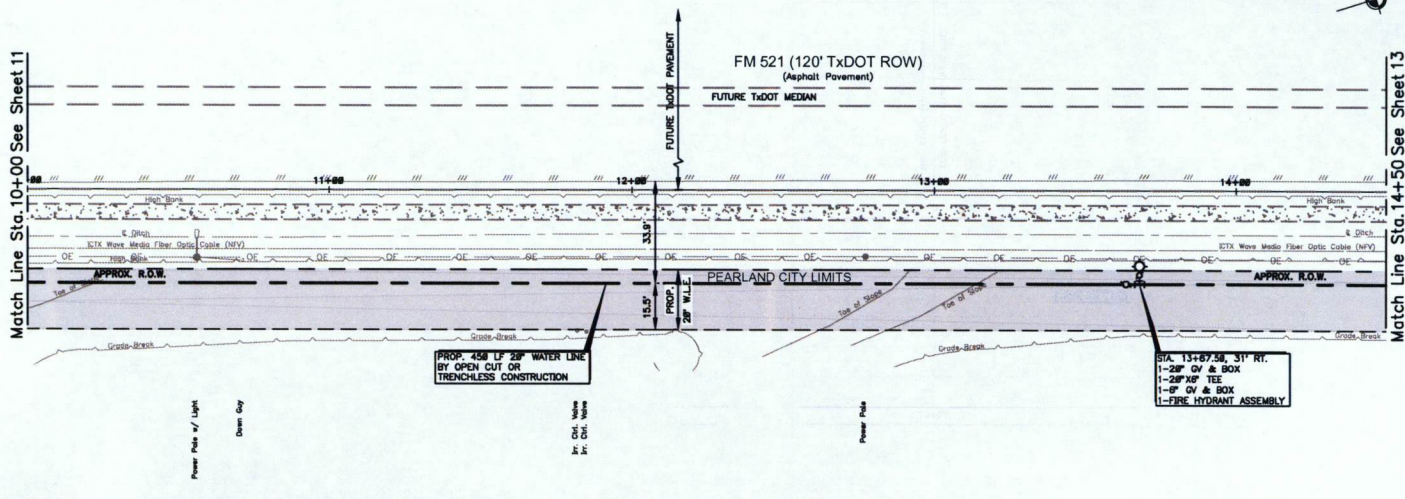
**PEARLAND**  
EST. 1957

City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mooring Pointe)

FM 521  
Sta. 5+50 to Sta. 10+00

Match Line Sta. 10+00 See Sheet 11

Match Line Sta. 14+50 See Sheet 13



**NOTES**

1. THE CONTRACTOR IS MADE AWARE OF AREAS WHERE EXISTING UTILITIES, INCLUDING BUT NOT LIMITED TO GAS, SANITARY, ELECTRIC, AND STORM, CROSS AND/OR ARE IN CLOSE PROXIMITY TO THE EXISTING AND PROPOSED WATERLINE. THE CONTRACTOR SHALL VERIFY CLEARANCES OF THE PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING. THE CONTRACTOR SHALL COORDINATE WITH THE PERTINENT UTILITIES AND ENSURE THAT ALL PRECAUTIONS ARE TAKEN TO MAINTAIN THE INTEGRITY OF THE UTILITY DURING CONSTRUCTION. NO ADDITIONAL PAYMENT SHALL BE MADE FOR INCREASED LEVEL OF CONSTRUCTION EFFORTS DUE TO EXISTENCE OF UTILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLAN DRAWING EXPENDED BY THE CONTRACTOR. (THE INFORMATION PROVIDED ON THE DRAWING WILL IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF VERIFICATION PRIOR TO CONSTRUCTION.)

2. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL FOR THE PROJECT. ALL TRAFFIC CONTROL SHALL MEET THE LATEST REVISION, AND BE MADE SAFE. THIS MAY INCLUDE BUT IS NOT LIMITED TO SIGNS, BARRICADES, MESSAGE BOARDS, CERTIFIED FLAGMEN OR UNIFORMED OFFICERS, ARROW BOARDS, AND OTHER DEVICES TO ALLOW FOR A SMOOTH FLOW OF TRAFFIC DURING CONSTRUCTION.

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6. THE CONTRACTOR SHALL PROTECT ALL TREES WITHIN AND IN THE VICINITY OF THE CONSTRUCTION AREA.

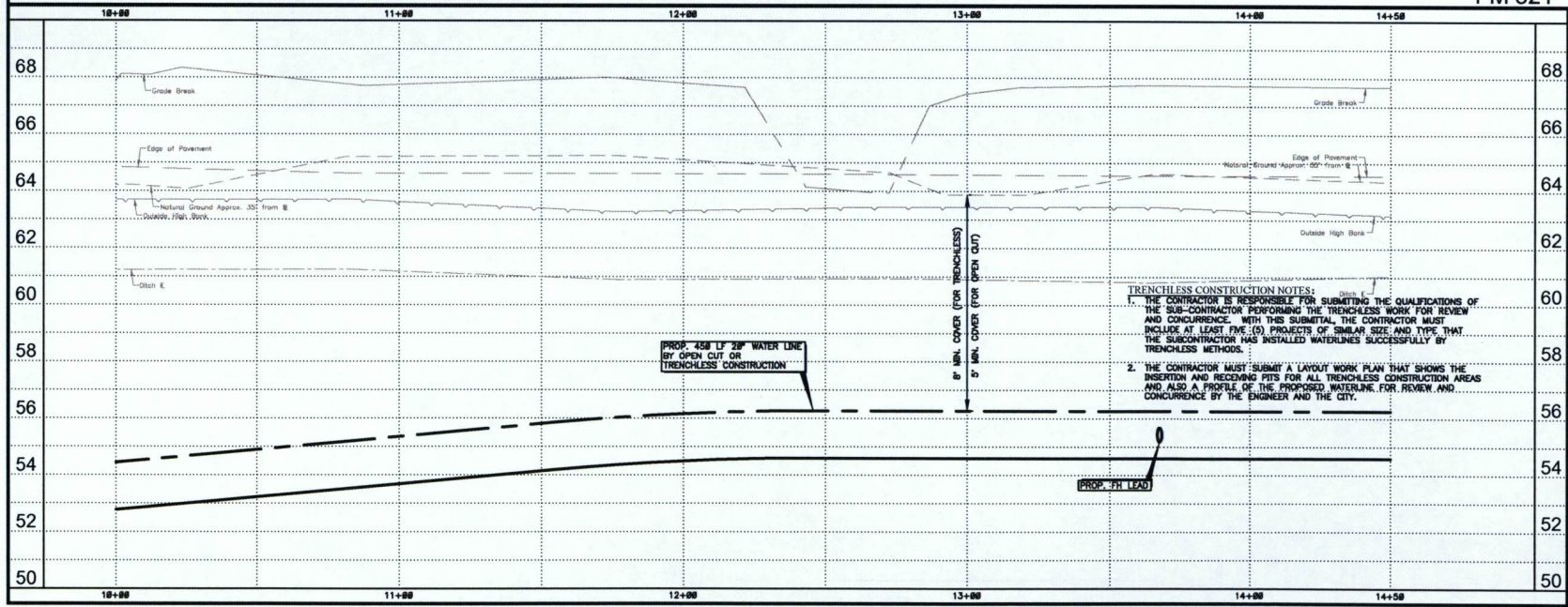
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8. THE CONTRACTOR SHALL NOT DISPOSE OF SUPER-CHLORINATED WATER DIRECTLY TO STORM SEWER OR NATURAL DRAINAGE. THE CONTRACTOR IS RESPONSIBLE TO HAVE A PLAN IN PLACE TO DE-CHLORINATE AND DIGEST (NO SEPARATE PAY).

**LEGEND**

- FUTURE TxDOT DETENTION
- FUTURE TxDOT PAVEMENT
- FUTURE TxDOT SIDEWALK
- EXISTING EASEMENT
- PROP. 20\"/> PROP. SIDEWALK

FM 521



**TRENCHLESS CONSTRUCTION NOTES:**

1. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THE QUALIFICATIONS OF THE SUB-CONTRACTOR PERFORMING THE TRENCHLESS WORK FOR REVIEW AND CONCURRENCE. WITH THIS SUBMITTAL, THE CONTRACTOR MUST INCLUDE AT LEAST FIVE (5) PROJECTS OF SIMILAR SIZE AND TYPE THAT THE SUBCONTRACTOR HAS INSTALLED WATERLINES SUCCESSFULLY BY TRENCHLESS METHODS.

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This document is released for the purpose of review under the authority of David W. Kasper, P.E. 86294 on 9/21/17. It is not to be used for construction purposes.

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**PEARLAND**  
 City of Pearland, Texas  
 FM 521 Water Line  
 (Broadway to Mooring Pointe)

FM 521  
 Sta. 10+00 to Sta. 14+50

Job No.: 16-012  
 Date: October 2017  
 Drawn By: C. Chudoba  
 Check By: M. Braun

Scale:  
 Horiz: 1" = 20'  
 Vert: 1" = 5'

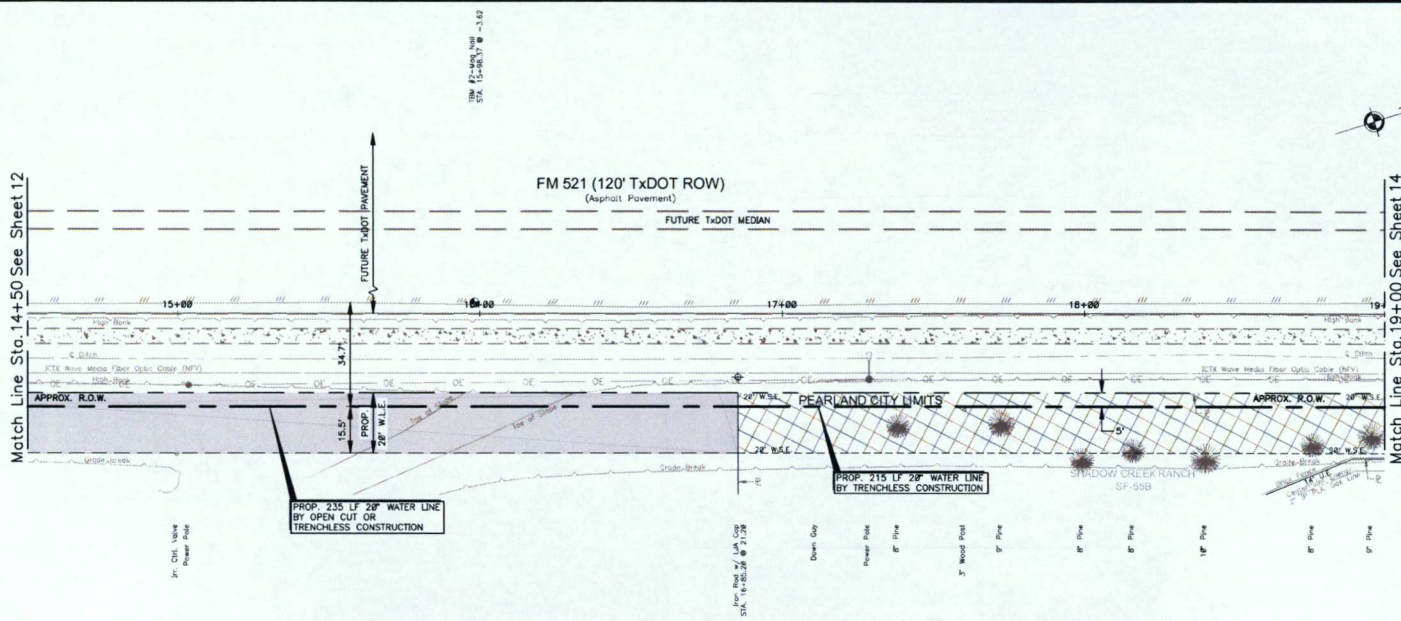
SHEET  
**12**  
 OF 37

Match Line Sta. 14+50 See Sheet 12

Match Line Sta. 19+00 See Sheet 14

FM 521 (120' TxDOT ROW)  
(Asphalt Pavement)

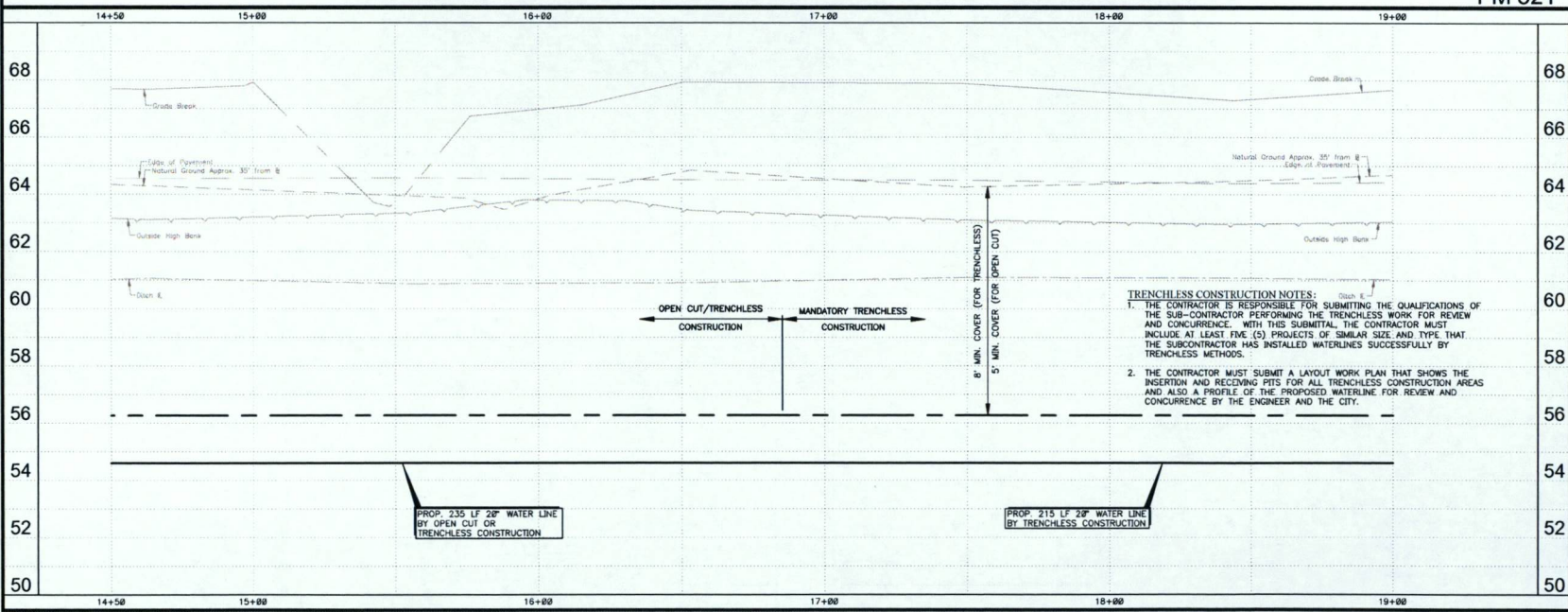
FUTURE TxDOT MEDIAN



- NOTES**
- THE CONTRACTOR IS MADE AWARE OF AREAS WHERE EXISTING UTILITIES INCLUDING BUT NOT LIMITED TO GAS, SANITARY, ELECTRIC AND STORM, CROSS AND/OR ARE IN CLOSE PROXIMITY TO THE EXISTING AND PROPOSED WATERLINE. THE CONTRACTOR SHALL VERIFY CLEARANCES OF THE PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING THE CONSTRUCTION. NO ADDITIONAL PAYMENT SHALL BE MADE FOR INCREASED LEVEL OF CONSTRUCTION EFFORTS DUE TO EXISTENCE OF UTILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLAN DRAWING EXPANDED BY THE CONTRACTOR. (THE INFORMATION PROVIDED ON THE DRAWING WILL IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF VERIFICATION PRIOR TO CONSTRUCTION.)
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  - THE CONTRACTOR SHALL NOT DISPOSE OF SUPER-CHLORINATED WATER DIRECTLY TO STORM SEWER OR NATURAL DRAINAGE. THE CONTRACTOR IS RESPONSIBLE TO HAVE A PLAN IN PLACE TO DE-CHLORINATE AND DISPOSAL (NO SEPARATE PAY).

- LEGEND**
- FUTURE TxDOT DETENTION
  - FUTURE TxDOT PAVEMENT
  - FUTURE TxDOT SIDEWALK
  - EXISTING EASEMENT
  - PROP. 20" WATER LINE ESMT.
  - POSSIBLE TREE REMOVAL
  - PROP. SIDEWALK

FM 521



- TRENCHLESS CONSTRUCTION NOTES:**
- THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THE QUALIFICATIONS OF THE SUB-CONTRACTOR PERFORMING THE TRENCHLESS WORK FOR REVIEW AND CONCURRENCE. WITH THIS SUBMITTAL, THE CONTRACTOR MUST INCLUDE AT LEAST FIVE (5) PROJECTS OF SIMILAR SIZE AND TYPE THAT THE SUB-CONTRACTOR HAS INSTALLED WATERLINES SUCCESSFULLY BY TRENCHLESS METHODS.
  - THE CONTRACTOR MUST SUBMIT A LAYOUT WORK PLAN THAT SHOWS THE INSERTION AND RECEIVING FITS FOR ALL TRENCHLESS CONSTRUCTION AREAS AND ALSO A PROFILE OF THE PROPOSED WATERLINE FOR REVIEW AND CONCURRENCE BY THE ENGINEER AND THE CITY.

NO.	DESCRIPTION	DATE	DWN.	CHK.

10/19/2017

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(713) 620-2792 • www.arkkengineers.com • AIA #1 Form No. 13873

City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mooring Pointe)

FM 521  
Sta. 14+50 to Sta. 19+00

Job No.: 16-D12	Scale: HORIZ: 1" = 20'	SHEET <b>13</b> OF 37
Date: October 2017	VERT: 1" = 20'	
Drawn By: C. Chudoba	One Inch	
Check By: M. Brown		

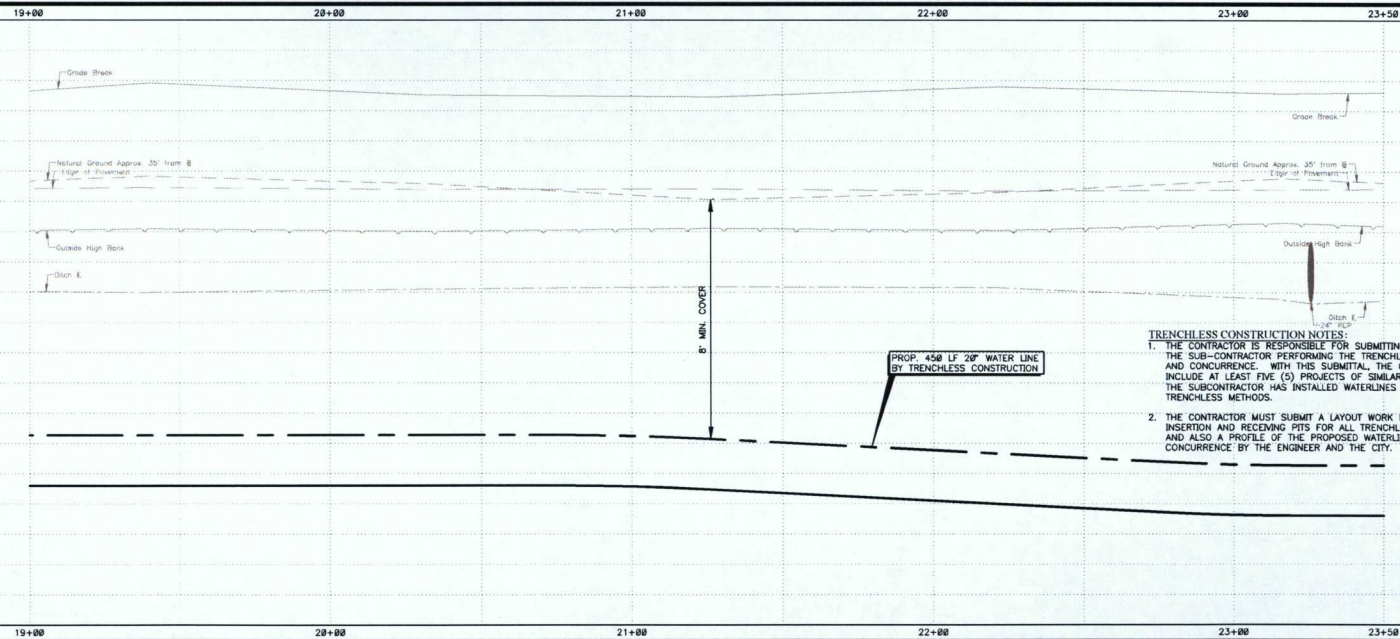
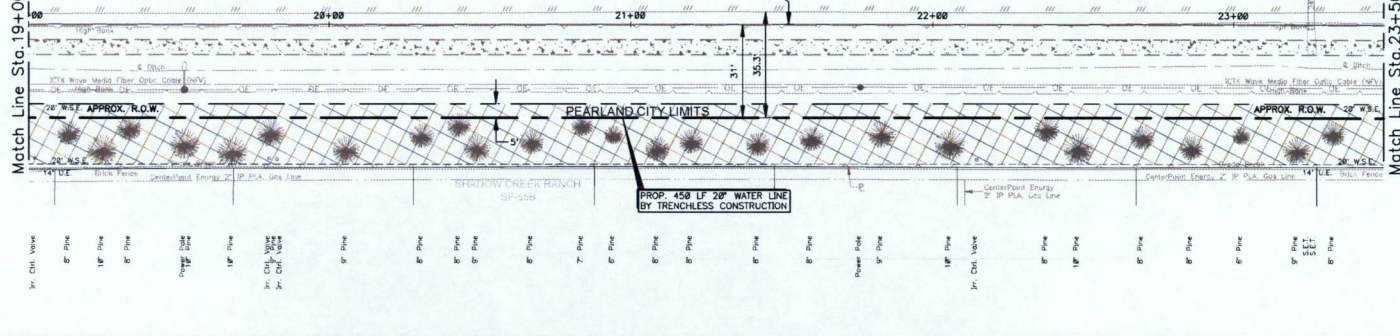
Match Line Sta. 19+00 See Sheet 13

Match Line Sta. 23+50 See Sheet 15

FM 521 (120' TxDOT ROW)  
(Asphalt Pavement)

FUTURE TxDOT MEDIAN

FUTURE TxDOT PAVEMENT



**TRENCHLESS CONSTRUCTION NOTES:**

1. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THE QUALIFICATIONS OF THE SUB-CONTRACTOR PERFORMING THE TRENCHLESS WORK FOR REVIEW AND CONCURRENCE. WITH THIS SUBMITTAL, THE CONTRACTOR MUST INCLUDE AT LEAST FIVE (5) PROJECTS OF SIMILAR SIZE AND TYPE THAT THE SUBCONTRACTOR HAS INSTALLED WATERLINES SUCCESSFULLY BY TRENCHLESS METHODS.
2. THE CONTRACTOR MUST SUBMIT A LAYOUT WORK PLAN THAT SHOWS THE INSERTION AND RECEIVING PITS FOR ALL TRENCHLESS CONSTRUCTION AREAS AND ALSO A PROFILE OF THE PROPOSED WATERLINE, FOR REVIEW AND CONCURRENCE BY THE ENGINEER AND THE CITY.

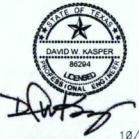
- NOTES:**
1. THE CONTRACTOR IS MADE AWARE OF AREAS WHERE EXISTING UTILITIES, INCLUDING, BUT NOT LIMITED TO GAS, SANITARY, ELECTRIC AND STORM, CROSS AND/OR ARE IN CLOSE PROXIMITY TO THE EXISTING AND PROPOSED WATERLINE. THE CONTRACTOR SHALL VERIFY CLEARANCES OF THE PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING. THE CONTRACTOR SHALL COORDINATE WITH THE PERTINENT UTILITY AND ENGINEER THAT ALL PRECAUTIONS ARE TAKEN TO MAINTAIN THE INTEGRITY OF THE UTILITY DURING CONSTRUCTION. NO ADDITIONAL PAYMENT SHALL BE MADE FOR INCREASED LEVEL OF CONSTRUCTION EFFORTS DUE TO EXISTENCE OF UTILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLAN DRAWING EXPENDED BY THE CONTRACTOR. THE INFORMATION PROVIDED ON THE DRAWING WILL IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF VERIFICATION PRIOR TO CONSTRUCTION.
  2. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL FOR THE PROJECT. ALL TRAFFIC CONTROL SHALL MEET MUTCD LATEST EDITION, AND BE MADE SAFE. THIS MAY INCLUDE BUT IS NOT LIMITED TO SIGNS, BARRICADES & MESSAGE BOARDS, CERTIFIED FLAGMEN OR UNIFORMED OFFICERS, ARROW BOARDS, AND OTHER DEVICES TO ALLOW FOR A SMOOTH FLOW OF TRAFFIC DURING CONSTRUCTION.
  3. THE CONTRACTOR SHALL BE AWARE THAT THE EXISTING UTILITIES, INCLUDING PIPELINES, HAVE NOT BEEN FIELD VERIFIED. THE CONTRACTOR SHALL CONTACT ALL ENTITIES AND VERIFY LOCATION OF ALL UTILITIES AND PIPELINES IN THE FIELD PRIOR TO CONSTRUCTION (AND SEPARATE PAY).
  4. ALL WATER MAINS AND SERVICE LINES SHALL BE TESTED AND DISINFECTED AS PER THE SPECIFICATIONS.
  5. THE LOCATION OF PROPOSED FIRE HYDRANTS AND VALVES SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE VERIFIED AND CONFIRMED WITH THE CITY REPRESENTATIVE PRIOR TO INSTALLATION.
  6. THE CONTRACTOR SHALL PROTECT ALL TREES WITHIN AND IN THE VICINITY OF THE CONSTRUCTION AREA.
  7. THE LANDSCAPE IRRIGATION SYSTEM SHOWN ON THE PLANS ARE NOT COMPLETE AND MUST BE VERIFIED BY THE CONTRACTOR IN THE FIELD. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE HOME OWNERS ASSOCIATION FOR VERIFICATION OF IRRIGATION SYSTEMS ALONG THE WATER LINE ALIGNMENT. PRIOR TO COMMENCING CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR LOCATING THE EXISTING IRRIGATION SYSTEM AND VERIFYING ITS FUNCTIONALITY. THE CONTRACTOR SHALL REPAIR ANY DAMAGES CAUSED TO THE EXISTING IRRIGATION SYSTEM TO THE SATISFACTION OF THE OWNER.
  8. THE CONTRACTOR SHALL NOT DISPOSE OF SUPER-CHLORINATED WATER DIRECTLY TO STORM SEWERS OR NATURAL DRAINAGE. THE CONTRACTOR IS RESPONSIBLE TO HAVE A PLAN IN PLACE TO DE-CHLORINATE AND DISPOSAL (AND SEPARATE PAY).

**LEGEND**

- FUTURE TxDOT DETENTION
- FUTURE TxDOT PAVEMENT
- FUTURE TxDOT SIDEWALK
- EXISTING EASEMENT
- PROP. 20\"/>

FM 521

PH.	DESCRIPTION	DATE	DWN.	CHK.



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City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Moxing Pointe)

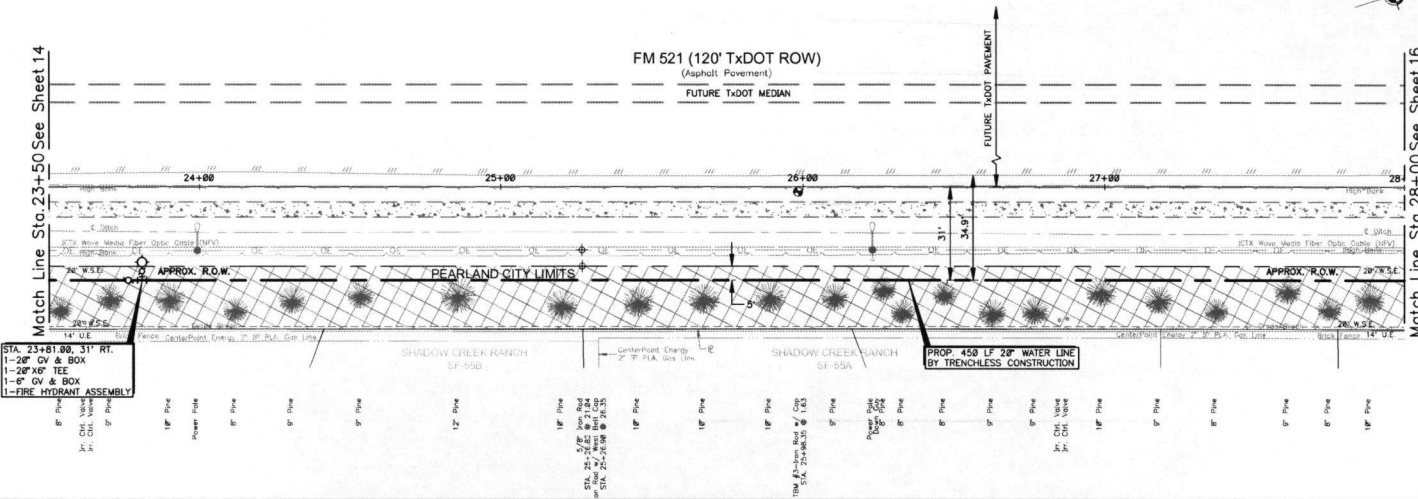
FM 521  
Sta. 19+00 to Sta. 23+50

Job No.: 16-012	Scale: 1" = 20'	SHEET <b>14</b> OF 37
Date: October 2017	VERT: 1" = 2'	
Drawn By: C. Chudoba	Checked By: M. Brown	

Match Line Sta. 23+50 See Sheet 14

Match Line Sta. 28+00 See Sheet 16

FM 521 (120' TxDOT ROW)  
(Asphalt Pavement)  
FUTURE TxDOT MEDIAN



STA. 23+81.00 31' RT.  
1-20\"/>

PROP. 450 LF 20\"/>

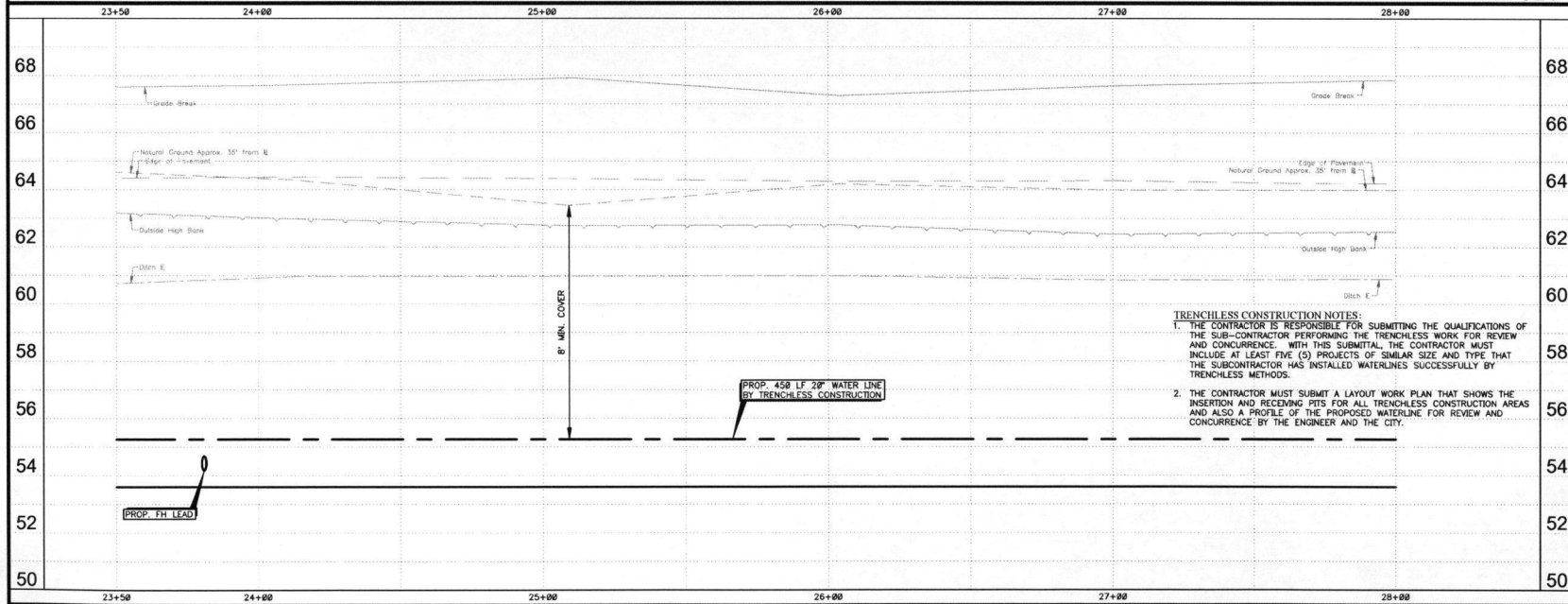
**NOTES**

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8. THE CONTRACTOR SHALL NOT DISPOSE OF SUPER-SATURATED WATER DIRECTLY TO STORM DRENCH OR NATURAL DRAINAGE. THE CONTRACTOR IS RESPONSIBLE TO HAVE A PLAN IN PLACE TO DE-CHLORINATE AND DISPOSAL (NO SEPARATE PAY).

**LEGEND**

- FUTURE TxDOT DETENTION
- FUTURE TxDOT PAVEMENT
- FUTURE TxDOT SIDEWALK
- EXISTING EASEMENT
- PROP. 20\"/>

FM 521



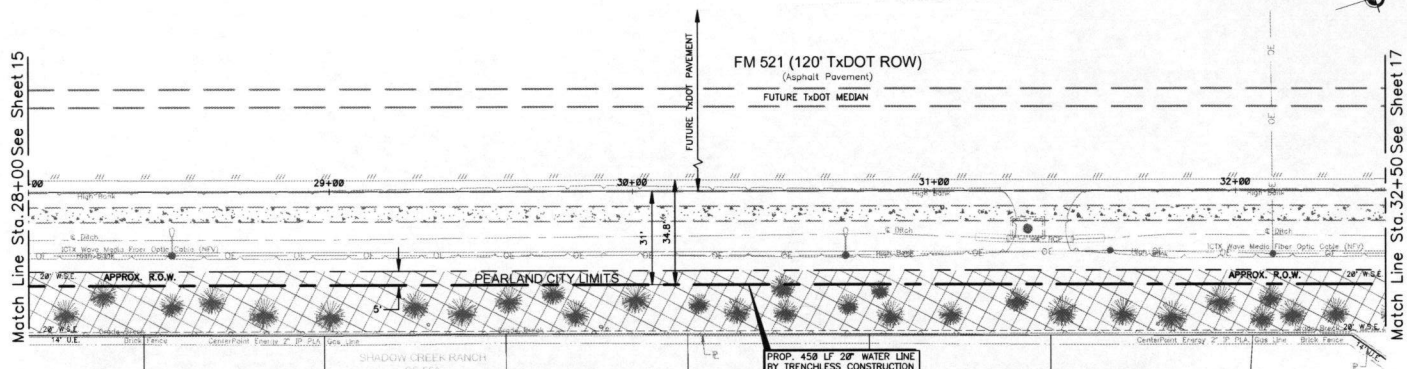
**TRENCHLESS CONSTRUCTION NOTES:**

1. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THE QUALIFICATIONS OF THE SUB-CONTRACTOR PERFORMING THE TRENCHLESS WORK FOR REVIEW AND CONCURRENCE. WITH THIS SUBMITTAL, THE CONTRACTOR MUST INCLUDE AT LEAST FIVE (5) PROJECTS OF SIMILAR SIZE AND TYPE THAT THE SUBCONTRACTOR HAS INSTALLED WATERLINES SUCCESSFULLY BY TRENCHLESS METHODS.
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PH. DESCRIPTION	DATE	DWA	CHK.
10/19/2017			
<small>7323 Southwest Freeway, Suite 1200 • Houston, Texas 77074 (713) 462-2723 • www.arirkengineers.com • TX REG. No. 13872</small>			
<b>City of Pearland, Texas</b> FM 521 Water Line (Broadway to Mooring Pointe)			
<b>FM 521</b> Sta. 23+50 to Sta. 28+00			

Match Line Sta. 28+00 See Sheet 15

Match Line Sta. 32+50 See Sheet 17

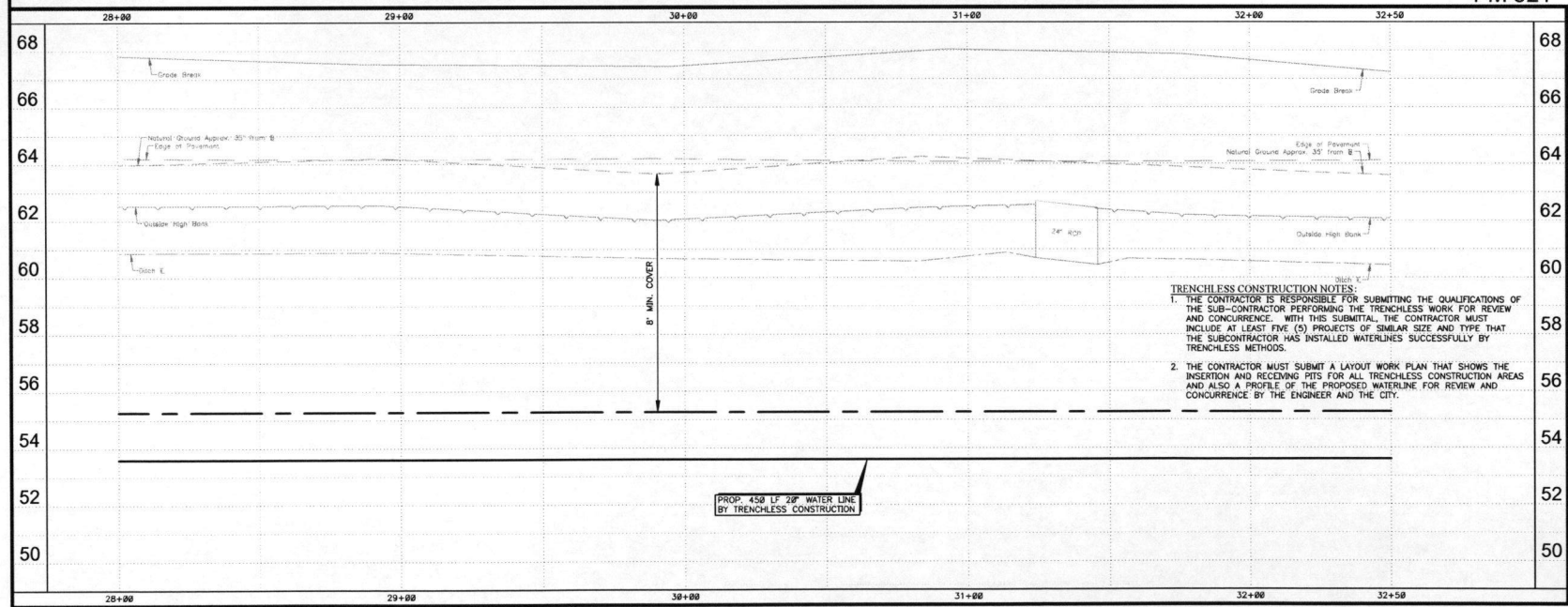


- NOTES:**
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**LEGEND**

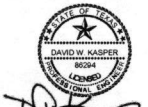
- FUTURE TxDOT DETENTION
- FUTURE TxDOT PAVEMENT
- FUTURE TxDOT SIDEWALK
- EXISTING EASEMENT
- PROP. 20\"/> WATER LINE ESM.
- POSSIBLE TREE REMOVAL
- PROP. SIDEWALK

**FM 521**



- TRENCHLESS CONSTRUCTION NOTES:**
- THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THE QUALIFICATIONS OF THE SUB-CONTRACTOR PERFORMING THE TRENCHLESS WORK FOR REVIEW AND CONCURRENCE. WITH THIS SUBMITTAL, THE CONTRACTOR MUST INCLUDE AT LEAST FIVE (5) PROJECTS OF SIMILAR SIZE AND TYPE THAT THE SUBCONTRACTOR HAS INSTALLED WATERLINES SUCCESSFULLY BY TRENCHLESS METHODS.
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NO.	DESCRIPTION	DATE	DWN.	CHK.



*David W. Kasper*  
10/19/2017



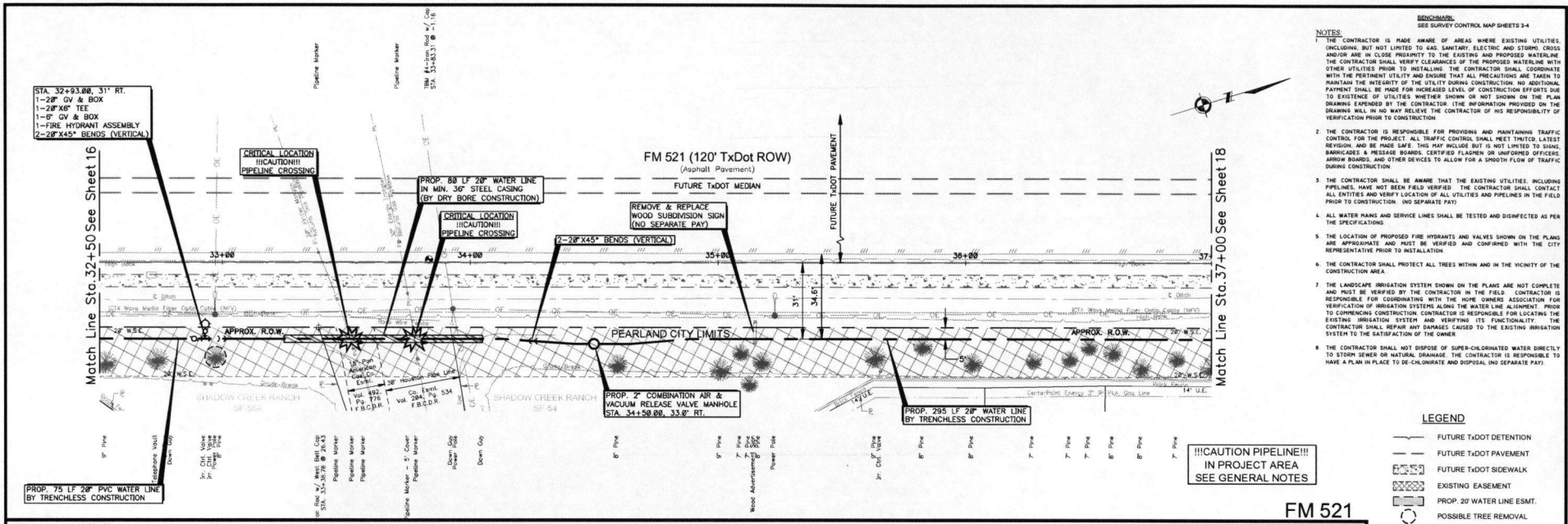
7322 Southwest Freeway, Suite 1040 • Houston, Texas 77074  
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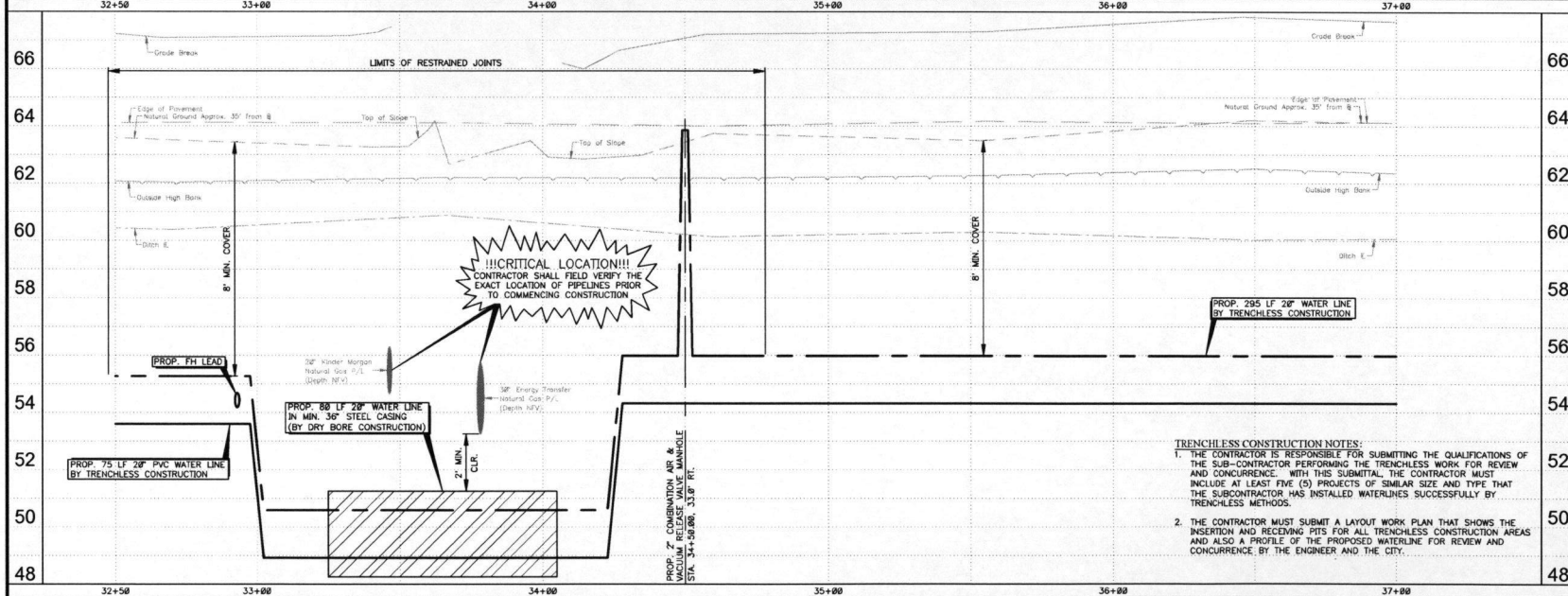
City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mosing Pointe)

FM 521  
Sta. 28+00 to Sta. 32+50

Job No.: 16-012	Scale: HORIZ 1" = 20'	SHEET <b>16</b> OF 37
Date: October 2017	VERT 1" = 5'	
Dwn By: C. Chudoba		
Chkd By: M. Brown		



- NOTES**
- BENCHMARK**  
SEE SURVEY CONTROL MAP SHEETS 3-4
1. THE CONTRACTOR IS MADE AWARE OF AREAS WHERE EXISTING UTILITIES, INCLUDING, BUT NOT LIMITED TO GAS, SANITARY, ELECTRIC AND STORM, CROSS AND/OR ARE IN CLOSE PROXIMITY TO THE EXISTING AND PROPOSED WATERLINE. THE CONTRACTOR SHALL VERIFY CLEARANCES OF THE PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING. THE CONTRACTOR SHALL COORDINATE WITH THE TREATMENT UTILITY AND ENSURE THAT ALL PROPOSED WATERLINE ARE TAKEN TO MAINTAIN THE INTEGRITY OF THE UTILITY DURING CONSTRUCTION. NO ADDITIONAL PAYMENT SHALL BE MADE FOR INCREASED LEVEL OF CONSTRUCTION EFFORTS DUE TO EXISTENCE OF UTILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLAN DRAWINGS EXPENSED BY THE CONTRACTOR. THE INFORMATION PROVIDED ON THE DRAWINGS WILL IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF VERIFICATION PRIOR TO CONSTRUCTION.
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  8. THE CONTRACTOR SHALL NOT DISPOSE OF SUPER-CHLORINATED WATER DIRECTLY TO STORM SEWER OR NATURAL DRAINAGE. THE CONTRACTOR IS RESPONSIBLE TO HAVE A PUMP IN PLACE TO DE-CHLORINATE AND DISPOSAL. (NO SEPARATE PAY)



**PH. DESCRIPTION**      **DATE**      **DWNL**      **CHK.**

10/19/2017

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**City of Pearland, Texas**  
FM 521 Water Line  
(Broadway to Moving Pointe)

**FM 521**  
Sta. 32+50 to Sta. 37+00

Job No.: 16-012      Scale: HORIZ. 1" = 20'  
Date: October 2017      VERT. 1" = 5'  
Drawn By: C. Chudobov      L. One Inch  
Checked By: M. Brown

**SHEET**  
**17**  
**OF 37**

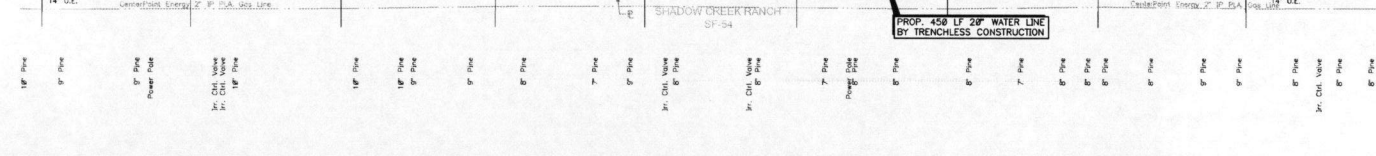
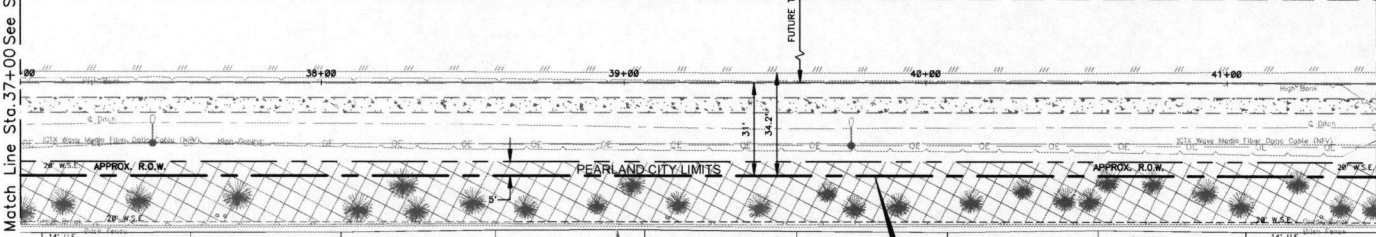
Match Line Sta. 37+00 See Sheet 17

Match Line Sta. 41+50 See Sheet 19

### FM 521 (120' TxDOT ROW) (Asphalt Pavement)

FUTURE TxDOT MEDIAN

FUTURE TxDOT PAVEMENT

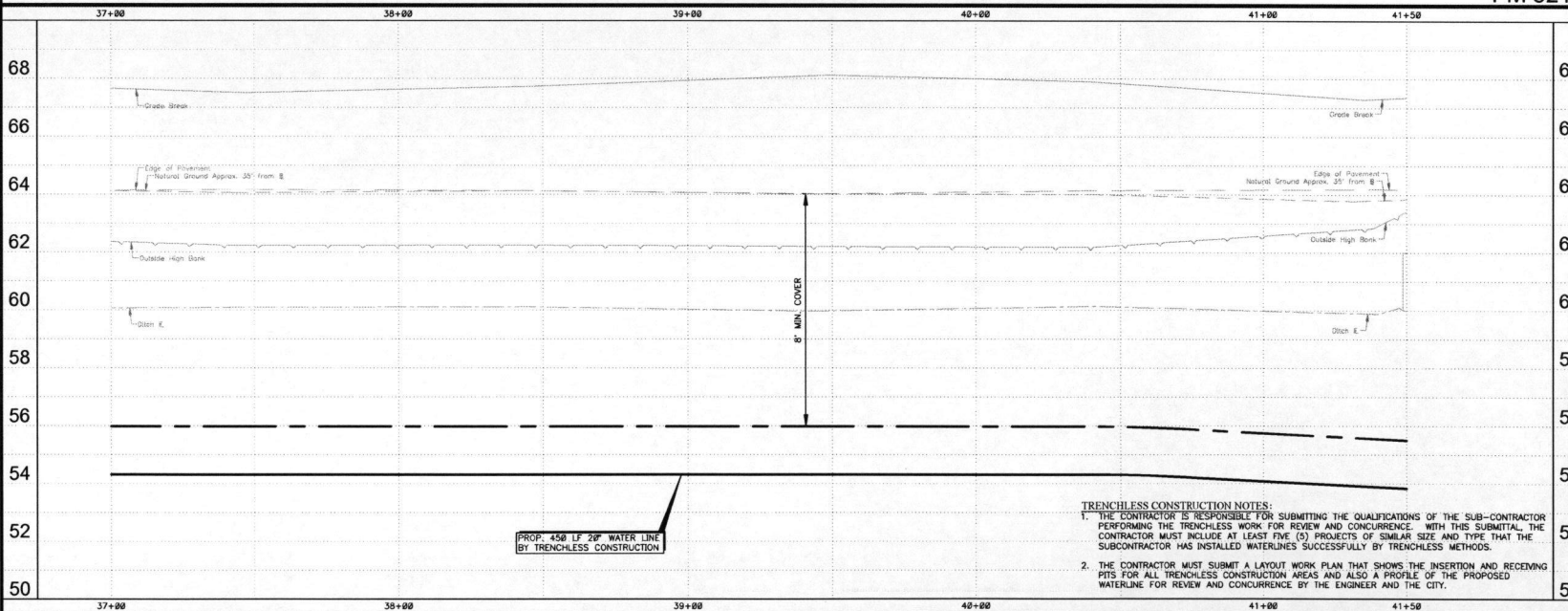


- NOTES**
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#### LEGEND

- FUTURE TxDOT DETENTION
- FUTURE TxDOT PAVEMENT
- ▨ FUTURE TxDOT SIDEWALK
- ▨ EXISTING EASEMENT
- ▨ PROP. 20\"/>

### FM 521



**TRENCHLESS CONSTRUCTION NOTES:**

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PK.	DESCRIPTION	DATE	DWN.	CHK.

10/19/2017

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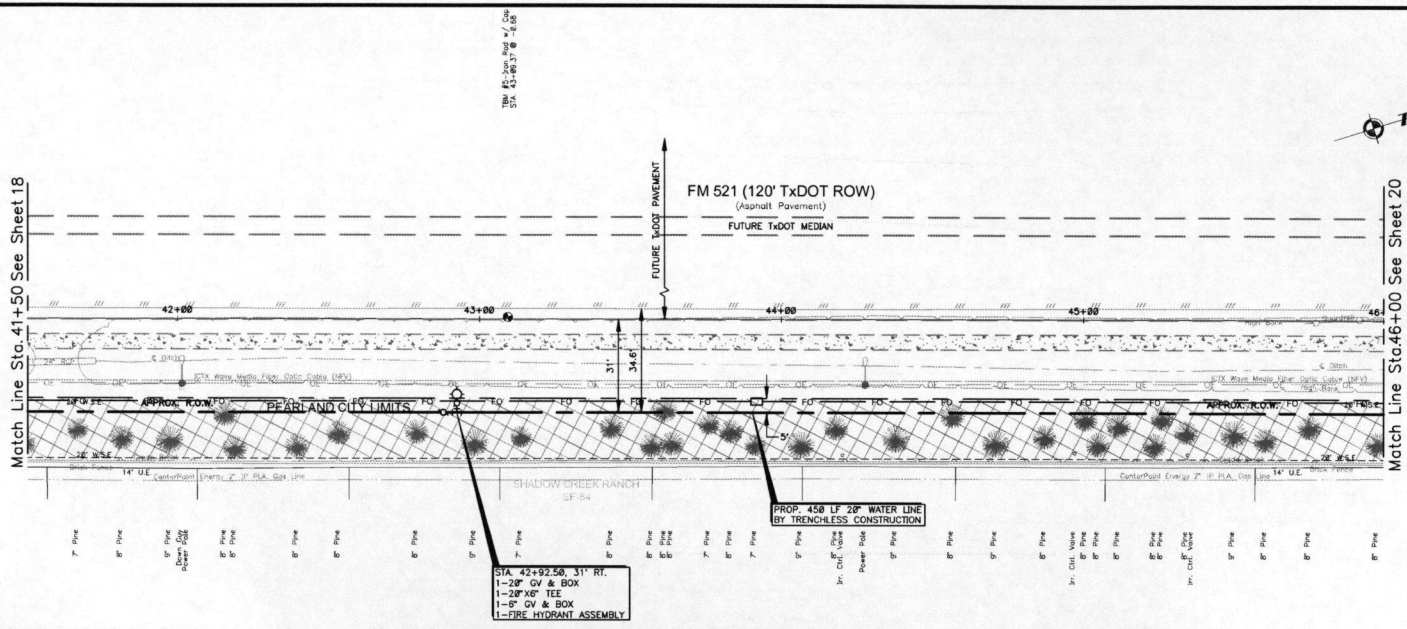
City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mowbray Pointe)

FM 521  
Sta. 37+00 to Sta. 41+50

Job No.: 16-012	Scale: HORIZ 1" = 30'	SHEET <b>18</b> OF 37
Date: October 2017	VERT 1" = 3'	
Dwn By: C. Chudoba		
Chd By: M. Brown		

Match Line Sta. 41+50 See Sheet 18

Match Line Sta. 46+00 See Sheet 20

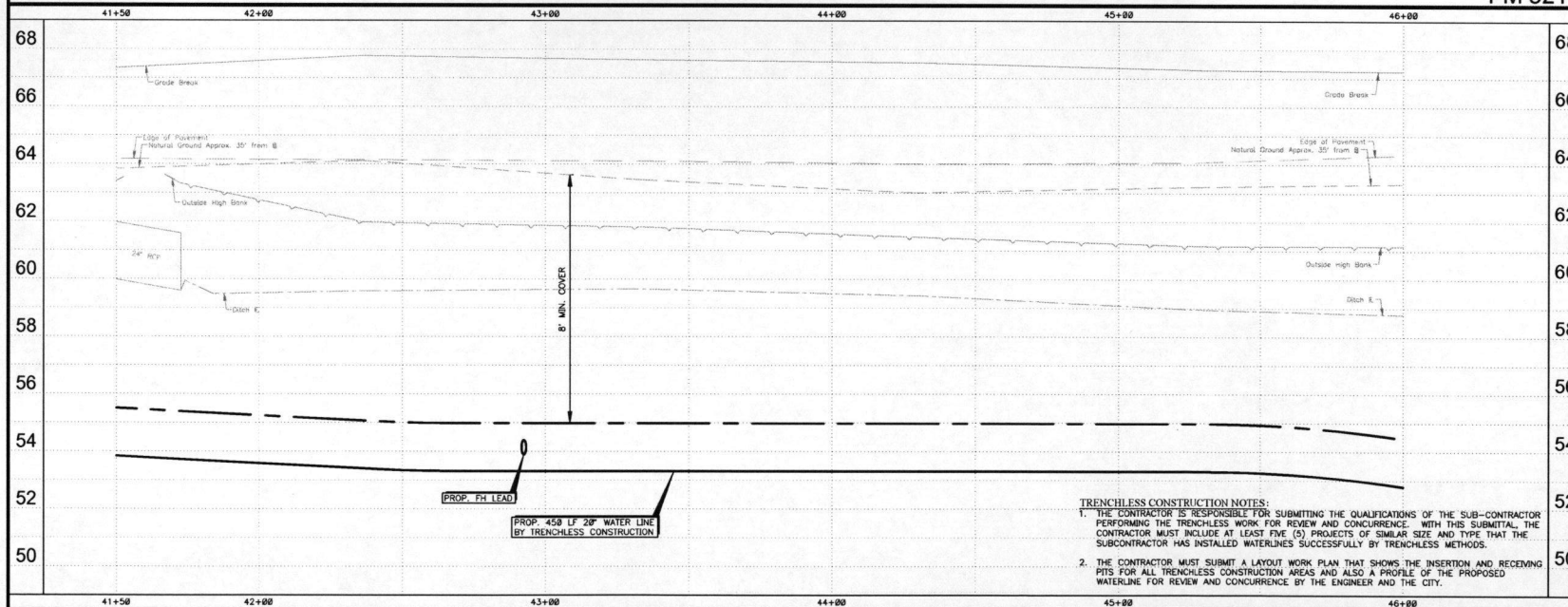


- NOTES**
1. THE CONTRACTOR IS MADE AWARE OF AREAS WHERE EXISTING UTILITIES, INCLUDING, BUT NOT LIMITED TO GAS, SANITARY, ELECTRIC AND STORM, CROSS AND/OR ARE IN CLOSE PROXIMITY TO THE EXISTING AND PROPOSED WATERLINE. THE CONTRACTOR SHALL VERIFY CLEARANCES OF THE PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING. THE CONTRACTOR SHALL COORDINATE WITH THE PERTINENT UTILITY AND ENSURE THAT ALL PRECAUTIONS ARE TAKEN TO MAINTAIN THE INTEGRITY OF THE UTILITY DURING CONSTRUCTION. NO ADDITIONAL PAYMENT SHALL BE MADE FOR INCREASED LEVELS OF CONSTRUCTION EFFORTS DUE TO EXISTENCE OF UTILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLAN. DRAWINGS EMPLOYED BY THE CONTRACTOR. THE INFORMATION PROVIDED IN THE DRAWING SHALL IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF VERIFICATION PRIOR TO CONSTRUCTION.
  2. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL FOR THE PROJECT. ALL TRAFFIC CONTROL SHALL MEET TREC'S LATEST REVISION, AND BE MADE SAFE. THIS MAY INCLUDE BUT IS NOT LIMITED TO SIGNS, BARRICADES, A RELEASE BOARD, CERTIFIED FLAGMEN OR UNIFORMED OFFICERS, ARROW BOARDS, AND OTHER DEVICES TO ALLOW FOR A SMOOTH FLOW OF TRAFFIC DURING CONSTRUCTION.
  3. THE CONTRACTOR SHALL BE AWARE THAT THE EXISTING UTILITIES, INCLUDING PIPELINES, HAVE NOT BEEN FIELD VERIFIED. THE CONTRACTOR SHALL CONTACT ALL ENTITIES AND VERIFY LOCATION OF ALL UTILITIES AND PIPELINES IN THE FIELD PRIOR TO CONSTRUCTION. (NO SEPARATE PAY).
  4. ALL WATER MAINS AND SERVICE LINES SHALL BE TESTED AND DISINFECTED AS PER THE SPECIFICATIONS.
  5. THE LOCATION OF PROPOSED FIRE HYDRANTS AND VALVES SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE VERIFIED AND CONFIRMED WITH THE CITY REPRESENTATIVE PRIOR TO INSTALLATION.
  6. THE CONTRACTOR SHALL PROTECT ALL TREES WITHIN AND IN THE VICINITY OF THE CONSTRUCTION AREA.
  7. THE LANDSCAPE IRRIGATION SYSTEM SHOWN ON THE PLANS ARE NOT COMPLETE AND MUST BE VERIFIED BY THE CONTRACTOR IN THE FIELD. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE ASSOCIATION FOR VERIFICATION OF IRRIGATION SYSTEMS ALONG THE WATER LINE ALIGNMENT. PRIOR TO COMMENCING CONSTRUCTION, THE CONTRACTOR SHALL LOCATE THE EXISTING IRRIGATION SYSTEM AND VERIFYING ITS FUNCTIONALITY. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED TO THE EXISTING IRRIGATION SYSTEM TO THE SATISFACTION OF THE OWNER.
  8. THE CONTRACTOR SHALL NOT DISPOSE OF SUPER-SATURATED WATER DIRECTLY TO STORM DRENCH OR NATURAL DRAINAGE. THE CONTRACTOR IS RESPONSIBLE TO HAVE A PLAN IN PLACE TO BE CONCRETE AND DISPOSAL. (NO SEPARATE PAY).

**LEGEND**

- FUTURE TxDOT DETENTION
- FUTURE TxDOT PAVEMENT
- FUTURE TxDOT SIDEWALK
- EXISTING EASEMENT
- PROP. 20' WATER LINE ESM.
- POSSIBLE TREE REMOVAL
- PROP. SIDEWALK

FM 521



- TRENCHLESS CONSTRUCTION NOTES:**
1. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THE QUALIFICATIONS OF THE SUB-CONTRACTOR PERFORMING THE TRENCHLESS WORK FOR REVIEW AND CONCURRENCE. WITH THIS SUBMITTAL, THE CONTRACTOR MUST INCLUDE AT LEAST FIVE (5) PROJECTS OF SIMILAR SIZE AND TYPE THAT THE SUBCONTRACTOR HAS INSTALLED WATERLINES SUCCESSFULLY BY TRENCHLESS METHODS.
  2. THE CONTRACTOR MUST SUBMIT A LAYOUT WORK PLAN THAT SHOWS THE INSERTION AND RECEIVING PITS FOR ALL TRENCHLESS CONSTRUCTION AREAS AND ALSO A PROFILE OF THE PROPOSED WATERLINE FOR REVIEW AND CONCURRENCE BY THE ENGINEER AND THE CITY.

PH.	DESCRIPTION	DATE	DWN.	CHK.
62				
60				
58				
56				
54				
52				
50				

12/19/2017

**ARKK ENGINEERS**  
7323 Southwest Freeway, Suite 1040 • Houston, Texas 77074  
(713) 492-2755 • www.arkkengineers.com • 475 PE Firm No. 13873

**PEARLAND**  
City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mooring Pointe)

FM 521  
Sta. 41+50 to Sta. 46+00

ADD No.: 16-012      Scale: 1" = 20'  
Date: October 2017      HORIZ. 1" = 30'  
Dwn By: C. Chudoba      VERT. 1" = 30'  
Chk By: M. Brown      One Inch

SHEET  
**19**  
OF 37

BENCHMARK:  
SEE SURVEY CONTROL MAP SHEETS 3-4

**NOTES:**  
1. THE CONTRACTOR IS MADE AWARE OF AREAS WHERE EXISTING UTILITIES, INCLUDING, BUT NOT LIMITED TO, GAS, SANITARY, ELECTRIC AND STORM DRAINAGE ARE IN CLOSE PROXIMITY TO THE EXISTING AND PROPOSED WATERLINE. THE CONTRACTOR SHALL VERIFY EXISTENCE OF THE PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY OWNERS TO ENSURE THAT ALL PRECAUTIONS ARE TAKEN TO MAINTAIN THE INTEGRITY OF THE UTILITY DURING CONSTRUCTION. NO ADDITIONAL PAYMENT SHALL BE MADE FOR INCREASED LEVEL OF CONSTRUCTION EFFORTS OR TO EXISTENCE OF UTILITIES WHETHER EXISTING OR NOT SHOWN ON THE PLAN DRAWING EXPRESSED BY THE CONTRACTOR. THE INFORMATION FURNISHED ON THE DRAWING WILL, IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF VERIFICATION PRIOR TO CONSTRUCTION.

2. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL FOR THE PROJECT. ALL TRAFFIC CONTROL SHALL MEET THE LATEST REVISION AND BE MADE SAFE. THIS MAY INCLUDE BUT IS NOT LIMITED TO SIGNING, BARRICADES, MESSAGE BOARDS, CERTIFIED FLAGMEN OR UNIFORMED OFFICERS, ARROW BOARDS, AND OTHER DEVICES TO ALLOW FOR A SMOOTH FLOW OF TRAFFIC DURING CONSTRUCTION.

3. THE CONTRACTOR SHALL BE AWARE THAT THE EXISTING UTILITIES, INCLUDING PIPELINES HAVE NOT BEEN FIELD VERIFIED. THE CONTRACTOR SHALL CONTACT ALL UTILITIES AND VERIFY LOCATION OF ALL DEVICES AND PIPELINES IN THE FIELD PRIOR TO CONSTRUCTION. (NO SEPARATE PAY)

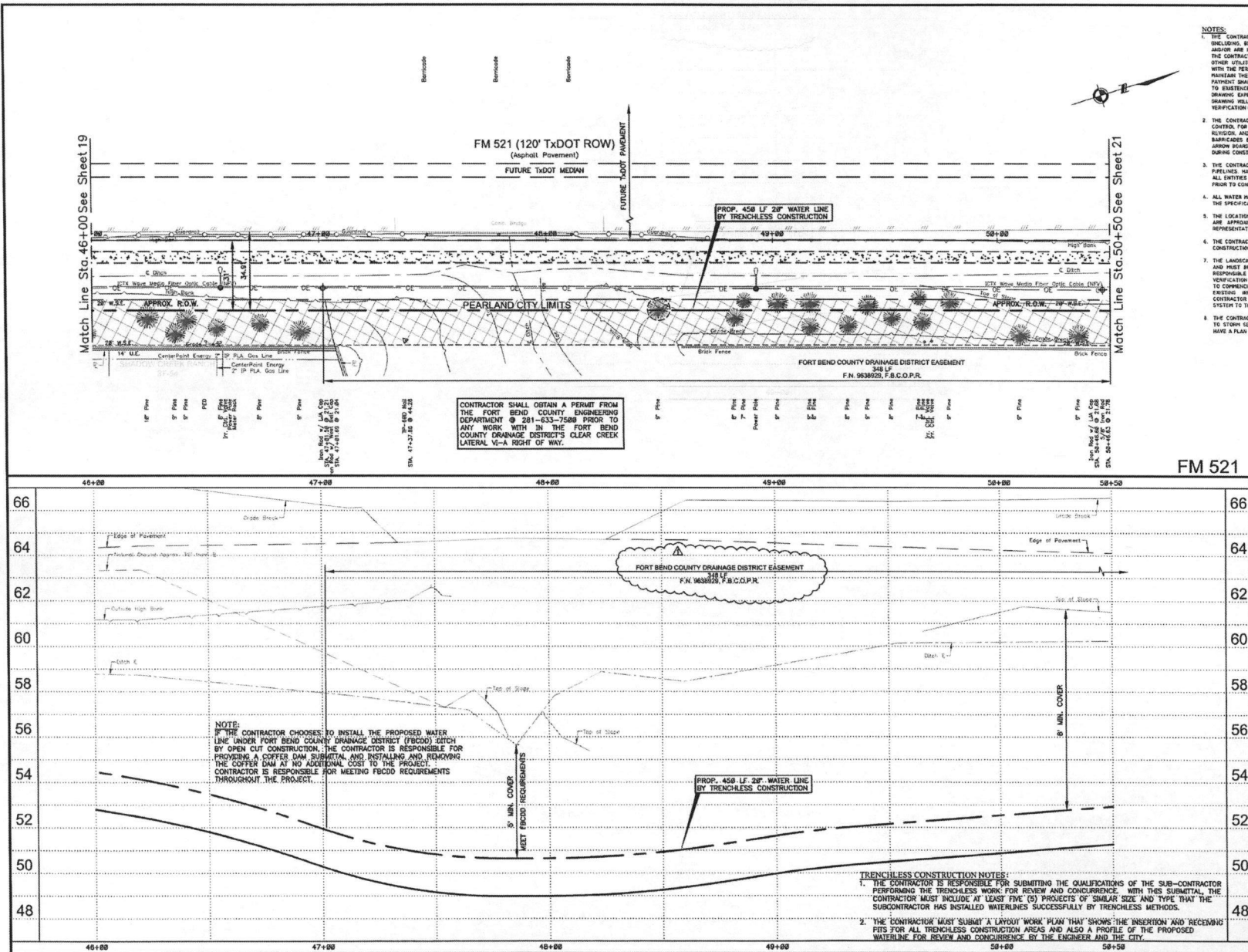
4. ALL WATER MAINS AND SERVICE LINES SHALL BE TESTED AND DISINFECTED AS PER THE SPECIFICATIONS.

5. THE LOCATION OF PROPOSED FIRE HYDRANTS AND VALVES SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE VERIFIED AND CONFIRMED WITH THE CITY REPRESENTATIVE PRIOR TO INSTALLATION.

6. THE CONTRACTOR SHALL PROTECT ALL TREES WITHIN AND IN THE VICINITY OF THE CONSTRUCTION AREA.

7. THE LANDSCAPE IRRIGATION SYSTEM SHOWN ON THE PLANS ARE NOT COMPLETE AND MUST BE VERIFIED BY THE CONTRACTOR IN THE FIELD. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE OWNER, CONTRACTOR ASSOCIATION FOR VERIFICATION OF IRRIGATION SYSTEMS ALONG THE WATER LINE ALIGNMENT. PRIOR TO COMMENSAL CONSTRUCTION, CONTRACTORS ARE TO LOCATE THE EXISTING IRRIGATION SYSTEM AND VERIFY ITS FUNCTIONALITY. THE CONTRACTOR SHALL REPORT ANY CHANGES CAUSED TO THE EXISTING IRRIGATION SYSTEM TO THE SATISFACTION OF THE OWNER.

8. THE CONTRACTOR SHALL NOT DISPOSE OF SUPER-SATURATED WATER DIRECTLY TO STORM SEWER OR NATURAL DRAINAGES. THE CONTRACTOR IS RESPONSIBLE TO HAVE A PLAN IN PLACE TO DE-CLORINATE AND DISPOSEL (NO SEPARATE PAY).



CONTRACTOR SHALL OBTAIN A PERMIT FROM THE FORT BEND COUNTY ENGINEERING DEPARTMENT @ 281-633-7568 PRIOR TO ANY WORK WITH IN THE FORT BEND COUNTY DRAINAGE DISTRICT'S CLEAR CREEK LATERAL VI-A RIGHT OF WAY.

**LEGEND**

- FUTURE TxDOT DETENTION
- FUTURE TxDOT PAVEMENT
- FUTURE TxDOT SIDEWALK
- EXISTING EASEMENT
- PROP. 24" WATER LINE ESM.
- POSSIBLE TREE REMOVAL
- PROP. SIDEWALK

ADD DRAINAGE EASEMENT	3/18	DF	DK

PK. DESCRIPTION DATE DWN. CHK.

**SEAL OF PEEL**  
DAVID W. KASPER  
REGISTERED PROFESSIONAL ENGINEER  
NO. 53191  
10/19/2017

**ARK ENGINEERS**  
7822 Westcrest Foreway, Suite 300 • Houston, Texas 77064  
(713) 400-2735 • www.arkengineers.com • TX PE Reg. No. 13872

**PEARLAND**  
City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mooring Point)

FM 521  
Sta. 46+00 to Sta. 50+50

Job No. 16-012	Scale:	SHEET <b>20</b>
Date: October 2017	WORK 1" = 20'	
Drawn By: C. Chudoba	One Inch	OF 37
Check By: M. Brown		

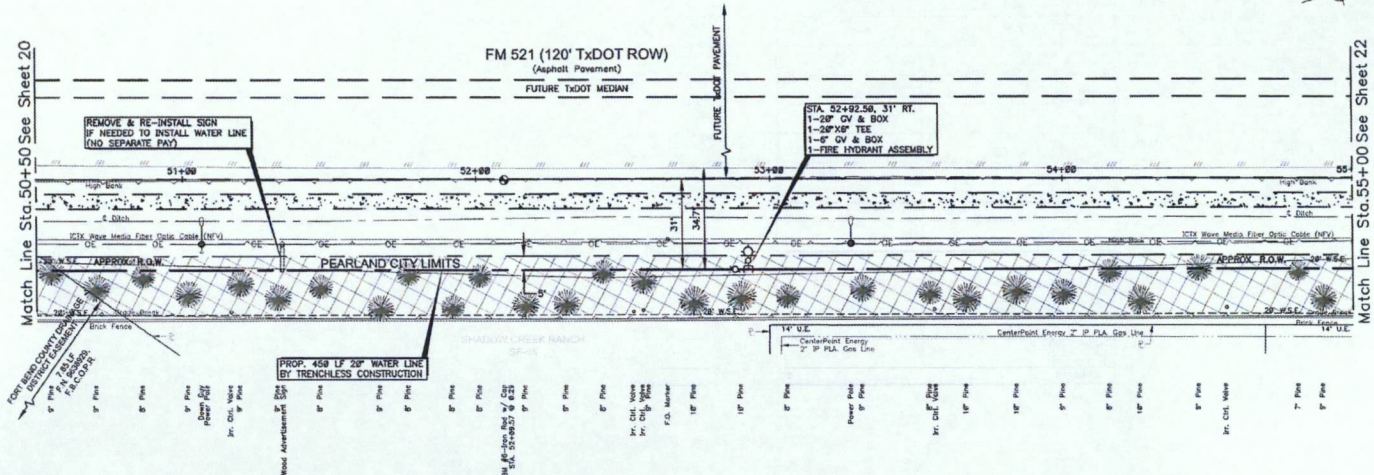
BENCHMARK  
SEE SURVEY CONTROL MAP SHEETS 3-4

- NOTES:
1. THE CONTRACTOR IS MADE AWARE OF AREAS WHERE EXISTING UTILITIES, INCLUDING, BUT NOT LIMITED TO GAS, SANITARY, ELECTRIC AND SIGNAL CROSSINGS ARE IN CLOSE PROXIMITY TO THE EXISTING AND PROPOSED WATER LINE. THE CONTRACTOR SHALL VERIFY CLEARANCES OF THE PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING. THE CONTRACTOR SHALL COORDINATE WITH THE TREATMENT UTILITY AND INSURE THAT ALL PRECONSTRUCTION EFFORTS TO MAINTAIN THE INTEGRITY OF THE UTILITY SYSTEM CONSTRUCTION. NO ADDITIONAL PAYMENT SHALL BE MADE FOR INCREASED LEVEL OF CONSTRUCTION EFFORTS DUE TO EXISTENCE OF UTILITIES UNLESS SHOWN OR NOT SHOWN ON THE PLAN DRAWING EXPRESSED BY THE CONTRACTOR. THE INFORMATION PROVIDED ON THE DRAWING WILL IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF RE-CORRECTION PRIOR TO CONSTRUCTION.
  2. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL FOR THE PROJECT. ALL TRAFFIC CONTROL SHALL MEET LATEST EDITION AND BE MADE SAFE. THIS MAY INCLUDE BUT IS NOT LIMITED TO SIGNS, BARRICADES & MESSENGER BARRIERS. CENTERED FLOWERS OR UNIFORMED OFFICERS, ARMO BOARD AND OTHER DEVICES TO ALLOW FOR A SMOOTH FLOW OF TRAFFIC DURING CONSTRUCTION.
  3. THE CONTRACTOR SHALL BE AWARE THAT THE EXISTING UTILITIES INCLUDING FUELLINES, HAVE NOT BEEN FIELD VERIFIED. THE CONTRACTOR SHALL CONTACT ALL UTILITIES AND VERIFY LOCATION OF ALL UTILITIES AND FUELLINES IN THE FIELD PRIOR TO CONSTRUCTION. (NO SEPARATE PAY)
  4. ALL WATER PIPING AND SERVICE LINES SHALL BE TESTED AND INSPECTED AS PER THE SPECIFICATIONS.
  5. THE LOCATION OF PROPOSED FIRE HYDRANTS AND VALVES SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE VERIFIED AND COMFIRMED WITH THE CITY REPRESENTATIVE PRIOR TO INSTALLATION.
  6. THE CONTRACTOR SHALL PROTECT ALL TREES WITHIN AND IN THE VICINITY OF THE CONSTRUCTION AREA.
  7. THE LANDSCAPE IRRIGATION SYSTEM SHOWN ON THE PLANS ARE NOT COMPLETE AND MUST BE VERIFIED BY THE CONTRACTOR IN THE FIELD. CONSTRUCTION IS RESPONSIBLE FOR COORDINATING WITH THE HOME OWNERS ASSOCIATION FOR RESPECTION OF IRRIGATION SYSTEMS. VERIFICATION SHALL BE MADE PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR LOCATING THE EXISTING IRRIGATION SYSTEMS. CONTRACTOR SHALL REPAIR ANY DAMAGES CAUSED TO THE EXISTING IRRIGATION SYSTEM TO THE SATISFACTION OF THE OWNER.
  8. THE CONTRACTOR SHALL NOT DISPOSE OF SOFT-CLONATED WATER DIRECTLY TO STORM KEMER OR NATURAL DRAINAGE. THE CONTRACTOR IS RESPONSIBLE TO HAVE A PLAN IN PLACE TO DE-COMMUNICATE AND DISPOSAL (NO SEPARATE PAY).



Match Line Sta. 50+50 See Sheet 20

Match Line Sta. 55+00 See Sheet 22

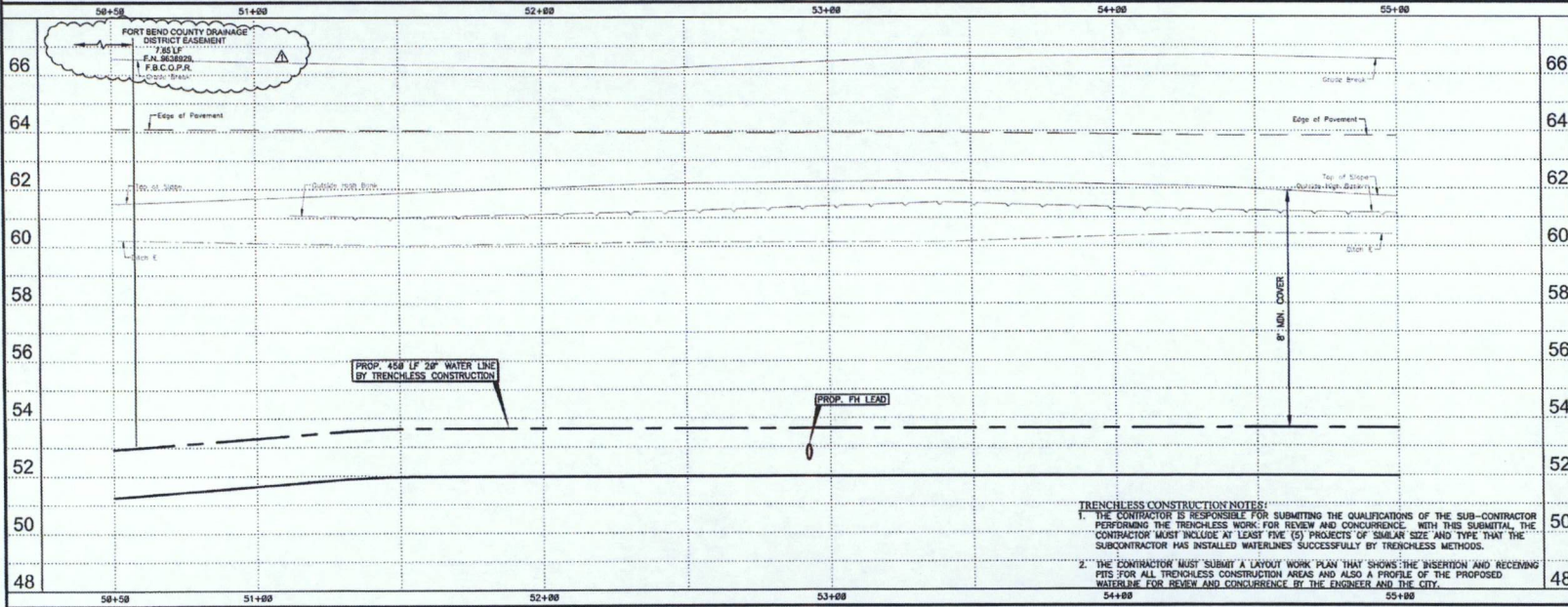


PROP. 450 LF 20\"/>

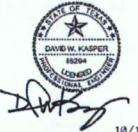
LEGEND

- FUTURE TxDOT DETENTION
- FUTURE TxDOT PAVEMENT
- FUTURE TxDOT SIDEWALK
- EXISTING EASEMENT
- PROP. 20\"/>
- POSSIBLE TREE REMOVAL
- PROP. SIDEWALK

FM 521



ADD DRAINAGE EASEMENT	S/TR	DF	DK



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7322 Southview Freeway, Suite 1000 • Houston, Texas 77054  
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City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mowbray Pointe)

FM 521  
Sta. 50+50 to Sta. 55+00

- TRENCHLESS CONSTRUCTION NOTES:
1. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THE QUALIFICATIONS OF THE SUB-CONTRACTOR PERFORMING THE TRENCHLESS WORK. FOR REVIEW AND CONCURRENCE. WITH THIS SUBMITTAL, THE CONTRACTOR MUST INCLUDE AT LEAST FIVE (5) PROJECTS OF SIMILAR SIZE AND TYPE THAT THE SUBCONTRACTOR HAS INSTALLED WATERLINES SUCCESSFULLY BY TRENCHLESS METHODS.
  2. THE CONSTRUCTION MUST SUBMIT A LAYOUT WORK PLAN THAT SHOWS THE INSERTION AND RECEIVING PITS FOR ALL TRENCHLESS CONSTRUCTION AREAS AND ALSO A PROFILE OF THE PROPOSED WATERLINE FOR REVIEW AND CONCURRENCE BY THE ENGINEER AND THE CITY.

Job No: 16-012  
Date: October 2017  
Drawn By: C. Chausoba  
Check By: M. Braun  
Scale: 1\"/>

SHEET  
21  
OF 37

BENCHMARK  
SEE SURVEY CONTROL MAP SHEETS 3-4

NOTES

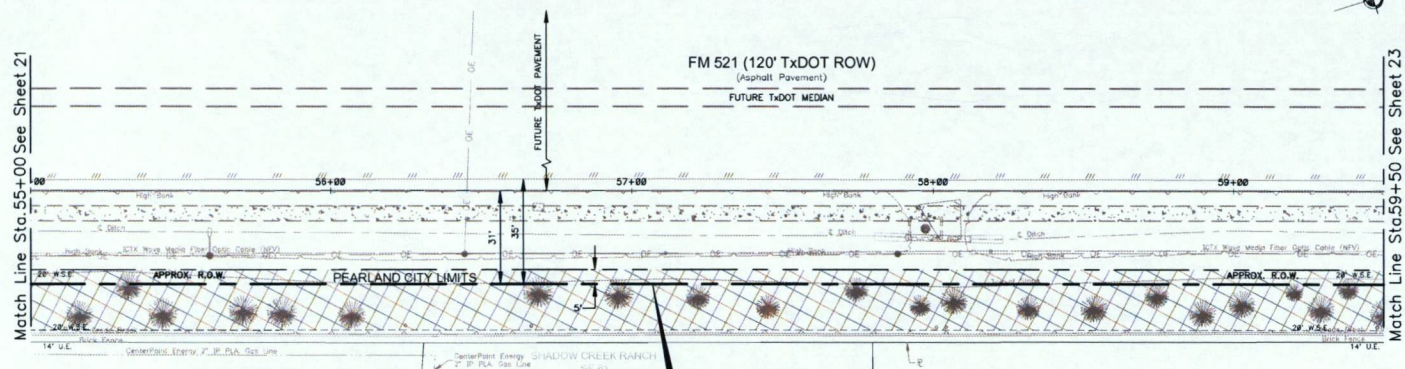
- 1. THE CONTRACTOR IS MADE AWARE OF AREAS WHERE EXISTING UTILITIES (INCLUDING, BUT NOT LIMITED TO GAS, SANITARY, ELECTRIC AND STORM) CROSS AND/OR ARE IN CLOSE PROXIMITY TO THE EXISTING AND PROPOSED WATERLINE. THE CONTRACTOR SHALL VERIFY CLEARANCES OF THE PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING. THE CONTRACTOR SHALL COORDINATE WITH THE TREATMENT UTILITY AND ENSURE THAT ALL PRECAUTIONS ARE TAKEN TO MAINTAIN THE INTEGRITY OF THE UTILITY DURING CONSTRUCTION. NO ADDITIONAL PAYMENT SHALL BE MADE FOR INCREASED LEVEL OF CONSTRUCTION EFFORTS DUE TO EXISTENCE OF UTILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLAN DRAWING EXCEPT BY THE CONTRACTOR. THE INFORMATION PROVIDED ON THE DRAWING WILL IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF VERIFICATION PRIOR TO CONSTRUCTION.
- 2. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL FOR THE PROJECT. ALL TRAFFIC CONTROL SHALL MEET TEXAS LATEST EDITION, AND BE MADE SAFE. THIS MAY INCLUDE BUT IS NOT LIMITED TO SIGNS, BARRICADES & MESSAGE BOARDS, CERTIFIED FLAGMEN OR UNIFORMED OFFICERS, ARROW BOARDS, AND OTHER DEVICES TO ALLOW FOR A SMOOTH FLOW OF TRAFFIC DURING CONSTRUCTION.
- 3. THE CONTRACTOR SHALL BE AWARE THAT THE EXISTING UTILITIES INCLUDING PIPELINES, HAVE NOT BEEN FIELD VERIFIED. THE CONTRACTOR SHALL CONTACT ALL ENTITIES AND VERIFY LOCATION OF ALL UTILITIES AND PIPELINES IN THE FIELD PRIOR TO CONSTRUCTION (NO SEPARATE PAY).
- 4. ALL WATER MAINS AND SERVICE LINES SHALL BE TESTED AND DISINFECTED AS PER THE SPECIFICATIONS.
- 5. THE LOCATION OF PROPOSED FIRE HYDRANTS AND VALVES SHOWN ON THE PLANS ARE APPROPRIATE AND MUST BE VERIFIED AND CONFIRMED WITH THE CITY REPRESENTATIVE PRIOR TO INSTALLATION.
- 6. THE CONTRACTOR SHALL PROTECT ALL TREES WITHIN AND IN THE VICINITY OF THE CONSTRUCTION AREA.
- 7. THE LANDSCAPE IRRIGATION SYSTEM SHOWN ON THE PLANS ARE NOT COMPLETE AND MUST BE VERIFIED BY THE CONTRACTOR IN THE FIELD. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE TREATMENT UTILITY FOR VERIFICATION OF IRRIGATION SYSTEMS ALONG THE WATER LINE ALIGNMENT PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE EXISTING IRRIGATION SYSTEM AND VERIFYING ITS FUNCTIONALITY. THE CONTRACTOR SHALL REPAIR ANY DAMAGES CAUSED TO THE EXISTING IRRIGATION SYSTEM TO THE SATISFACTION OF THE OWNER.
- 8. THE CONTRACTOR SHALL NOT DISPOSE OF SUPER-CHLORINATED WATER DIRECTLY TO STORM SEWER OR NATURAL DRAINAGE. THE CONTRACTOR IS RESPONSIBLE TO HAVE A PLAN IN PLACE TO DE-CHLORINATE AND DISPOSAL (NO SEPARATE PAY).



FM 521 (120' TxDOT ROW)  
(Asphalt Pavement)  
FUTURE TxDOT MEDIAN

Match Line Sta. 55+00 See Sheet 21

Match Line Sta. 59+50 See Sheet 23

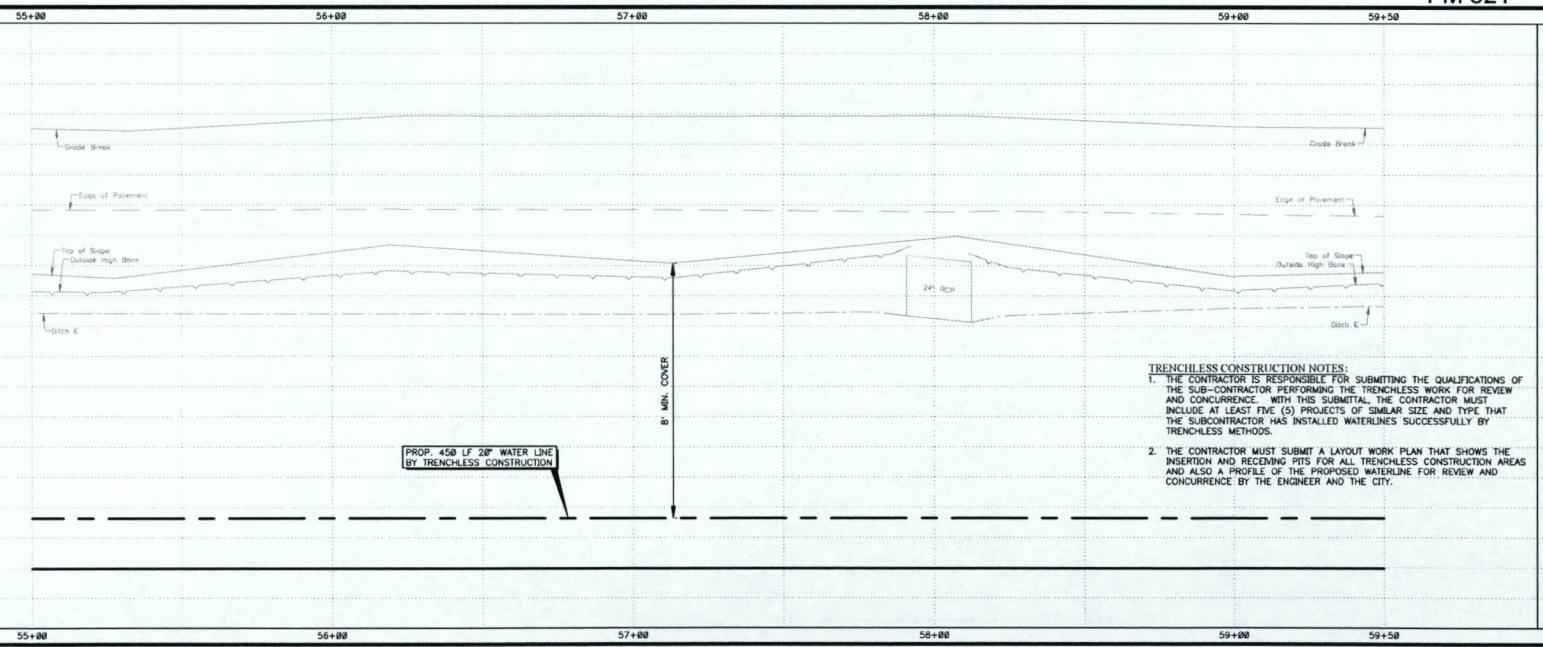


PROP. 450 LF 20" WATER LINE BY TRENCHLESS CONSTRUCTION

LEGEND

- FUTURE TxDOT DETENTION
- FUTURE TxDOT PAVEMENT
- FUTURE TxDOT SIDEWALK
- ▨ EXISTING EASEMENT
- ▨ PROP. 20" WATER LINE ESMT.
- POSSIBLE TREE REMOVAL
- ▨ PROP. SIDEWALK

FM 521



**TRENCHLESS CONSTRUCTION NOTES:**

- 1. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THE QUALIFICATIONS OF THE SUB-CONTRACTOR PERFORMING THE TRENCHLESS WORK FOR REVIEW AND CONCURRENCE. WITH THIS SUBMITTAL, THE CONTRACTOR MUST INCLUDE AT LEAST FIVE (5) PROJECTS OF SIMILAR SIZE AND TYPE THAT THE SUBCONTRACTOR HAS INSTALLED WATERLINES SUCCESSFULLY BY TRENCHLESS METHODS.
- 2. THE CONTRACTOR MUST SUBMIT A LAYOUT WORK PLAN THAT SHOWS THE INSERTION AND RECEIVING PITS FOR ALL TRENCHLESS CONSTRUCTION AREAS AND ALSO A PROFILE OF THE PROPOSED WATERLINE FOR REVIEW AND CONCURRENCE BY THE ENGINEER AND THE CITY.

NO.	DESCRIPTION	DATE	DRN.	CHK.

10/19/2017

**ARKK ENGINEERS**  
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(713) 450-3755 • www.arkkengineers.com • TX PE Firm No. 13873

City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mooring Points)

FM 521  
Sta. 55+00 to Sta. 59+50

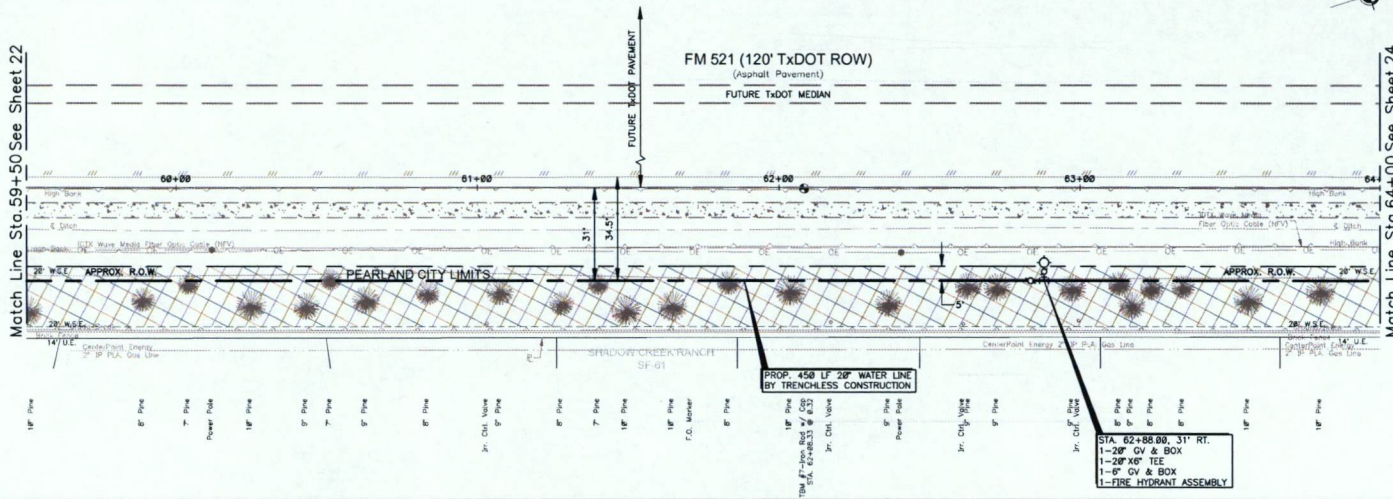
Job No.: 16-012  
Date: October 2017  
Drawn By: C. Chudoba  
Checked By: M. Brown

Scale:  
HORIZ. 1" = 30'  
VERT. 1" = 3'  
One Inch

SHEET  
**22**  
OF 37

Match Line Sta. 59+50 See Sheet 22

Match Line Sta. 64+00 See Sheet 24



**BENCHMARKS**  
SEE SURVEY CONTROL MAP SHEETS 3-4

- NOTES**
1. THE CONTRACTOR IS MADE AWARE OF AREAS WHERE EXISTING UTILITIES (INCLUDING, BUT NOT LIMITED TO GAS, SANITARY, ELECTRIC AND STORM) CROSS AND/OR ARE IN CLOSE PROXIMITY TO THE EXISTING AND PROPOSED WATERLINE. THE CONTRACTOR SHALL VERIFY CLEARANCES OF THE PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING. THE CONTRACTOR SHALL COORDINATE WITH THE PERTINENT UTILITY AND ENSURE THAT ALL PRECAUTIONS ARE TAKEN TO MAINTAIN THE INTEGRITY OF THE UTILITY DURING CONSTRUCTION. NO ADDITIONAL PAYMENT SHALL BE MADE FOR INCREASED LEVELS OF PRECAUTIONS AND EFFORTS DUE TO EXISTENCE OF UTILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLAN DRAWINGS EXCEPT BY THE CONTRACTOR. THE INFORMATION PROVIDED ON THE DRAWING WILL IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF VERIFICATION PRIOR TO CONSTRUCTION.
  2. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL FOR THE PROJECT. ALL TRAFFIC CONTROL SHALL MEET MUTCD LATEST EDITION AND BE MADE SAFE. THIS MAY INCLUDE BUT IS NOT LIMITED TO SIGNS, BARRICADES & MESSAGE BOARDS, CERTIFIED FLASHERS OR UNIFORMED OFFICERS, ARROW BOARDS, AND OTHER DEVICES TO ALLOW FOR A SMOOTH FLOW OF TRAFFIC DURING CONSTRUCTION.
  3. THE CONTRACTOR SHALL BE AWARE THAT THE EXISTING UTILITIES, INCLUDING PIPELINES, HAVE NOT BEEN FIELD VERIFIED. THE CONTRACTOR SHALL CONTACT ALL ENTITIES AND VERIFY LOCATION OF ALL UTILITIES AND PIPELINES IN THE FIELD PRIOR TO CONSTRUCTION (NO SEPARATE PAY).
  4. ALL WATER MAINS AND SERVICE LINES SHALL BE TESTED AND DISINFECTED AS PER THE SPECIFICATIONS.
  5. THE LOCATION OF PROPOSED FIRE HYDRANTS AND VALVES SHOWN ON THE PLANS ARE APPROPRIATE AND MUST BE VERIFIED AND CONFIRMED WITH THE CITY REPRESENTATIVE PRIOR TO INSTALLATION.
  6. THE CONTRACTOR SHALL PROTECT ALL TREES WITHIN AND IN THE VICINITY OF THE CONSTRUCTION AREA.
  7. THE LANDSCAPE IRRIGATION SYSTEM SHOWN ON THE PLANS ARE NOT COMPLETE AND MUST BE VERIFIED BY THE CONTRACTOR IN THE FIELD. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE HOME OWNERS ASSOCIATION FOR VERIFICATION OF IRRIGATION SYSTEMS ALONG THE WATER LINE ALIGNMENT PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING THE EXISTING IRRIGATION SYSTEM AND VERIFYING ITS FUNCTIONALITY. THE CONTRACTOR SHALL REPAIR ANY DAMAGES CAUSED TO THE EXISTING IRRIGATION SYSTEM TO THE SATISFACTION OF THE OWNER.
  8. THE CONTRACTOR SHALL NOT DISPOSE OF SUPER-CHLORINATED WATER DIRECTLY TO STORM SEWER OR NATURAL DRAINAGE. THE CONTRACTOR IS RESPONSIBLE TO HAVE A PLAN IN PLACE TO DE-CHLORINATE AND DISPOSAL (NO SEPARATE PAY).

**LEGEND**

- FUTURE TxDOT DETENTION
- FUTURE TxDOT PAVEMENT
- FUTURE TxDOT SIDEWALK
- EXISTING EASEMENT
- PROP. 20" WATER LINE E.S.M.T.
- POSSIBLE TREE REMOVAL
- PROP. SIDEWALK

**FM 521**



- TRENCHLESS CONSTRUCTION NOTES:**
1. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THE QUALIFICATIONS OF THE SUB-CONTRACTOR PERFORMING THE TRENCHLESS WORK FOR REVIEW AND CONCURRENCE. WITH THIS SUBMITTAL, THE CONTRACTOR MUST INCLUDE AT LEAST FIVE (5) PROJECTS OF SIMILAR SIZE AND TYPE THAT THE SUBCONTRACTOR HAS INSTALLED WATERLINES SUCCESSFULLY BY TRENCHLESS METHODS.
  2. THE CONTRACTOR MUST SUBMIT A LAYOUT WORK PLAN THAT SHOWS THE INSERTION AND RECEIVING PITS FOR ALL TRENCHLESS CONSTRUCTION AREAS AND ALSO A PROFILE OF THE PROPOSED WATERLINE FOR REVIEW AND CONCURRENCE BY THE ENGINEER AND THE CITY.

NO.	DESCRIPTION	DATE	BY	CHK.

10/19/2017

**DAVID W. KASPER**  
REGISTERED PROFESSIONAL ENGINEER

**ARKK ENGINEERS**  
7222 Southcrest Freeway, Suite 1040 • Houston, Texas 77074  
(713) 620-7755 • www.arkkengineers.com #3747 From No. 18872

**PEARLAND**  
INCORPORATED 1957

City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mooring Point)

**FM 521**  
Sta. 59+50 to Sta. 64+00

Job No. 16-012  
Date: October, 2017  
Drawn By: C. Chudoba  
Checked By: M. Brown

Scale:  
HORIZ 1" = 20'  
VERT 1" = 2'

SHEET  
OF 37

Match Line Sta. 64+00 See Sheet 23



### BENCHMARKS

SEE SURVEY CONTROL MAP SHEETS 3-4

**NOTES**

1. THE CONTRACTOR IS MADE AWARE OF AREAS WHERE EXISTING UTILITIES, CONDUITS, BUT NOT LIMITED TO GAS, SANITARY, ELECTRIC AND STEAM, CROSS AND/OR ARE IN CLOSE PROXIMITY TO THE EXISTING AND PROPOSED WATERLINE. THE CONTRACTOR SHALL VERIFY CLEARANCES OF THE PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING. THE CONTRACTOR SHALL COORDINATE WITH THE PERTINENT UTILITY AND ENSURE THAT ALL PRECAUTIONS ARE TAKEN TO MAINTAIN THE INTEGRITY OF THE UTILITY DURING CONSTRUCTION. NO ADDITIONAL PAYMENT SHALL BE MADE FOR INCREASED LEVEL OF CONSTRUCTION EFFORTS DUE TO EXISTENCE OF UTILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLAN DRAWING EXPEDITED BY THE CONTRACTOR (SEE INFORMATION PROVIDED ON THE DRAWING WILL IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF VERIFICATION PRIOR TO CONSTRUCTION.

2. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL FOR THE PROJECT. ALL TRAFFIC CONTROL SHALL MEET LATEST REGIONAL AND BE MADE SAFE. THIS MAY INCLUDE BUT IS NOT LIMITED TO SIGNS, BARRICADES & MESSAGE BOARDS, CENTERED FLAGMEN OR UNIFORMED OFFICERS, ARROW BOARDS, AND OTHER DEVICES TO ALLOW FOR A SMOOTH FLOW OF TRAFFIC DURING CONSTRUCTION.

3. THE CONTRACTOR SHALL BE AWARE THAT THE EXISTING UTILITIES, INCLUDING PIPELINES, HAVE NOT BEEN FIELD VERIFIED. THE CONTRACTOR SHALL CONTACT ALL ENTITIES AND VERIFY LOCATION OF ALL UTILITIES AND PIPELINES IN THE FIELD PRIOR TO CONSTRUCTION. (NO SEPARATE PAY).

4. ALL WATER MAINS AND SERVICE LINES SHALL BE TESTED AND DISINFECTED AS PER THE SPECIFICATIONS.

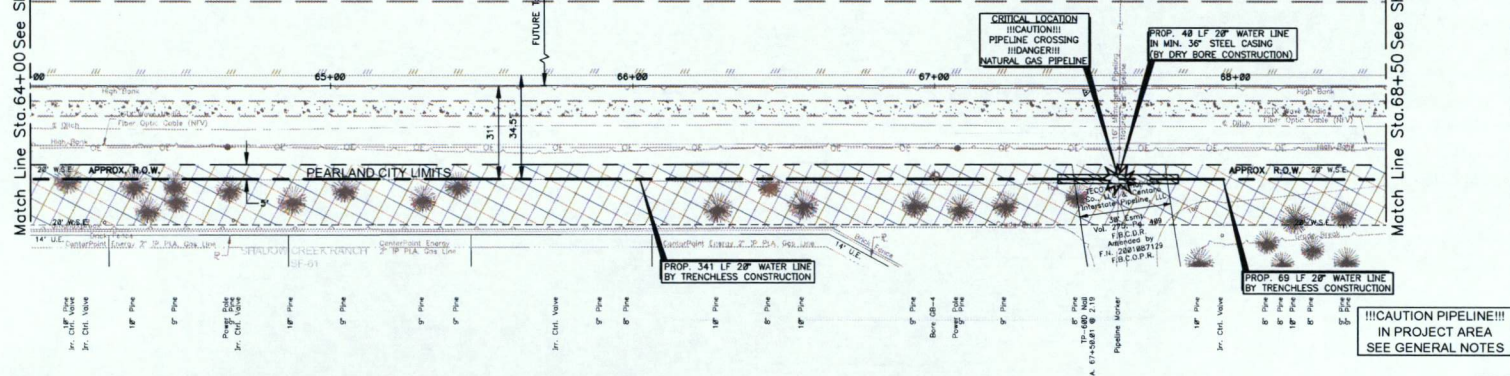
5. THE LOCATION OF PROPOSED FIRE HYDRANTS AND VALVES SHOWN ON THE PLANS ARE APPROPRIATE AND MUST BE VERIFIED AND CONFIRMED WITH THE CITY REPRESENTATIVE PRIOR TO INSTALLATION.

6. THE CONTRACTOR SHALL PROTECT ALL TREES WITHIN AND IN THE VICINITY OF THE CONSTRUCTION AREA.

7. THE LANDSCAPE IRRIGATION SYSTEM SHOWN ON THE PLANS ARE NOT COMPLETE AND MUST BE VERIFIED BY THE CONTRACTOR IN THE FIELD. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE HOMEOWNERS ASSOCIATION FOR VERIFICATION OF IRRIGATION SYSTEMS ALONG THE WATER LINE ALIGNMENT. PRIOR TO COMMENCING CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR LOCATING THE EXISTING IRRIGATION SYSTEM AND VERIFYING ITS FUNCTIONALITY. THE CONTRACTOR SHALL REPAIR ANY DAMAGES CAUSED TO THE EXISTING IRRIGATION SYSTEM TO THE SATISFACTION OF THE OWNER.

8. THE CONTRACTOR SHALL NOT DISPOSE OF SUPER-CHLORINATED WATER DIRECTLY TO STORM SEWER OR NATURAL DRAINAGE. THE CONTRACTOR IS RESPONSIBLE TO HAVE A PLAN IN PLACE TO DE-CHLORINATE AND DISPOSAL (NO SEPARATE PAY).

FM 521 (120' TxDOT ROW)  
(Asphalt Pavement)  
FUTURE TxDOT MEDIAN

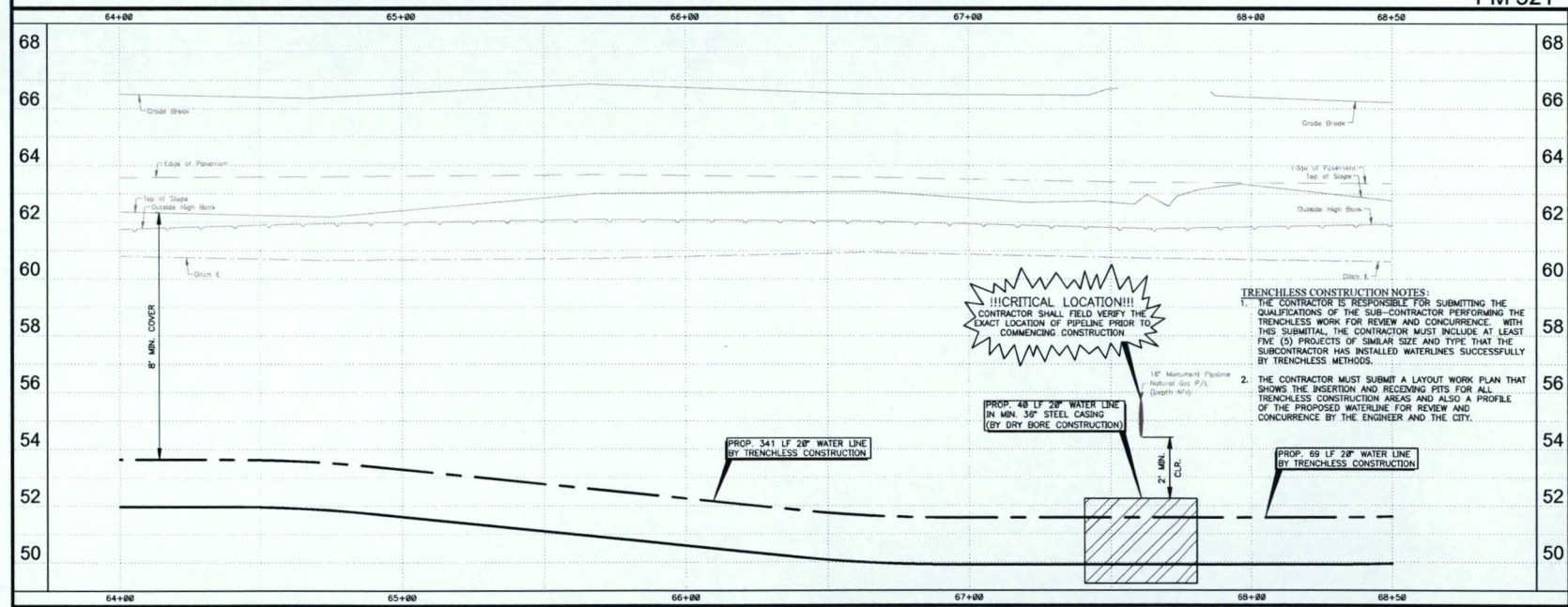


!!!CAUTION PIPELINE!!!  
IN PROJECT AREA  
SEE GENERAL NOTES

### LEGEND

- FUTURE TxDOT DETENTION
- FUTURE TxDOT PAVEMENT
- FUTURE TxDOT SIDEWALK
- EXISTING EASEMENT
- PROP. 20" WATER LINE ESMT.
- POSSIBLE TREE REMOVAL
- PROP. SIDEWALK

FM 521



!!!CRITICAL LOCATION!!!  
CONTRACTOR SHALL FIELD VERIFY THE EXACT LOCATION OF PIPELINE PRIOR TO COMMENCING CONSTRUCTION

- TRENCHLESS CONSTRUCTION NOTES:**
1. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THE QUALIFICATIONS OF THE SUB-CONTRACTOR PERFORMING THE TRENCHLESS WORK FOR REVIEW AND CONCURRENCE. WITH THIS SUBMITTAL, THE CONTRACTOR MUST INCLUDE AT LEAST FIVE (5) PROJECTS OF SIMILAR SIZE AND TYPE THAT THE SUBCONTRACTOR HAS INSTALLED WATERLINES SUCCESSFULLY BY TRENCHLESS METHODS.
  2. THE CONTRACTOR MUST SUBMIT A LAYOUT WORK PLAN THAT SHOWS THE INSERTION AND RECEIVING PITS FOR ALL TRENCHLESS CONSTRUCTION AREAS AND ALSO A PROFILE OF THE PROPOSED WATERLINE FOR REVIEW AND CONCURRENCE BY THE ENGINEER AND THE CITY.

No.	DESCRIPTION	DATE	OWN.	CHK.

12/19/2017

**ARKK ENGINEERS**  
7332 Southwest Freeway, Suite 1040 Houston, Texas 77074  
(713) 550-2755 • www.arkkengineers.com 47419 Form No. 13872

City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mooring Pointe)  
FM 521  
Sta. 64+00 to Sta. 68+50

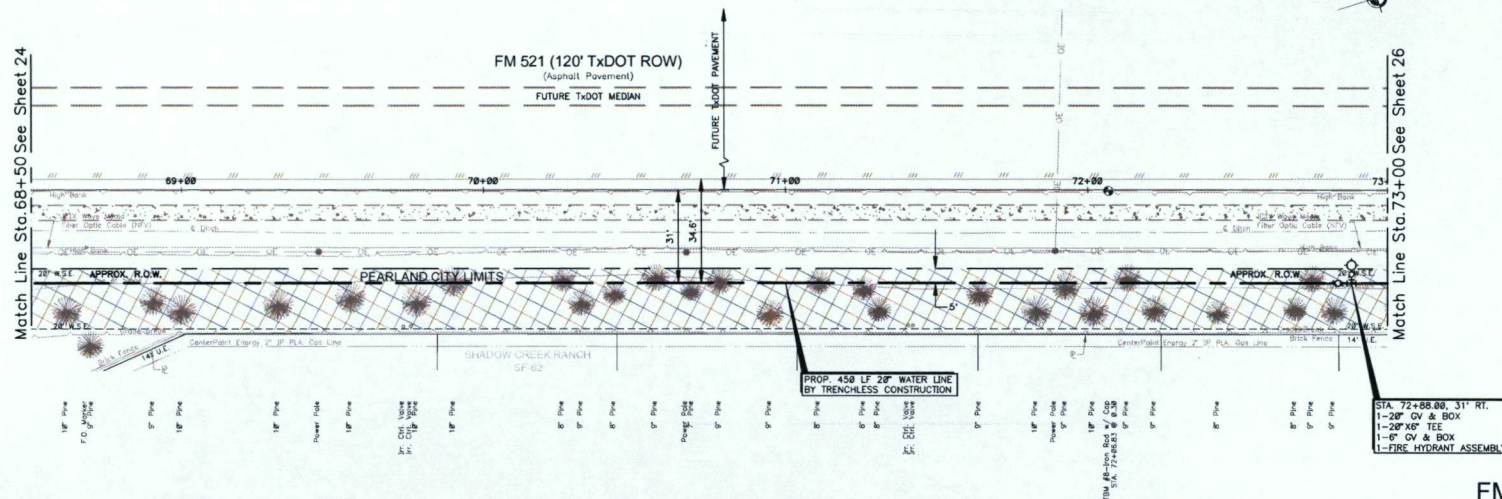
Job No.: 16-012      Scale: HORIZ 1" = 20'  
Date: October 2017      Vertical 1" = 20'  
Drawn By: C. Chudoba      Unit: One Inch  
Checked By: M. Brown      Date: 12/19/2017

SHEET  
**24**  
OF 37

Match Line Sta. 68+50 See Sheet 24

Match Line Sta. 73+00 See Sheet 26

FM 521 (120' TxDOT ROW)  
(Asphalt Pavement)  
FUTURE TxDOT MEDIAN



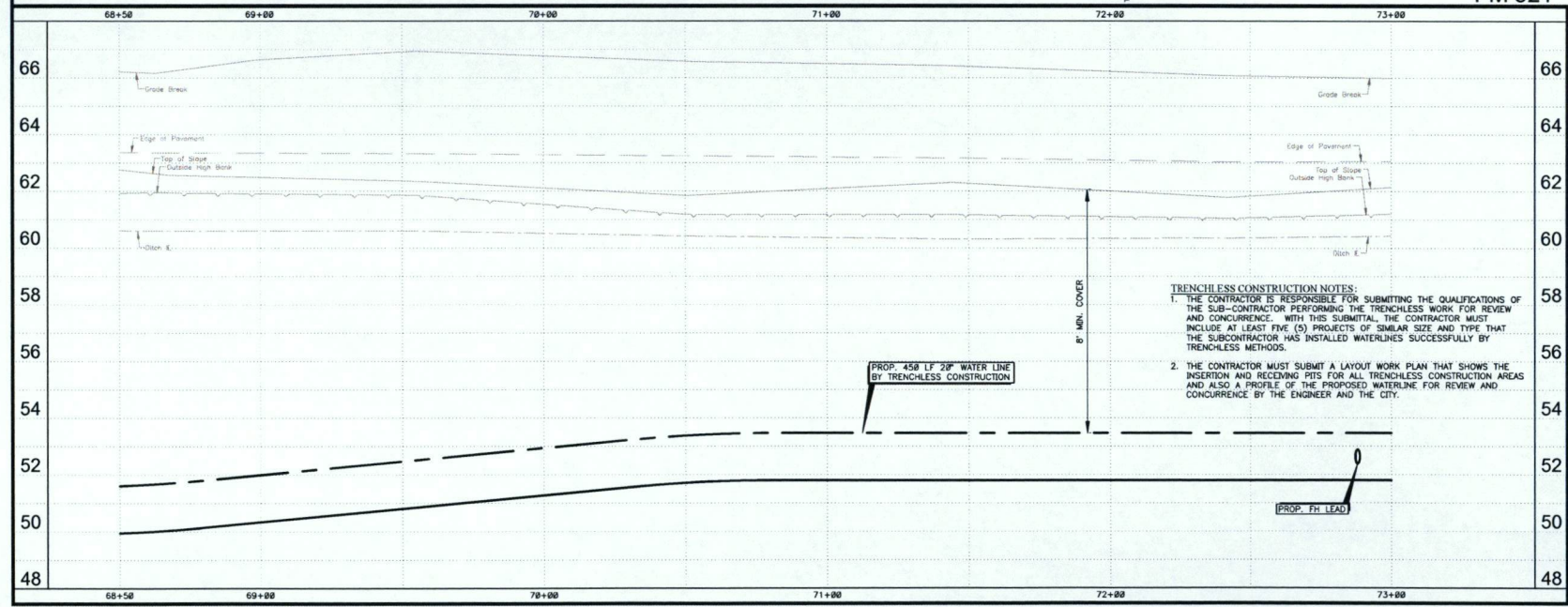
- NOTES**
- THE CONTRACTOR IS MADE AWARE OF AREAS WHERE EXISTING UTILITIES, INCLUDING BUT NOT LIMITED TO GAS, SANITARY, ELECTRIC AND STEAM, CROSS AND/OR ARE IN CLOSE PROXIMITY TO THE EXISTING AND PROPOSED WATERLINE. THE CONTRACTOR SHALL VERIFY CLEARANCES OF THE PROPOSED WATERLINE WITH THE PERTINENT UTILITY AND ENSURE THAT ALL PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING. THE CONTRACTOR SHALL COORDINATE WITH THE PERTINENT UTILITY AND ENSURE THAT ALL PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING. THE CONTRACTOR SHALL COORDINATE WITH THE PERTINENT UTILITY AND ENSURE THAT ALL PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING. THE CONTRACTOR SHALL COORDINATE WITH THE PERTINENT UTILITY AND ENSURE THAT ALL PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING.
  - THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL FOR THE PROJECT. ALL TRAFFIC CONTROL SHALL MEET TEXAS LATEST REGION AND BE MADE SAFE. THIS MAY INCLUDE BUT IS NOT LIMITED TO SIGNS, BARRICADES & MESSAGE BOARDS, CENTERED FLASHERS OR UNIFORMED OFFICERS, ARROW BOARDS, AND OTHER DEVICES TO ALLOW FOR A SMOOTH FLOW OF TRAFFIC DURING CONSTRUCTION.
  - THE CONTRACTOR SHALL BE AWARE THAT THE EXISTING UTILITIES INCLUDING PIPELINES HAVE NOT BEEN FIELD VERIFIED. THE CONTRACTOR SHALL CONTACT ALL ENTITIES AND VERIFY LOCATION OF ALL UTILITIES AND PIPELINES IN THE FIELD PRIOR TO CONSTRUCTION (NO SEPARATE PAY).
  - ALL WATER MAINS AND SERVICE LINES SHALL BE TESTED AND DISINFECTED AS PER THE SPECIFICATIONS.
  - THE LOCATION OF PROPOSED FIRE HYDRANTS AND VALVES SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE VERIFIED AND CONFIRMED WITH THE CITY REPRESENTATIVE PRIOR TO INSTALLATION.
  - THE CONTRACTOR SHALL PROTECT ALL TREES WITHIN AND IN THE VICINITY OF THE CONSTRUCTION AREA.
  - THE LANDSCAPE IRRIGATION SYSTEM SHOWN ON THE PLANS ARE NOT COMPLETE AND MUST BE VERIFIED BY THE CONTRACTOR IN THE FIELD. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE HOME OWNER ASSOCIATION FOR VERIFICATION OF IRRIGATION SYSTEMS ALONG THE WATER LINE ALIGNMENT. PRIOR TO COMMENCING CONSTRUCTION, CONTRACTORS COORDINATING THE EXISTING IRRIGATION SYSTEM AND VERIFYING ITS FUNCTIONALITY. THE CONTRACTOR SHALL REPAIR ANY DAMAGES CAUSED TO THE EXISTING IRRIGATION SYSTEM TO THE SATISFACTION OF THE OWNER.
  - THE CONTRACTOR SHALL NOT DISPOSE OF SUPER-CHLORINATED WATER DIRECTLY TO STORM SEWER OR NATURE. WASTEWATER THE CONTRACTOR IS RESPONSIBLE TO HAVE A PLAN IN PLACE TO DE-CHLORINATE AND DISPOSAL (NO SEPARATE PAY).

**LEGEND**

- FUTURE TxDOT DETENTION
- FUTURE TxDOT PAVEMENT
- FUTURE TxDOT SIDEWALK
- EXISTING EASEMENT
- PROP. 20" WATER LINE ESMT.
- POSSIBLE TREE REMOVAL
- PROP. SIDEWALK

STA. 72+88.00, 31' RT.  
1'-20" CV & BOX  
1'-20"XP TEE  
1'-6" CV & BOX  
1'-FIRE HYDRANT ASSEMBLY

FM 521



- TRENCHLESS CONSTRUCTION NOTES:**
- THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THE QUALIFICATIONS OF THE SUB-CONTRACTOR PERFORMING THE TRENCHLESS WORK FOR REVIEW AND CONCURRENCE. WITH THIS SUBMITTAL, THE CONTRACTOR MUST INCLUDE AT LEAST FIVE (5) PROJECTS OF SIMILAR SIZE AND TYPE THAT THE SUB-CONTRACTOR HAS INSTALLED WATERLINES SUCCESSFULLY BY TRENCHLESS METHODS.
  - THE CONTRACTOR MUST SUBMIT A LAYOUT WORK PLAN THAT SHOWS THE INSERTION AND RECEIVING PITS FOR ALL TRENCHLESS CONSTRUCTION AREAS AND ALSO A PROFILE OF THE PROPOSED WATERLINE FOR REVIEW AND CONCURRENCE BY THE ENGINEER AND THE CITY.

NO.	DESCRIPTION	DATE	DWN.	CHK.

10/19/2017

**ARKK ENGINEERS**  
7333 Southwest Freeway, Suite 1040 • Houston, Texas 77074  
713.662.2755 • www.arkkengineers.com • TX PE Form No. 13-072

**PEARLAND**  
EST. 1958

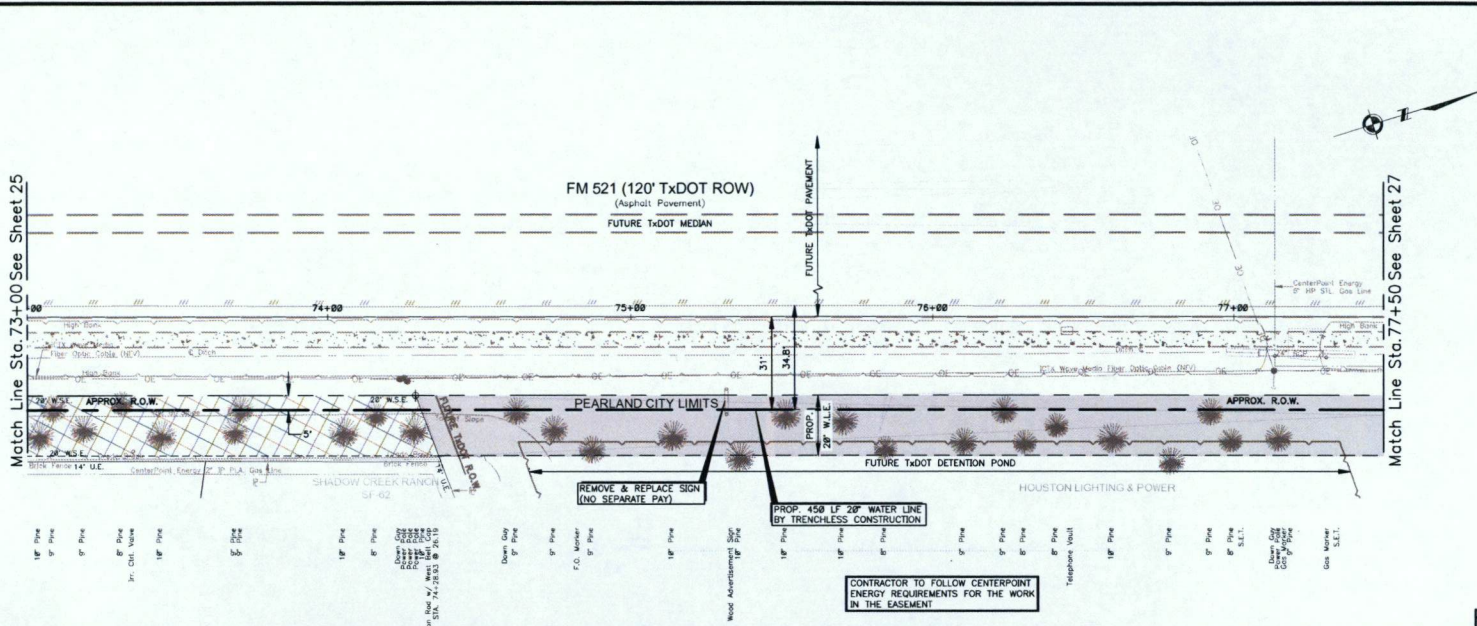
City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mooring Point)

FM 521  
Sta. 68+50 to Sta. 73+00

Job No.: 16-012	Scale: HORIZ 1" = 30' VERT 1" = 5'	SHEET <b>25</b> OF 37
Date: October 2017		
Drawn By: C. Chudoba	Check By: M. Brown	

Match Line Sta. 73+00 See Sheet 25

Match Line Sta. 77+50 See Sheet 27



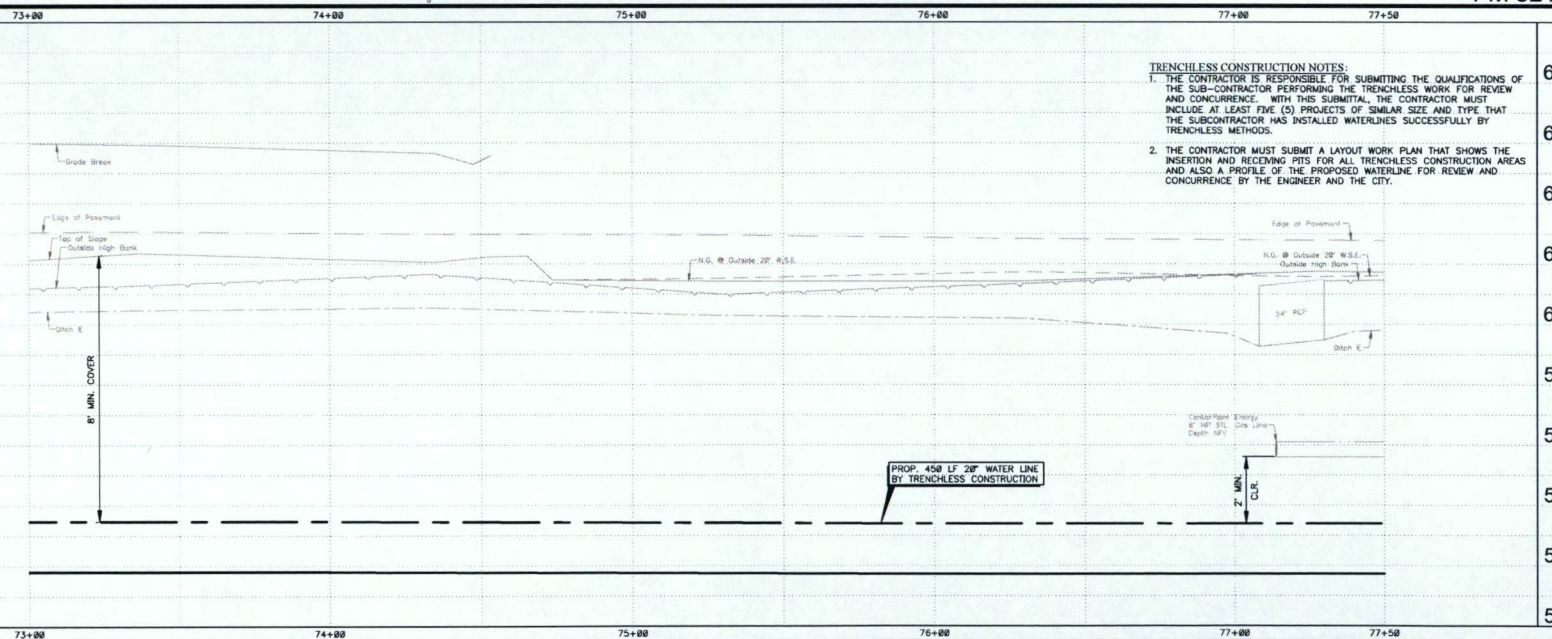
- NOTES**
1. THE CONTRACTOR IS MADE AWARE OF AREAS WHERE EXISTING UTILITIES, INCLUDING BUT NOT LIMITED TO GAS, SANITARY, ELECTRIC AND STORM, CROSS AND/OR ARE IN CLOSE PROXIMITY TO THE EXISTING AND PROPOSED WATERLINE. THE CONTRACTOR SHALL VERIFY CLEARANCES OF THE PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING. THE CONTRACTOR SHALL COORDINATE WITH THE PERTINENT UTILITY AND ENSURE THAT ALL PREPARATIONS ARE TAKEN TO MAINTAIN THE INTEGRITY OF THE UTILITY DURING CONSTRUCTION. NO ADDITIONAL PAYMENT SHALL BE MADE FOR INCREASED LEVELS OF CONSTRUCTION EFFORTS DUE TO EXISTENCE OF UTILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLAN DRAWING EXPENDED BY THE CONTRACTOR. THE INFORMATION PROVIDED ON THE DRAWING WILL IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF VERIFICATION PRIOR TO CONSTRUCTION.
  2. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL FOR THE PROJECT. ALL TRAFFIC CONTROL SHALL MEET TFCPC LATEST REVISION, AND BE MADE SAFE. THIS MAY INCLUDE BUT IS NOT LIMITED TO SIGNS, BARRICADES & MESSAGE BOARDS, CERTIFIED FLAGMEN OR UNIFORMED OFFICERS, ARROW BOARDS, AND OTHER DEVICES TO ALLOW FOR A SMOOTH FLOW OF TRAFFIC DURING CONSTRUCTION.
  3. THE CONTRACTOR SHALL BE AWARE THAT THE EXISTING UTILITIES, INCLUDING PIPELINES, HAVE NOT BEEN FIELD VERIFIED. THE CONTRACTOR SHALL CONTACT ALL ENTITIES AND VERIFY LOCATION OF ALL UTILITIES AND PIPELINES IN THE FIELD PRIOR TO CONSTRUCTION (NO SEPARATE PAY).
  4. ALL WATER MAINS AND SERVICE LINES SHALL BE TESTED AND DISINFECTED AS PER THE SPECIFICATIONS.
  5. THE LOCATION OF PROPOSED FIRE HYDRANTS AND VALVES SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE VERIFIED AND CONFIRMED WITH THE CITY REPRESENTATIVE PRIOR TO INSTALLATION.
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  8. THE CONTRACTOR SHALL NOT DISPOSE OF SUPER-SATURATED WATER DIRECTLY TO STORM SEWER OR NATURAL DRAINAGE. THE CONTRACTOR IS RESPONSIBLE TO HAVE A PLAN IN PLACE TO DE-CHLORINATE AND DISPOSAL (NO SEPARATE PAY).

**LEGEND**

	FUTURE TxDOT DETENTION
	FUTURE TxDOT PAVEMENT
	FUTURE TxDOT SIDEWALK
	EXISTING EASEMENT
	PROP. 20\"/>
	POSSIBLE TREE REMOVAL
	PROP. SIDEWALK

CONTRACTOR TO FOLLOW CENTERPOINT ENERGY REQUIREMENTS FOR THE WORK IN THE EASEMENT

- TRENCHLESS CONSTRUCTION NOTES:**
1. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THE QUALIFICATIONS OF THE SUB-CONTRACTOR PERFORMING THE TRENCHLESS WORK FOR REVIEW AND CONCURRENCE. WITH THIS SUBMITTAL, THE CONTRACTOR MUST INCLUDE AT LEAST FIVE (5) PROJECTS OF SIMILAR SIZE AND TYPE THAT THE SUBCONTRACTOR HAS INSTALLED WATERLINES SUCCESSFULLY BY TRENCHLESS METHODS.
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FM 521

PK.	DESCRIPTION	DATE	DWN.	CHK.

12/19/2017

**ARKK ENGINEERS**  
7332 Southwest Freeway, Suite 1040 Houston, Texas 77074  
713.400.2755 • www.arkkengineers.com • TX PE Form No. 13872

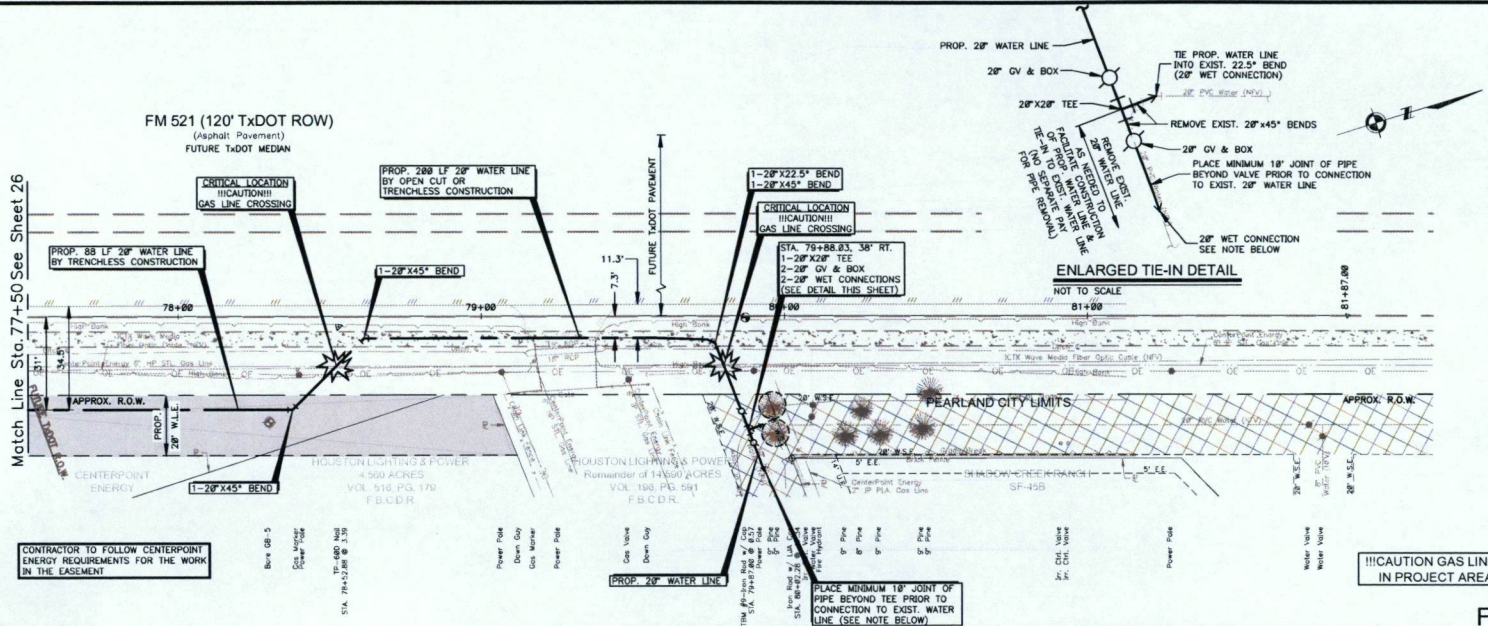
**City of Pearland, Texas**  
FM 521 Water Line  
(Broadway to Mooring Pointe)

**FM 521**  
Sta. 73+00 to Sta. 77+50

Job No.: 16-C12	Scale:	SHEET
Date: October 2017	Horiz. 1" = 20'	26
Drawn By: C. Chudoba	Vert. 1" = 2'	
Checked By: M. Brown	City Inset:	OF 37

FM 521 (120' TxDOT ROW)  
(Asphalt Pavement)  
FUTURE TxDOT MEDIAN

Match Line Sta. 77+50 See Sheet 26



- NOTES**
- THE CONTRACTOR IS MADE AWARE OF AREAS WHERE EXISTING UTILITIES, INCLUDING BUT NOT LIMITED TO GAS, SANITARY, ELECTRIC AND STORM, CROSS AND/OR ARE IN CLOSE PROXIMITY TO THE EXISTING AND PROPOSED WATERLINE. THE CONTRACTOR SHALL VERIFY CLEARANCES OF THE PROPOSED WATERLINE WITH OTHER UTILITIES PRIOR TO INSTALLING. THE CONTRACTOR SHALL COORDINATE WITH THE PERTINENT UTILITY AND ENSURE THAT ALL PRECAUTIONS ARE TAKEN TO MAINTAIN THE INTEGRITY OF THE UTILITY DURING CONSTRUCTION. NO ADDITIONAL PAYMENT SHALL BE MADE FOR INCREASES THAT ALL PRECAUTIONS ARE TAKEN TO EXISTENCE OF UTILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLAN DRAWING EXPENSED BY THE CONTRACTOR. THE INFORMATION PROVIDED ON THE DRAWING WILL IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF VERIFICATION PRIOR TO CONSTRUCTION.
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**LEGEND**

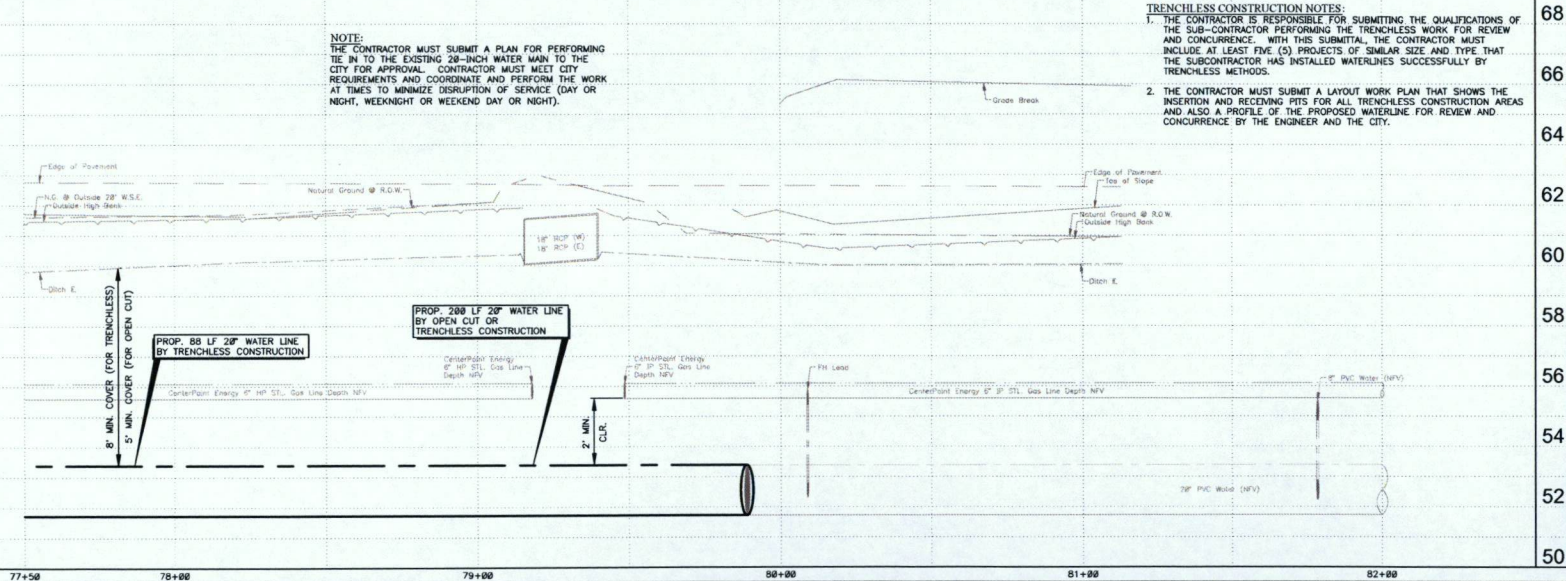
	FUTURE TxDOT DETENTION
	FUTURE TxDOT PAVEMENT
	FUTURE TxDOT SIDEWALK
	EXISTING EASEMENT
	POSSIBLE TREE REMOVAL
	PROP. SIDEWALK

CONTRACTOR TO FOLLOW CENTERPOINT ENERGY REQUIREMENTS FOR THE WORK IN THE EASEMENT

CAUTION GAS LINE!! IN PROJECT AREA

FM 521

77+50      78+00      79+00      80+00      81+00      82+00



**NOTE:**  
THE CONTRACTOR MUST SUBMIT A PLAN FOR PERFORMING TIE IN TO THE EXISTING 20-INCH WATER MAIN TO THE CITY FOR APPROVAL. CONTRACTOR MUST MEET CITY REQUIREMENTS AND COORDINATE AND PERFORM THE WORK AT TIMES TO MINIMIZE DISRUPTION OF SERVICE (DAY OR NIGHT, WEEKNIGHT OR WEEKEND DAY OR NIGHT).

- TRENCHLESS CONSTRUCTION NOTES:**
- THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THE QUALIFICATIONS OF THE SUB-CONTRACTOR PERFORMING THE TRENCHLESS WORK FOR REVIEW AND CONCURRENCE. WITH THIS SUBMITTAL, THE CONTRACTOR MUST INCLUDE AT LEAST FIVE (5) PROJECTS OF SIMILAR SIZE AND TYPE THAT THE SUBCONTRACTOR HAS INSTALLED WATERLINES SUCCESSFULLY BY TRENCHLESS METHODS.
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68					
66					
64					
62					
60					
58					
56					
54					
52					
50					

DATE: 10/19/2017

**ARKK ENGINEERS**  
7332 Southwest Freeway, Suite 1040 #Houston, Texas 77054  
(713) 620-2750 • www.arkkengineers.com • 425 PE Form No. 13872

**PEARLAND**  
City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mooching Pointe)

FM 521  
Sta. 77+50 to End

Job No.: 16-012	Scale: Horiz 1" = 20' Vert 1" = 2'	SHEET
Date: October 2017	Drawn By: C. Chudoba	27
Checked By: M. Brown	Checked By: M. Brown	OF 37



Match Line See Below

Match Line See Below

Match Line See Sheet 27B

NO.	DESCRIPTION	DATE	OWN.	CHK.



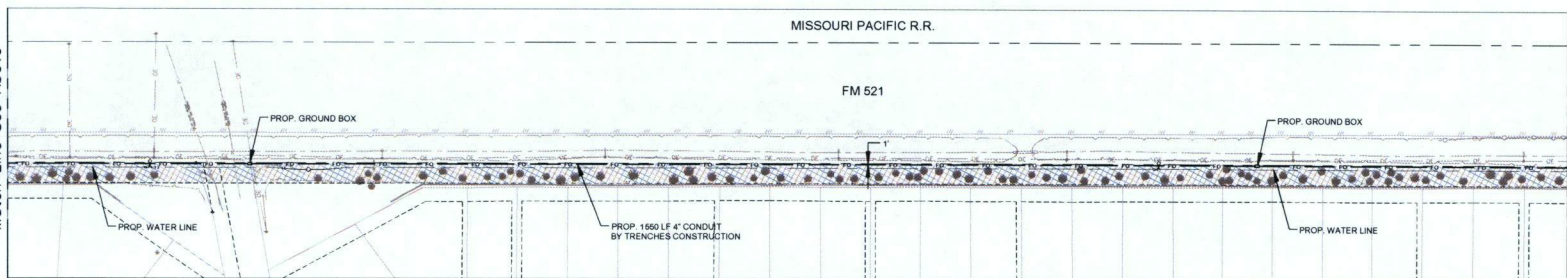
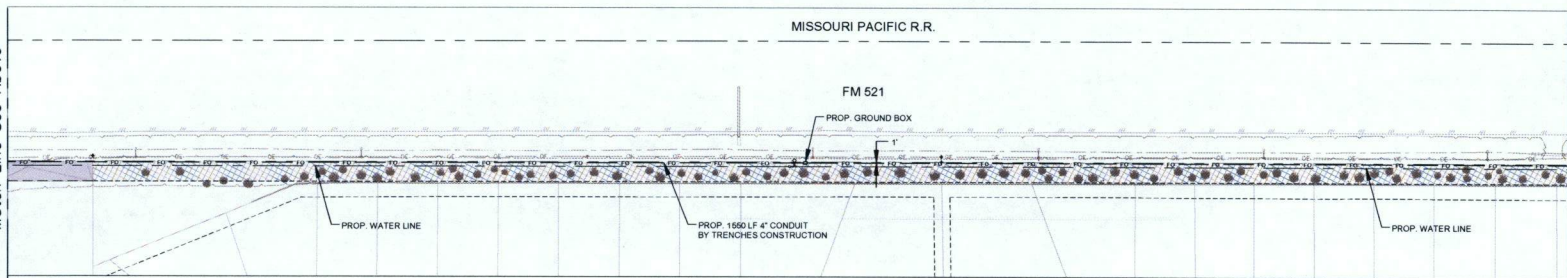
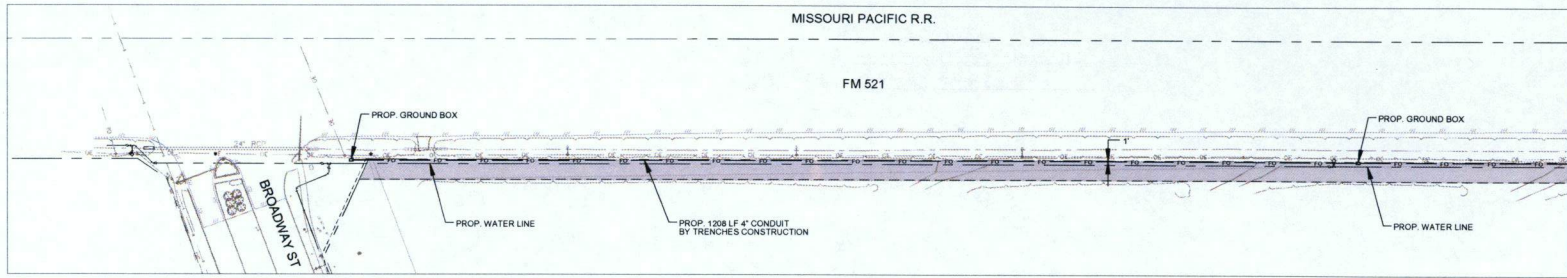
**ARKK ENGINEERS**  
 7322 Southwest Freeway, Suite 1040 • Houston, Texas 77074  
 (713) 420-2755 • www.arkkengineers.com • TX PE Firm No. 13872



City of Pearland, Texas  
 FM 521 Water Line  
 (Broadway to Mooring Point)

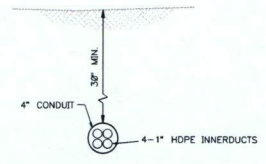
F.O. Conduit Layout I

Job No.: 16-012      Scale: 1" = 60'  
 Date: October 2017      SHEET  
 Drawn By: C. Chudoba      One Inch      **27A**  
 Check By: M. Brown      OF 37

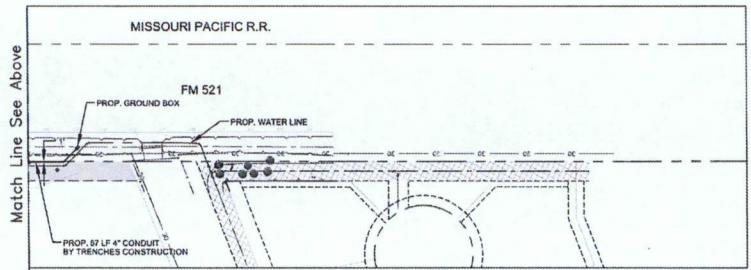
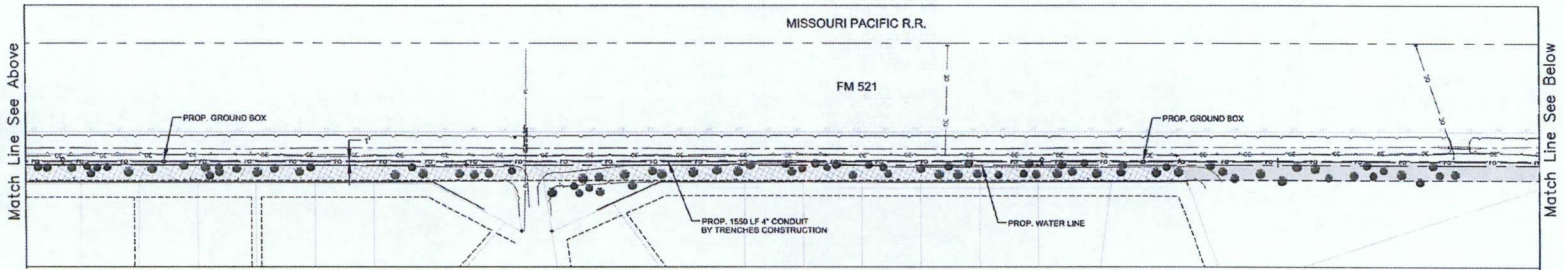
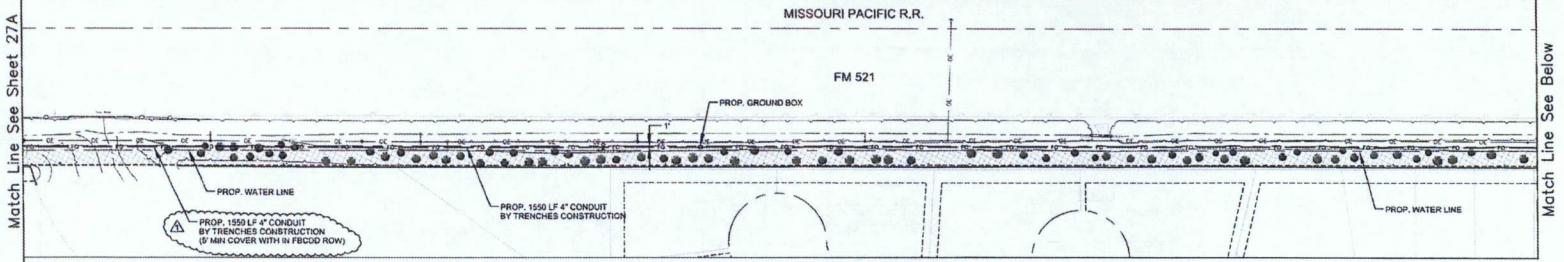


- NOTES:**
- PROPOSED FIBER CONDUIT SHALL BE INSTALLED PER CITY OF PEARLAND REQUIREMENTS. ALL PROPOSED PRODUCTS SHALL BE SUBMITTED TO THE CITY FOR REVIEW & APPROVAL PRIOR TO INSTALLATION.
  - MAINTAIN 30" MINIMUM DEPTH OF COVER BELOW FINAL GRADE.
  - PROPOSED GROUND BOX LOCATIONS SHALL BE FIELD VERIFIED AND COORDINATED WITH CITY SITE REPRESENTATIVE PRIOR TO INSTALLATION.
  - CONDUIT INSTALLATION ACROSS ALL DRIVEWAYS, STREET CROSSINGS, TREE CROSSINGS, LANDSCAPED AREAS, AND ANY OTHER AREAS IDENTIFIED IN THE FIELD SHALL BE ACCOMPLISHED BY TRENCHLESS CONSTRUCTION.
  - CITY OF PEARLAND FIBER OPTIC CABLE MARKING POSTS SHALL BE INSTALLED AT EACH GROUND BOX AND CENTER DISTANCE LOCATION BETWEEN TWO GROUND BOXES, UNLESS DIRECTED OTHERWISE BY THE CITY. FURNISHING AND INSTALLING MARKER POSTS SHALL BE INCIDENTAL TO THE PROPOSED CONDUIT INSTALLATION.

- LEGEND**
- 10 — PROP. 4" CONDUIT w/ 4 - 1" HDPE INNERDUCTS
  - PROP. GROUND BOX (TK001 TYPE 2)

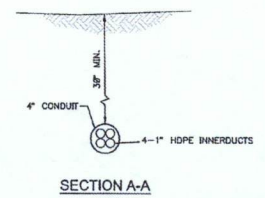


SECTION A-A



- NOTES**
- PROPOSED FIBER CONDUIT SHALL BE INSTALLED PER CITY OF PEARLAND REQUIREMENTS. ALL PROPOSED PRODUCTS SHALL BE SUBMITTED TO THE CITY FOR REVIEW & APPROVAL PRIOR TO INSTALLATION.
  - MAINTAIN 30" MINIMUM DEPTH OF COVER BELOW FINAL GRADE.
  - PROPOSED GROUND BOX LOCATIONS SHALL BE FIELD VERIFIED AND COORDINATED WITH CITY SITE REPRESENTATIVE PRIOR TO INSTALLATION.
  - CONDUIT INSTALLATION ACROSS ALL DRIVEWAYS, STREET CROSSINGS, TRAIL CROSSINGS, LANDSCAPED AREAS, AND ANY OTHER AREAS IDENTIFIED IN THE FIELD SHALL BE ACCOMPLISHED BY TRENCHLESS CONSTRUCTION.
  - CITY OF PEARLAND FIBER OPTIC CABLE MARKING POSTS SHALL BE INSTALLED AT EACH GROUND BOX AND CENTER DISTANCE LOCATION BETWEEN TWO GROUND BOXES, UNLESS DIRECTED OTHERWISE BY THE CITY. FURNISHING AND INSTALLING MARKER POSTS SHALL BE INCIDENTAL TO THE PROPOSED CONDUIT INSTALLATION.

- LEGEND**
- 4" CONDUIT w/ 4 - 1" HDPE INNERDUCTS
  - PROP. GROUND BOX (TxDOT TYPE 2)



ADD NOTE ABOUT DEPTH OF COVER IN FBCDD ROW	3/18	DF	DK
PK.	DESCRIPTION	DATE	CHK.



10/19/2017

**ARKK ENGINEERS**  
 7323 Westwood Freeway, Suite 1800 - Houston, Texas 77036  
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City of Pearland, Texas  
 FM 521 Water Line  
 (Broadway to Mooring Pointe)

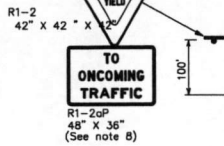
F.O. Conduit Layout II

Job No.: 16-012	Scale: 1" = 60'	SHEET
Date: October 2017		27B
Drawn By: C. Chudoba	One Inch	
Chkd By: M. Braun	OF 37	

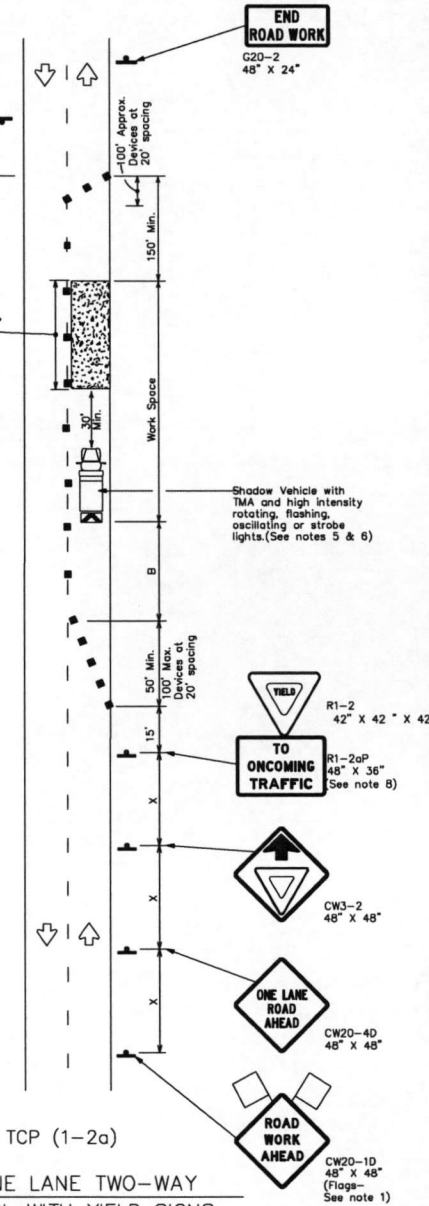
DISCLAIMER: The use of this standard is governed by the Texas Engineering Practices Act. No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the construction of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: \_\_\_\_\_  
FILE: \_\_\_\_\_

Warning Sign Sequence in Opposite Direction Same as Below

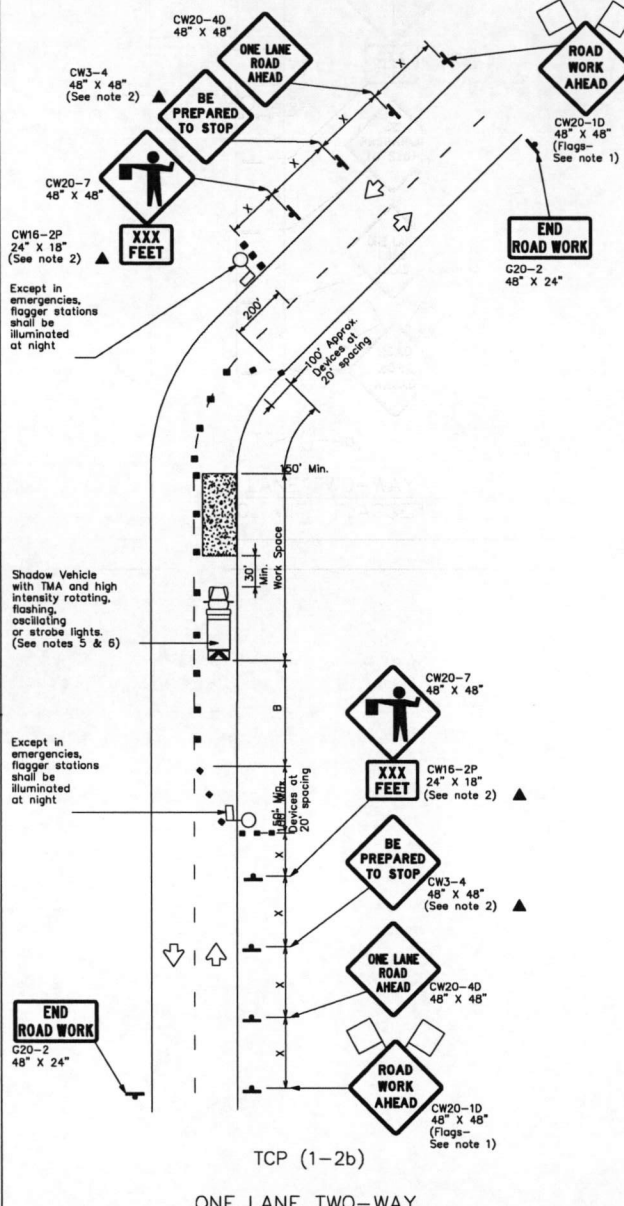


Channelizing devices separate work space from traveled way



TCP (1-2a)  
ONE LANE TWO-WAY  
CONTROL WITH YIELD SIGNS  
(Less than 2000 ADT - See note 7)

END ROAD WORK  
G20-2  
48" X 24"



TCP (1-2b)  
ONE LANE TWO-WAY  
CONTROL WITH FLAGGERS

LEGEND					
	Type 3 Barricade		Channelizing Devices		Truck Mounted Attenuator (TMA)
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)		Portable Changeable Message Sign (PCMS)
	Trailer Mounted Flashing Arrow Board		Traffic Flow		Flagger
	Sign				
	Flag				

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing * Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent			
		30'	30'	30'	30'	30'			
30	WS	150'	185'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40	L=WS	265'	295'	320'	40'	80'	240'	155'	305'
45		450'	495'	540'	45'	90'	320'	195'	360'
50	L=WS	500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60	L=WS	600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70	L=WS	700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

\* Conventional Roads Only

\*\* Taper lengths have been rounded off.

L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

- Flags attached to signs where shown are REQUIRED.
  - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
  - The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-40 "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
  - Sign spacing may be increased or an additional CW20-10 "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger or R1-2 "YIELD" sign is less than 1500 feet.
  - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
  - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
- TCP (1-2a)
- R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work spaces should be no longer than one half city block. In rural areas on roadways with less than 2000 ADT, work spaces should be no longer than 400 feet.
  - R1-2 "YIELD" sign with R1-2aP "TO ONCOMING TRAFFIC" plaque shall be placed on a support at a 7 foot minimum mounting height.
- TCP (1-2b)
- Flaggers should use two-way radios or other methods of communication to control traffic.
  - Length of work space should be based on the ability of flaggers to communicate.
  - If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain adequate stopping sight distance to the flagger and a queue of stopped vehicles (see table above).
  - Channelizing devices on the center-line may be omitted when a pilot car is leading traffic and approved by the Engineer.
  - Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

For construction or maintenance contract work, specific project requirements for shadow vehicles can be found in the project GENERAL NOTES for Item 502, Barricades, Signs and Traffic Handling.

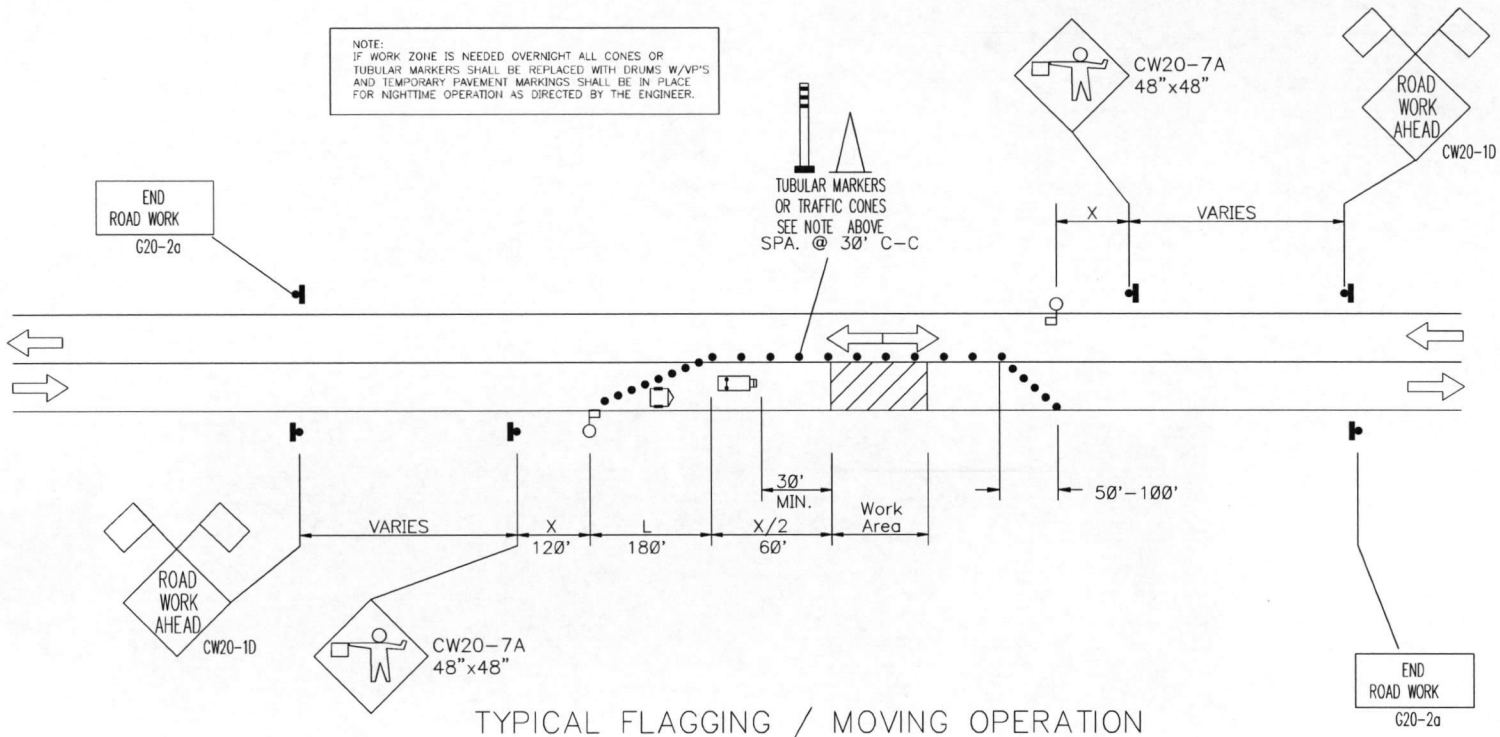
Texas Department of Transportation  
Traffic Operations Division

TRAFFIC CONTROL PLAN  
ONE-LANE TWO-WAY  
TRAFFIC CONTROL

TCP(1-2)-12

©TxDOT December 1985	DATE TxDOT	DATE TxDOT	DATE TxDOT	DATE TxDOT
4-90	2-12			
2-94				
1-97				
4-98				
	CONTRACT NO.	SECTION	JOB NO.	HIGHWAY
	DIST	COUNTY	SHEET NO.	
			28	

NOTE:  
IF WORK ZONE IS NEEDED OVERNIGHT ALL CONES OR TUBULAR MARKERS SHALL BE REPLACED WITH DRUMS W/VP'S AND TEMPORARY PAVEMENT MARKINGS SHALL BE IN PLACE FOR NIGHTTIME OPERATION AS DIRECTED BY THE ENGINEER.



TYPICAL FLAGGING / MOVING OPERATION

TYPICAL TRANSITION LENGTHS AND SUGGESTED MAXIMUM SPACING OF DEVICES

Posted Speed	Formula	Minimum Desirable Taper Lengths			Suggested Maximum Spacing of Device	
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'
35		205'	225'	245'	35'	70'-90'
40		265'	295'	320'	40'	80'-100'
45	$L = WS$	450'	495'	540'	45'	90'-110'
50		500'	550'	600'	50'	100'-125'
55		550'	605'	660'	55'	110'-140'
60		600'	660'	720'	60'	120'-150'
65		650'	715'	780'	65'	130'-175'

CONSTRUCTION WARNING SIGN SPACING

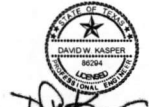
Posted Speed or 85% Speed (MPH)	X Min. Distance (feet)
30 or less	120
35	160
40	240
45	320
50	400
55	500
65	700

X=SIGN SPACING  
L=TAPER  
2XL=TANGENT

\* 85th Percentile Speed may be used on roads where traffic speeds normally exceed the posted speed limit.  
\*\* Taper lengths have been rounded off.

- LEGEND
- CONSTRUCTION AREA
  - OPEN TO TRAFFIC
  - HEAVY WORK VEHICLE
  - FLASHING ARROW BOARD (OPTIONAL)
  - SIGN POST
  - TUBULAR MARKERS ,CONES OR DRUMS
  - FLAGGER
  - X = SIGN SPACING
  - L = TAPER LENGTH
  - XX SPEED TO BE DETERMINED BY ENGINEER

FILE	DESCRIPTION	DATE	DWN	CHK.



10/19/2017



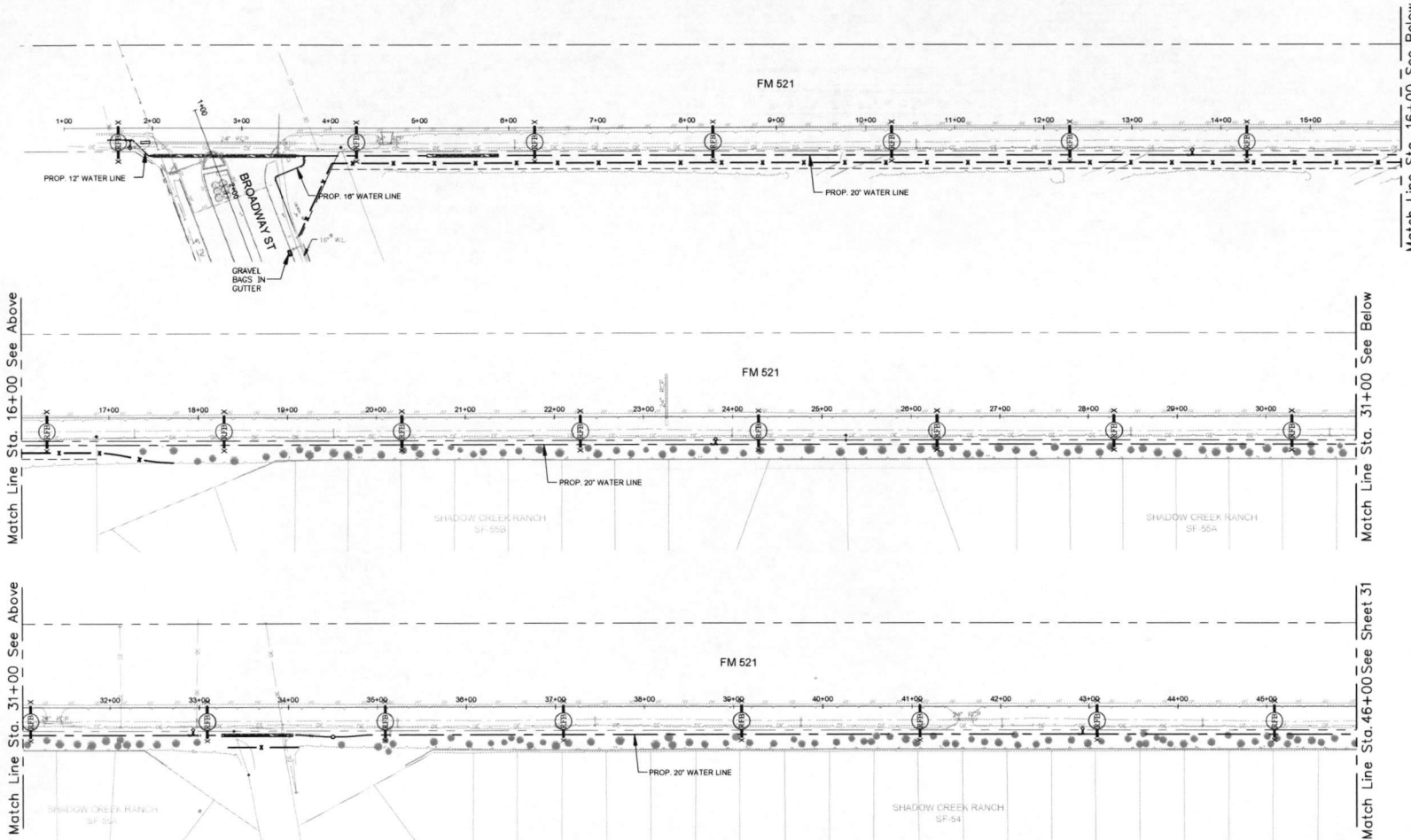
7322 Southwest Freeway, Suite 1040 • Houston, Texas 77031  
(713) 460-2725 • www.arkkengineers.com • AT&T Form No. 13872



City of Pearland, Texas  
PM 521 Water Line  
(Broadway to Mooring Pointe)

Typical Flagging or Moving Operation Detail

Std. No.: 16-012	Scale: HORIZ: N/A	SHEET
Date: October 2017	VERT: N/A	
Des. By: C. Chudoba	One Inch = $\frac{1}{4}$ "	29
Chk'd By: M. Braun	DATE PLOTTED: 10/19/2017 10:17:33 AM	



Match Line Sta. 16+00 See Above

Match Line Sta. 31+00 See Below

Match Line Sta. 31+00 See Above

Match Line Sta. 46+00 See Sheet 31

**LEGEND**

- EXISTING MANHOLE / MANWAY
- EXISTING STORM JUNCTION BOX
- EXISTING INLET
- EXISTING STORM SEWER OR CULVERT
- EXISTING STORM SEWER BOX CULVERT
- EXISTING ASPHALT PAVEMENT
- RTD  
ROCK FILTER DAM
- FILTER FABRIC BARRIER
- RFB  
REINFORCED FABRIC BARRIER
- IPB  
INLET PROTECTION BARRIER
- ROW IN PROJECT AREA

NO.	DESCRIPTION	DATE	DMN	CHK

10/19/2017

**ARKK ENGINEERS**  
 7322 Southwest Freeway, Suite 1040 • Houston, Texas 77074  
 (713) 602-2755 • www.arkkengineers.com • TX REG. FORM NO. 13872

**City of Pearland, Texas**  
 FM 521 Water Line  
 (Broadway to Mooring Pointe)

**FM 521 - Storm Water Pollution Prevention Plan I**

Job No.: 16-072	Scale: 1" = 60'	<b>SHEET</b> <b>30</b>
Date: October 2017	Drawn By: C. Chudabala	
Checked By: M. Brown	Project No.: 16-072	OF 37

**EROSION & SEDIMENTATION CONTROL NOTES:**

1. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL INSTALL EROSION AND SEDIMENTATION CONTROLS AT LOCATION SHOWN ON PLANS.
2. CONTRACTOR SHALL MAINTAIN, REPAIR AND/OR REPLACE DAMAGED EROSION AND SEDIMENTATION CONTROL SYSTEM THROUGHOUT THE DURATION OF THE CONTRACT. (NO SEPARATE PAY).
3. CONTRACTOR SHALL PROVIDE PROTECTED STORAGE AREAS FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS, AND OTHER POTENTIALLY TOXIC MATERIALS.
4. CONTRACTOR SHALL LOCATE FUEL/MATERIAL STORAGE AREAS AWAY FROM STORM WATER CONVEYANCE SYSTEMS. CONTRACTOR SHALL USE BERMS AROUND FUEL STORAGE AREAS. (NO SEPARATE PAY).
5. CONTRACTOR SHALL ADVISE OWNER IMMEDIATELY, VERBALLY, AND IN WRITING, OF ANY FUEL OR TOXIC MATERIAL SPILLS ONTO THE PROJECT AREA AND THE ACTION TAKEN TO REMEDY THE PROBLEM.
6. CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF HIS FUELS, MATERIALS, AND CONTAMINATED EXCAVATIONS IN A LEGALLY APPROVED MANNER. (NO SEPARATE PAY). NO DISPOSAL SHALL BE PERMITTED ON PROJECT SITE.
7. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE ENVIRONMENTAL LAWS.
8. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATELY MAINTAINED SANITARY FACILITIES.
9. AT COMPLETION OF THE CONTRACT, OWNER AND/OR OWNER'S REPRESENTATIVE WITH THE CONTRACTOR SHALL EXAMINE EROSION AND SEDIMENTATION CONTROL SYSTEM BEFORE RELIEVING CONTRACTOR OF HIS MAINTENANCE RESPONSIBILITIES.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR STREET CLEANING, ON A DAILY BASIS, OF ALL MUD AND DIRT DEPOSITED ON THE EXISTING PAVEMENT DUE TO HIS CONSTRUCTION ACTIVITY.
11. INLETS AND MANHOLES THAT ARE NOT COMPLETE AND/OR ARE SUBJECT TO CONVEYING STORM WATER FLOWS ARE TO BE PROTECTED TO PREVENT SEDIMENT FROM ENTERING THE PROPOSED OR EXISTING STORM SEWER SYSTEM.
12. IF PAVING CONTRACTOR REMOVES OR PUNCTURES TIMBER GRATE TO ESTABLISH DRAINAGE, INLET MUST BE SURROUNDED BY INLET FILTER FABRIC AS SHOWN IN DETAILS.
13. FILTER FABRIC TO BE CLEANED OR REPLACED WHEN IT CEASES TO FUNCTION PROPERLY OR AS DIRECTED BY THE ENGINEER.
14. LOCATION OF CONSTRUCTION ACCESS IS APPROXIMATE. EXACT LOCATION SHALL BE BASED ON THE ACTUAL SEQUENCING OF WORK AND LOCATIONS FOR EGRESS OF THE SITE BY THE CONTRACTOR.
15. SEDIMENT CONTROL ITEMS SHALL TYPICALLY BE INSTALLED AT UPSTREAM ENDS OF CULVERTS OR STORM SEWER SYSTEMS OR AT MAXIMUM 200' SPACING IN OPEN DITCHES.

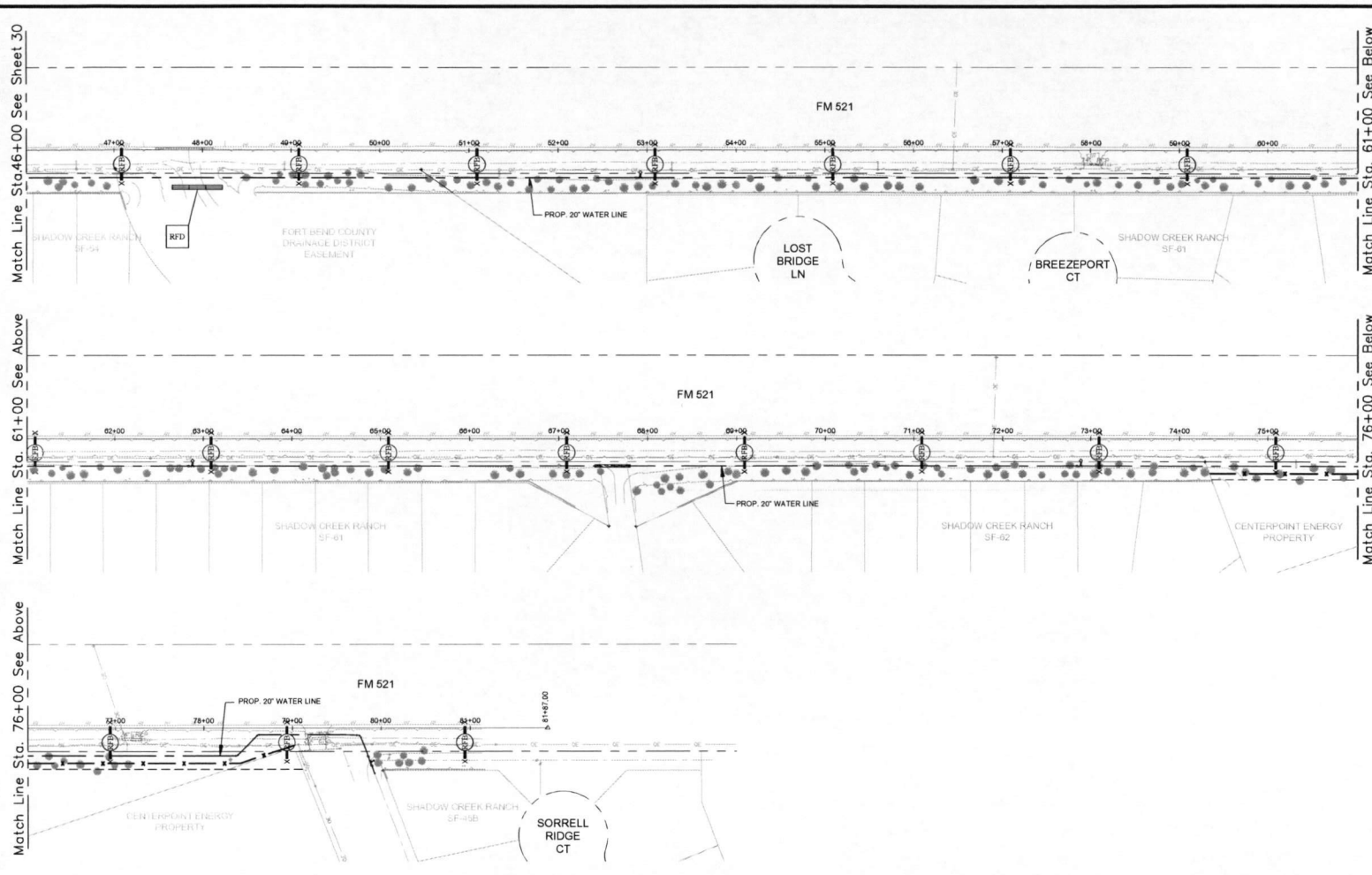
Match Line Sta. 46+00 See Sheet 30

Match Line Sta. 61+00 See Above

Match Line Sta. 76+00 See Above

Match Line Sta. 61+00 See Below

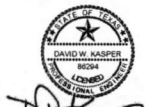
Match Line Sta. 76+00 See Below



**LEGEND**

- EXISTING MANHOLE / MANWAY
- EXISTING STORM JUNCTION BOX
- EXISTING INLET
- EXISTING STORM SEWER OR CULVERT
- EXISTING STORM SEWER BOX CULVERT
- EXISTING ASPHALT PAVEMENT
- ROCK FILTER DAM
- FILTER FABRIC BARRIER
- REINFORCED FABRIC BARRIER
- INLET PROTECTION BARRIER
- ROW IN PROJECT AREA

NO.	DESCRIPTION	DATE	OWN.	CHK.



10/19/2017



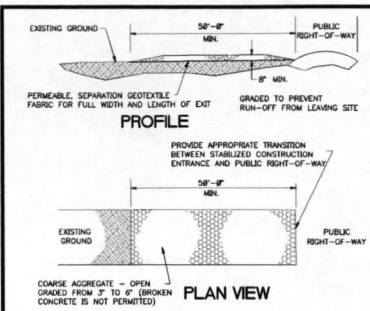
City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mousing Prairie)

**FM 521 - Storm Water  
Pollution Prevention Plan II**

**EROSION & SEDIMENTATION CONTROL NOTES:**

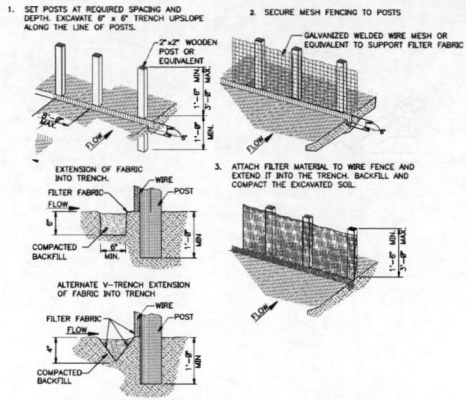
1. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL INSTALL EROSION AND SEDIMENTATION CONTROLS AT LOCATION SHOWN ON PLANS.
2. CONTRACTOR SHALL MAINTAIN, REPAIR AND/OR REPLACE DAMAGED EROSION AND SEDIMENTATION CONTROL SYSTEM THROUGHOUT THE DURATION OF THE CONTRACT. (NO SEPARATE PAY).
3. CONTRACTOR SHALL PROVIDE PROTECTED STORAGE AREAS FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS, AND OTHER POTENTIALLY TOXIC MATERIALS.
4. CONTRACTOR SHALL LOCATE FUEL/MATERIAL STORAGE AREAS AWAY FROM STORM WATER CONVEYANCE SYSTEMS. CONTRACTOR SHALL USE BERMS AROUND FUEL STORAGE AREAS. (NO SEPARATE PAY).
5. CONTRACTOR SHALL ADVISE OWNER IMMEDIATELY, VERBALLY, AND IN WRITING, OF ANY FUEL OR TOXIC MATERIAL SPILLS ONTO THE PROJECT AREA AND THE ACTION TAKEN TO REMEDY THE PROBLEM.
6. CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF HIS FUELS, MATERIALS, AND CONTAMINATED EXCAVATIONS IN A LEGALLY APPROVED MANNER. (NO SEPARATE PAY). NO DISPOSAL SHALL BE PERMITTED ON PROJECT SITE.
7. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE ENVIRONMENTAL LAWS.
8. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATELY MAINTAINED SANITARY FACILITIES.
9. AT COMPLETION OF THE CONTRACT, OWNER AND/OR OWNER'S REPRESENTATIVE WITH THE CONTRACTOR SHALL EXAMINE EROSION AND SEDIMENTATION CONTROL SYSTEM BEFORE RELIEVING CONTRACTOR OF HIS MAINTENANCE RESPONSIBILITIES.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR STREET CLEANING, ON A DAILY BASIS, OF ALL MUD AND DIRT DEPOSITED ON THE EXISTING PAVEMENT DUE TO HIS CONSTRUCTION ACTIVITY.
11. INLETS AND MANHOLES THAT ARE NOT COMPLETE AND/OR ARE SUBJECT TO CONVEYING STORM WATER FLOWS ARE TO BE PROTECTED TO PREVENT SEDIMENT FROM ENTERING THE PROPOSED OR EXISTING STORM SEWER SYSTEM.
12. IF PAVING CONTRACTOR REMOVES OR PUNCTURES TIMBER GRATE TO ESTABLISH DRAINAGE, INLET MUST BE SURROUNDED BY INLET FILTER FABRIC AS SHOWN IN DETAILS.
13. FILTER FABRIC TO BE CLEANED OR REPLACED WHEN IT CEASES TO FUNCTION PROPERLY OR AS DIRECTED BY THE ENGINEER.
14. LOCATION OF CONSTRUCTION ACCESS IS APPROXIMATE. EXACT LOCATION SHALL BE BASED ON THE ACTUAL SEQUENCING OF WORK AND LOCATIONS FOR EGRESS OF THE SITE BY THE CONTRACTOR.
15. SEDIMENT CONTROL ITEMS SHALL TYPICALLY BE INSTALLED AT UPSTREAM ENDS OF CULVERTS OR STORM SEWER SYSTEMS OR AT MAXIMUM 200' SPACING IN OPEN DITCHES.

Job No.: 16-012	Scale: 1" = 60'	SHEET
Date: October 2017		31
Drawn By: C. Chudoba	One Inch	
Check By: M. Brown		Of 37



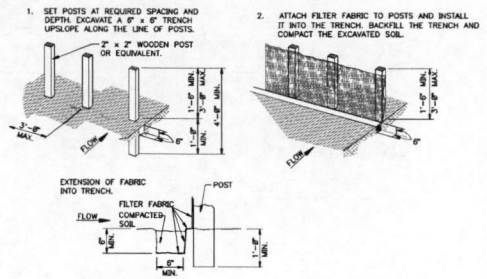
- GENERAL NOTES:**
1. MINIMUM LENGTH IS AS SHOWN ON CONSTRUCTION DRAWINGS OR 50 FEET, WHICHEVER IS MORE.
  2. CONSTRUCT AND MAINTAIN CONSTRUCTION EXIT WITH CONSTANT WIDTH ACROSS ITS LENGTH, INCLUDING ALL POINTS OF INGRESS OR EGRESS.
  3. UNLESS SHOWN ON THE CONSTRUCTION DRAWINGS, STABILIZATION FOR OTHER AREAS WILL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION EXIT.
  4. WHEN SHOWN ON THE CONSTRUCTION DRAWINGS, WIDEN OR LENGTHEN STABILIZED AREA TO ACCOMMODATE A TRUCK WASHING AREA. PROVIDE OUTLET SEDIMENT TRAP FOR THE TRUCK WASHING AREA.
  5. PROVIDE PERIODIC TOP DRESSING WITH ADDITIONAL COARSE AGGREGATE TO MAINTAIN THE REQUIRED DEPTH OR WHEN SURFACE BECOMES PACKED WITH MUD.
  6. PERIODICALLY TURN AGGREGATE TO EXPOSE A CLEAN DRIVING SURFACE.
  7. ALTERNATIVE METHODS OF CONSTRUCTION MAY BE UTILIZED WHEN SHOWN ON PLANS OR WHEN APPROVED BY ENGINEER.
  8. MINIMUM 14" WIDTH FOR ONE WAY TRAFFIC AND 20" WIDTH FOR TWO WAY TRAFFIC.

**STABILIZED CONSTRUCTION ACCESS/ EXIT**



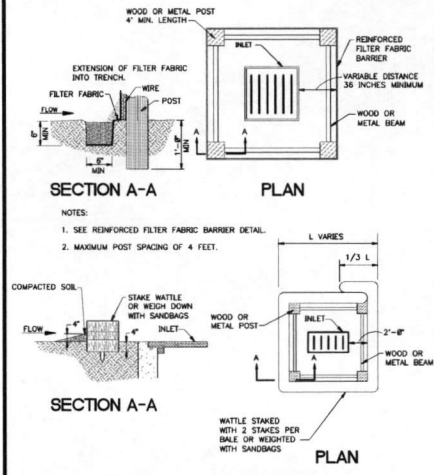
- GENERAL NOTES:**
1. SECURELY FASTEN MESH FENCING TO POSTS WITH STAPLES OR TI WIRES.
  2. SECURELY FASTEN FILTER FABRIC TO MESH FENCING.
  3. WHEN TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, OVERLAP 6 INCHES AT A POST, FOLD TOGETHER, AND ATTACH TO A POST.
  4. REMOVE SEDIMENT DEPOSITS WHEN SILT REACHES ONE-THIRD OF THE HEIGHT OF THE FENCE IN DEPTH OR 6 INCHES WHICHEVER IS LESS.

**REINFORCED FILTER FABRIC BARRIER**



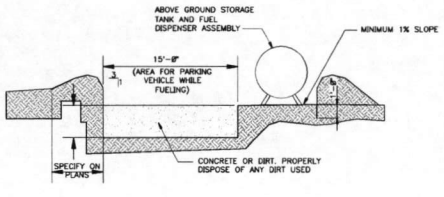
- GENERAL NOTES:**
1. SET POSTS AT REQUIRED SPACING AND DEPTH. EXCAVATE A 6" x 6" TRENCH UPSLOPE ALONG THE LINE OF POSTS.
  2. ATTACH FILTER FABRIC TO POSTS AND INSTALL IT INTO THE TRENCH. BACKFILL THE TRENCH AND COMPACT THE EXCAVATED SOIL.

**FILTER FABRIC FENCE**



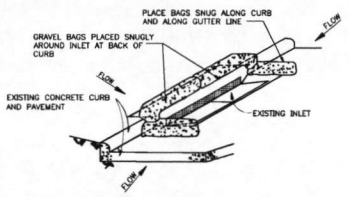
- NOTES:**
1. SEE REINFORCED FILTER FABRIC BARRIER DETAIL.
  2. MAXIMUM POST SPACING OF 4 FEET.
- NOTE:** TYPICALLY STRAW BALES ARE NOT RECOMMENDED FOR INLET PROTECTION BARRIERS.

**INLET PROTECTION BARRIERS FOR STAGE I INLETS**



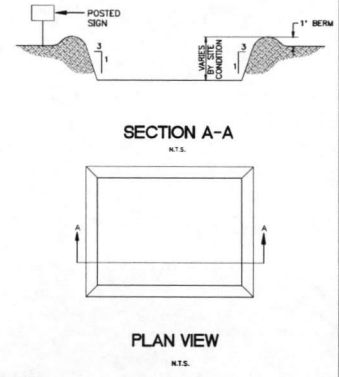
- GENERAL NOTES:**
1. THE SIZE OF TANK FOUNDATION AREA DEPENDS ON THE SIZE OF ABOVE GROUND STORAGE TANK AND DISPENSER ASSEMBLY.
  2. PROVIDE A MINIMUM OF 1 FOOT CLEARANCE TO THE EDGE OF THE CONCRETE CURB.
  3. PROVIDE A MINIMUM SLOPE OF 1% TOWARD THE SUMM PIT.
  4. INSTALL IMPERMEABLE LINER AS PER MANUFACTURER'S RECOMMENDATIONS.
  5. DO NOT PLACE TANK OR SKID DIRECTLY ON LINER.

**AREA GROUND TEMP. VEHICLE AND EQUIPMENT FUELING AREA WITH DOUBLE WALL TANK OR EQUIVALENT**



- GENERAL NOTES:**
1. REMOVE SEDIMENT DEPOSIT WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-THIRD THE HEIGHT OF THE BARRIER.
  2. GRAVEL BAGS SHALL NOT BLOCK THROAT OF INLET UNLESS DIRECTED BY ENGINEER.

**INLET PROTECTION BARRIERS FOR STAGE II INLETS**



- GENERAL NOTES:**
1. POST A SIGN READING "CONCRETE WASH OUT PIT" NEXT TO THE PIT.
  2. VERBALLY INSTRUCT THE CONCRETE TRUCK DRIVERS WHERE THE PIT IS AND TO WASH OUT THEIR TRUCKS IN THE PIT AND NO WHERE ELSE.
  3. UPON THE CONCRETE SETTING UP (CURING, DRYING OUT), THE CONCRETE WASTE SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF PROPERLY BY THE CONTRACTOR. AFTER REMOVAL OF THE CONCRETE WASTE, THE WASH OUT PIT SHALL BE FILLED WITH CLEAN FILL MATERIAL AND COMPACTED TO IN-SITU CONDITIONS, OR AS DIRECTED BY THE PROJECT SPECIFICATIONS.
  4. CONCRETE WASH OUT PITS SHALL NOT BE LOCATED DIRECTLY ADJACENT TO, NOR AT ANY TIME DRAIN INTO THE STORM SEWER SYSTEM OR ANY OTHER DRAIN, DITCH, OR WATERWAY.
  5. CONSTRUCT ENTRY ROAD AND BOTTOM OF WASHOUT AREA TO SUPPORT EXPECTED LOADINGS FROM TRUCKS EQUIPMENT.

**CONCRETE TRUCK WASHOUT AREA**

NO.	DESCRIPTION	DATE	OWN.	CHK.

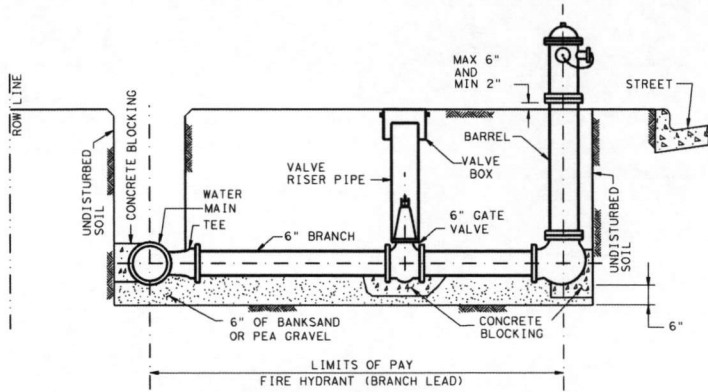
12/19/2017

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**City of Pearland, Texas**  
FM 521 Water Line  
(Boulevard to Mounting Pointe)

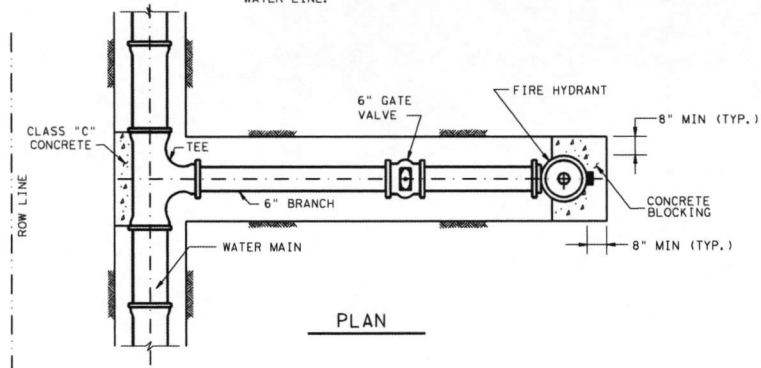
**City of Pearland**  
SW3P Details

Job No.: 16-012	Scale: HORIZ N/A	SHEET <b>32</b>
Date: October 2017	VERT N/A	
Drawn By: C. Chudoba	One Inch	OF 37
Check By: M. Brown		



**SECTION**

- NOTES:
1. FIRE HYDRANT ASSEMBLY INCLUDES HYDRANT, BARREL, GATE VALVE w/ BOX, AND RISER PIPE.
  2. ON CURB AND GUTTER ROADWAYS, LOCATE FIRE HYDRANTS AT PC'S OF INTERSECTION CURB RADIUS, 3 FT. BEHIND CURB OR PROJECTED FUTURE CURB.
  3. ON OPEN-DITCH ROADWAYS, LOCATE HYDRANTS WITHIN 5 FT. OF THE RIGHT-OF-WAY LINES.
  4. ENSURE FIRE HYDRANT NOZZLE FACES THE STREET.
  5. LOCATE HYDRANT VALVE IMMEDIATELY ADJACENT TO WATER LINE.

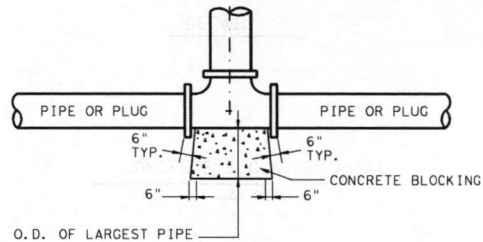


**PLAN**

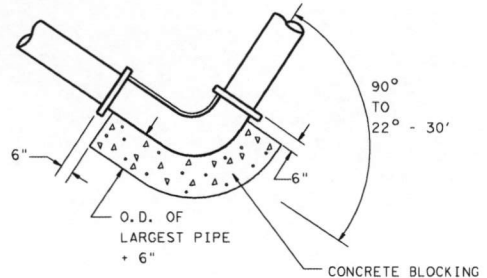
**STANDARD  
FIRE HYDRANT DETAIL**

(NOT TO SCALE)

NOTE: MINIMUM THICKNESS OF THRUST IS THE O.D. OF LARGEST PIPE + 6 IN.



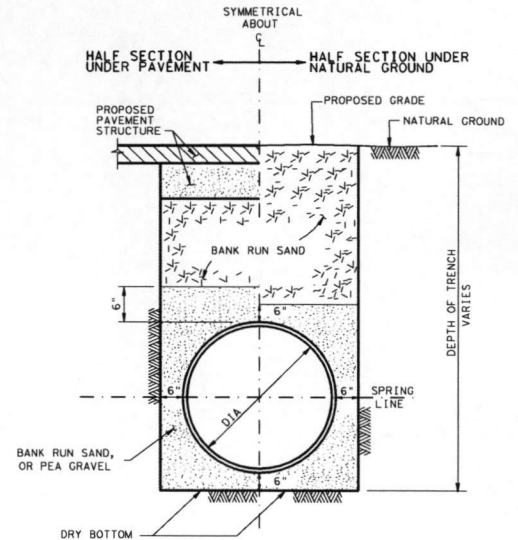
**DETAIL "A"**



**DETAIL "B"**

**CONCRETE BLOCKING DETAILS**

(NOT TO SCALE)



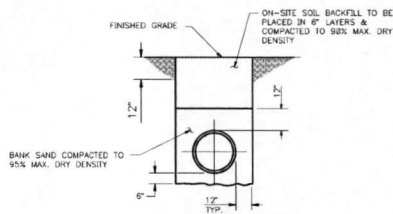
**WATER DISTRIBUTION MAIN  
BEDDING AND BACKFILL FOR  
OPEN CUT TRENCHES**  
(NOT TO SCALE)

Texas Department of Transportation  
Houston District

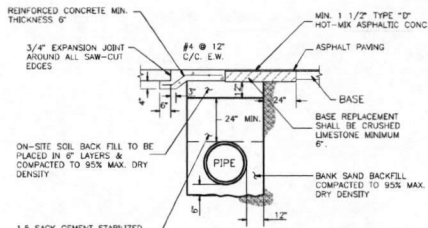
**WATER LINE STANDARD**

**WLS-II**

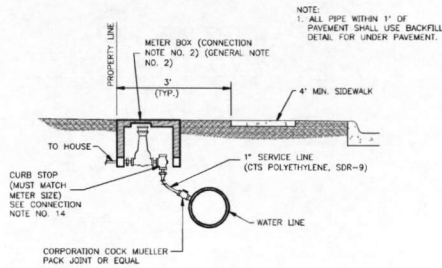
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© TxDot	FEBRUARY 2011	DIST: HOU	PER: 6	PROJECT NO.:	SHEET: 33
REVISIONS		COUNTY:	CONTROL:	SECT:	JOB:
03/15 2014 SPEC					HIGHWAY:



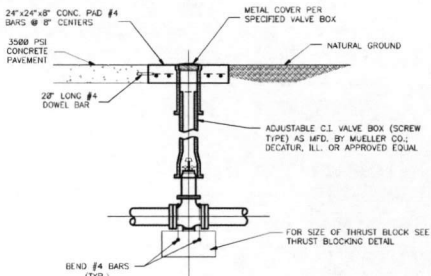
**1** **TYPICAL TRENCH SECTION**  
**GRADED AREA**  
(COP STANDARD)



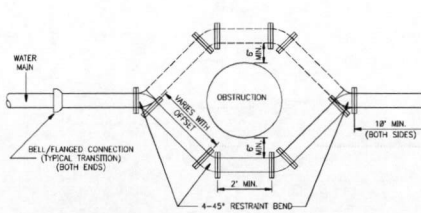
**4** **TYPICAL TRENCH SECTION IN PAVED AREA**  
(COP STANDARD)



**7** **WHEN SERVICE METER IS NEAR WATER MAIN**  
(COP STANDARD)



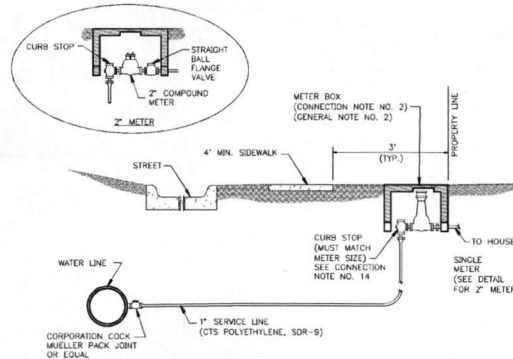
**2** **VALVE BOX**  
(COP STANDARD)



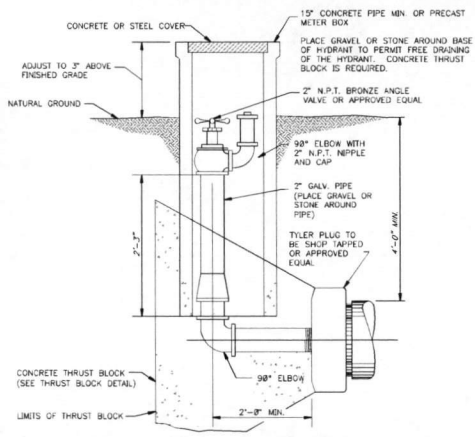
FOR A LINE TO PASS OVER AN OBSTRUCTION BOTHER THAN UNDER, IT MUST HAVE ADEQUATE COVER AND BE APPROVED BY THE ENGINEERING DEPARTMENT.

MIN. PIPE WALL THICKNESS	
4"	- 8.25"
6"	- 8.25"
8"	- 8.32"
12"	- 8.37"
AND LARGER	- 8.37"

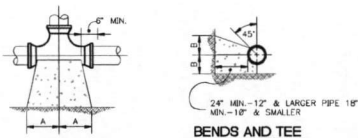
**5** **OFFSET ASSEMBLY**  
(COP STANDARD)



**8** **WHEN SERVICES CROSS PAVED STREET**  
(COP STANDARD)



**3** **2" BLOW OFF VALVE ASSEMBLY**  
(COP STANDARD)



**BENDS AND TEE**

S	90° BEND				45° BEND				22 1/2° BEND				TEES				PLUGS			
	A	B	A	B	A	B	A	B	C	D	A	B	C	D	A	B	C	D		
4"	18"	10"	9"	10"	8"	8"	10"	12"	10"	21"										
6"	22"	13"	12"	13"	8"	10"	13"	16"	13"	29"										
8"	26"	17"	14"	17"	10"	13"	16"	20"	14"	36"										
12"	29"	21"	18"	21"	11"	16"	18"	24"	16"	41"										
14"	33"	24"	19"	24"	12"	20"	22"	27"	18"	48"										
16"	36"	27"	21"	27"	12"	24"	24"	30"	20"	54"										
18"	42"	30"	24"	30"	12"	24"	24"	30"	24"	60"										
24"	50"	40"	30"	40"	18"	30"	30"	40"	30"	78"										
30"	60"	48"	36"	48"	20"	36"	36"	48"	36"	96"										

**6** **THRUST BLOCKING DETAIL**  
(COP STANDARD)

Note: Dimension with asterisk (\*) requires structural design.

**SERVICE CONNECTION DETAILS**

NOTES:

- THE WATER MAIN SHALL HAVE A MINIMUM COVER OF 48" BELOW TOP OF CURB GRADE.
- THE WATER SERVICE LINES THAT ARE INSTALLED BEFORE THE COMPLETION OF STREET CONSTRUCTION SHALL BE LAID IN THE SERVICE DITCH AT THE SAME ELEVATION AS THE WATER MAIN ON A MINIMUM COVER OF 48" BELOW TOP OF CURB GRADE AT THE PROPER LOCATION FOR THE METER BOX. THE METER (CURB) STOP SHALL BE RAISED TO 18" BELOW TOP OF CURB GRADE WITH ENOUGH EXCESS TUBING TO RAISE THE STOP AT A FUTURE DATE TO 4" BELOW TOP OF CURB GRADE.
- LOCATOR WIRE SHALL BE PLACED ON ALL MAINS AND SERVICES. (MIN. 20 GA. COPPER)
- SINGLE METER SERVICE LINES SHALL BE 1" MIN. I.D. CTS POLYETHYLENE, SDR-9
- CONTRACTOR TO FINISH AND INSTALL DOUBLE SERVICE METER BOXES AT FINISH GRADE.
- FIRE HYDRANT ASSEMBLIES SHALL NORMALLY BE LOCATED THREE FEET BEHIND BACK OF CURB. DEFLECT WATERLINES AS NECESSARY TO MAINTAIN THREE FOOT CLEARANCE ASSEMBLY SHALL INCLUDE ONE LINE SIZE BY SIX INCH TEE, ONE SIX INCH GATE VALVE AND BOX, ONE FIRE HYDRANT AND SIX INCH LEAD PIPING AND TEES BACKS.
- WATER VALVES ON MAIN LINES SHALL BE LOCATED AS CLOSE AS POSSIBLE TO EXTENDED PROPERTY LINE AND SHALL CONFORM TO AWMA C-368, OPEN LEFT, EQUIPPED WITH 2" SQUARE OPERATING NUT.
- WATERLINES 4 INCH THROUGH 12 INCH I.D. SHALL COMPLY WITH THE REQUIREMENTS OF AWMA STANDARD C-90B CLASS 150, DR-18 WITH CAST IRON OUTSIDE DIAMETER.
- ALL CONCRETE THRUST BLOCKING SHALL BE PLACED TO FORM A SOLID CONNECTION BETWEEN FITTINGS, VALVES, AND FIRE HYDRANTS AND UNDISTURBED EARTH. CONCRETE FOR THRUST BLOCKING SHALL HAVE A MINIMUM OF 2500 P.S.I. COMPRESSIVE STRENGTH AT 28 DAYS.
- DUCTILE IRON COMPACT FITTINGS SHALL CONFORM TO AWMA C-153 AND END JOINTS OF FITTINGS AND MAIN LINE VALVES SHALL CONFORM TO AWMA C-153 FOR RUBBER GASKETS. DUCTILE IRON AND DUCTILE IRON FITTINGS SHALL BE GEMENT LINED OR EPOXY COATED.
- ALL FIRE HYDRANTS AND VALVE BOXES ARE TO BE ADJUSTED TO FINISH GRADE AFTER PAVING IS COMPLETE.
- INSTALL CONCRETE BLOCK BENEATH FIRE HYDRANTS BEFORE PLACING CONCRETE THRUST BLOCKING TO INSURE THAT FIRE HYDRANTS ARE INSTALLED LEVEL.
- CONTRACTOR SHALL NOTIFY CITY ENGINEER 72 HOURS BEFORE START OF CONSTRUCTION.
- RIGHT ANGLE CURB STOPS MADE BY FORD, OR APPROVED EQUAL, SHALL BE USED.
- SINGLE SERVICE FORD (BA3)-342W OR EQUIVALENT, DOUBLE SERVICE FORD (VA9)43-42W OR EQUIVALENT. ONLY PACK JOINT CURB STOPS ARE PERMITTED.
- WATER MANDUCLS ARE NOT PERMITTED (EXCLUDING 1 INCH WATER SERVICES WITH 1 INCH 1/2-BRANCH ASSEMBLY).
- WATER TAPS SHALL HAVE A MINIMUM OF 24 INCH SEPARATION BETWEEN TAPS ON THE MAIN WATER LINE.

NOTE:

- PRESSURE TEST OF ALL WATER LINES SHALL BE AT 125 PSI FOR A DURATION OF 8 HOURS OR 150 PSI FOR A DURATION OF 4 HOURS.
- ALL WATER METER BOXES SHALL BE MODEL NO. NDS D1200 FOR SINGLE AND NDS D1500 FOR DOUBLE, OR APPROVED EQUAL. (BOX NEEDS TO BE COMPATIBLE TO NEPTUNE PRO-READ.) LOCKING LIDS WILL NOT BE ACCEPTED.
- PROVIDE "UNI-FLANGE" OR APPROVED EQUAL PIPE RESTRAINT AND CASING SYSTEM ON UNDERGROUND PRESSURE PIPE SYSTEMS.
- ALL WATER TAPS SHOULD BE PLACED IN LINE WITH PROPERTY CORNER OR PLACED HALF WAY BETWEEN THE FRONT LOT CORNERS, OR AT PC OF CURB RETURN IN MULTI LOT SUBDIVISIONS.
- IF LOTS ARE LESS THAN 60' WIDE, TAPS ARE TO BE PLACED AT PROPERTY CORNERS.

PK.	DESCRIPTION	DATE	OWN.	CHK.



12/19/2017

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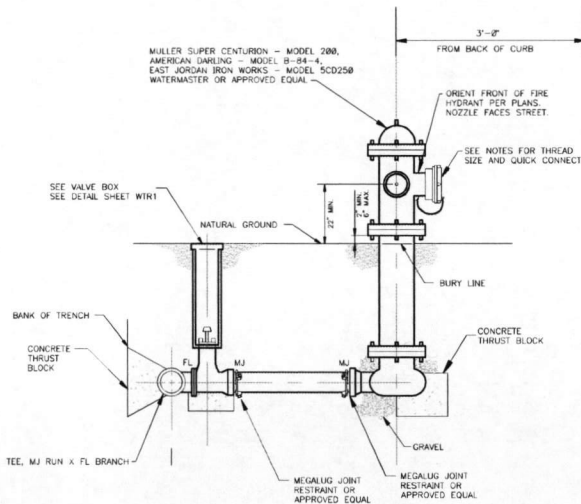
City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mowbray Pointe)

City of Pearland  
Water Line Details I

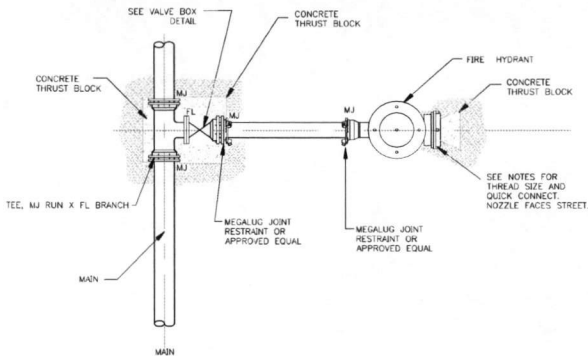
Job No.: 16-012  
Date: October 2017  
Drawn By: C. Chudoba  
Check By: M. Brown

Scale:  
HORIZ N/A  
VERT H/A  
One Inch = 10 Feet

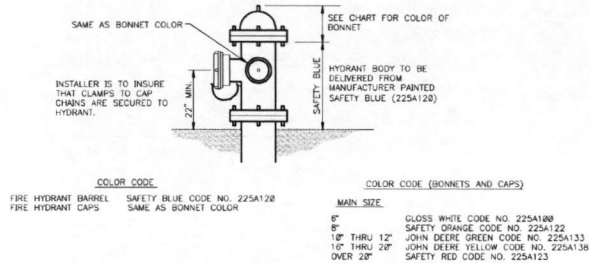
SHEET  
**34**  
OF 37



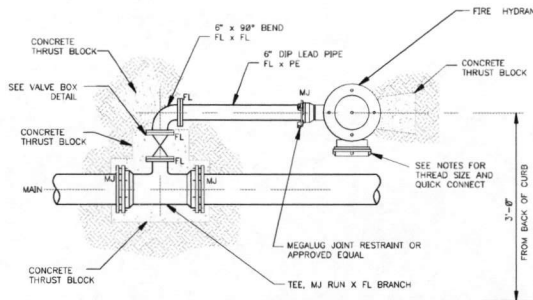
**1**  
**2** FIRE HYDRANT  
(COP STANDARD)



**3**  
**2** FIRE HYDRANT - PLAN  
(COP STANDARD)

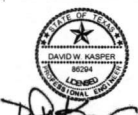




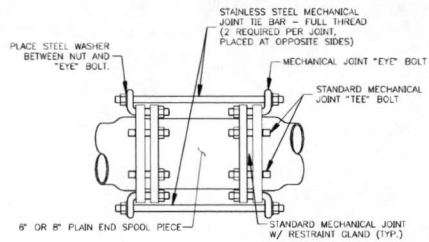
**2**  
**2** FIRE HYDRANT - COLOR CODE  
(COP STANDARD)



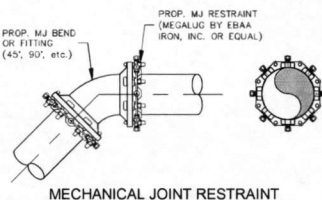
**4**  
**2** ALTERNATE FIRE HYDRANT - PLAN  
(COP STANDARD)

- NOTES:**
1. PRESSURE TEST OF ALL WATER LINES SHALL BE AT 125 PSI FOR DURATION OF 8 HOURS.
  2. FIRE HYDRANT THREAD SIZE: PUMPER CONNECTION 4-492 SIZE=4.492".
  3. PROVIDE "UN-FLANGE" OR APPROVED EQUAL PIPE RESTRAINT AND CUSING SYSTEM ON UNDERGROUND PRESSURE PIPE SYSTEMS.
  4. FIRE HYDRANT ASSEMBLIES SHALL NORMALLY BE LOCATED THREE FEET BEHIND BACK OF CURB; DEFLECT WATERLINES AS NECESSARY TO MAINTAIN THREE FOOT CLEARANCE. REQUIRED ASSEMBLY SHALL INCLUDE ONE LINE SIZE BY SIX INCH TEE, ONE SIX INCH GATE VALVE AND BOX, ONE FIRE HYDRANT AND SIX INCH LEAD PIPING AND TE BACKS.
  5. ALL CONCRETE THRUST BLOCKING SHALL BE PLACED TO FORM A SOLID CONNECTION BETWEEN FITTINGS, VALVES, AND FIRE HYDRANTS AND UNDISTURBED EARTH. CONCRETE FOR THRUST BLOCKING SHALL HAVE A MINIMUM OF 2500 P.S.I. COMPRESSIVE STRENGTH AT 28 DAYS.
  6. INSTALL CONCRETE BLOCK BENEATH FIRE HYDRANTS BEFORE PLACING CONCRETE THRUST BLOCKING TO INSURE THAT FIRE HYDRANTS ARE INSTALLED LEVEL.
  7. ALL FIRE HYDRANTS AND VALVE BOXES ARE TO BE ADJUSTED TO FINISH GRADE AFTER PAVING IS COMPLETE.
  8. ALL FIRE HYDRANTS ARE TO BE EQUIPPED WITH HYDRA-STORZ QUICK CONNECT HYDRANT SYSTEM (1/4 X 5" BASE) WITH DEBRIS CAP. MANUFACTURED BY HYDRA-SHIELD, INC. OR APPROVED EQUAL. DEBRIS CAP IS TO BE TETHERED WITH A 1/2" STAINLESS STEEL CABLE, UTILIZING THE EYELET ON THE FIRE HYDRANT AND THE DEBRIS CAP.
  9. CONTRACTOR SHALL NOTIFY CITY ENGINEER 72 HOURS BEFORE START OF CONSTRUCTION.
  10. ALL FIRE HYDRANT RESTRAINTS TO BE MJ FITTING.

REL. DESCRIPTION	DATE	DWN.	CHK.
 18/19/2017			
 7322 Southwest Freeway, Suite 1040 • Houston, Texas 77074 (713) 400-2793 • www.arkkengineers.com • TX PE Form No. 12473			
 <b>City of Pearland, Texas</b> FM 521 Water Line (Broadway to Mooring Pointe)			
<b>City of Pearland Water Line Details II</b>			
Job No.: 16-D12 Date: October 2017 Dwn. By: C. Chudoba Chk. By: M. Brown	Scale: horiz N/A vert 1/4" = 1'-0" One Inch	SHEET <b>35</b> OF 37	



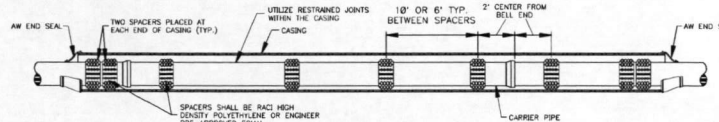
**MECHANICAL RESTRAINT W/ RESTRAINING RODS**  
NOT TO SCALE



**MECHANICAL JOINT RESTRAINT**  
NOT TO SCALE

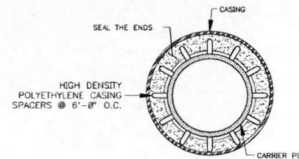
**CASING SPACERS**

- CASING SPACERS SHALL BE USED TO INSTALL THE CARRIER PIPE INSIDE THE ENCASUREMENT PIPE. CASING SPACERS SHALL FASTEN TIGHTLY ONTO THE CARRIER PIPE SO THAT WHEN THE CARRIER PIPE IS BEING INSTALLED THE SPACERS WILL NOT MOVE ALONG THE CARRIER PIPE. CASING SPACERS SHALL BE DOUBLED ON EACH END OF THE ENCASUREMENT.
- EACH CASING SPACER SHALL BE CAPABLE OF PROVIDING SUPPORT FOR THE CARRIER PIPE IN SERVICE AT A MAXIMUM SPACING. CALCULATIONS SHALL BE PROVIDED TO THE ENGINEER BY THE CASING SPACER MANUFACTURER SHOWING THAT THE CASING SPACER WILL SUPPORT THE SERVICE LOAD AT THE RECOMMENDED SPACING, INCLUDING A FACTOR OF SAFETY OF TWO (2). CASING SPACERS USED UNDER THIS SPECIFICATION SHALL MEET OR EXCEED THE SPECIFICATIONS DESCRIBED HEREIN AS PROJECTION TYPE CASING SPACERS.
- PROJECTION TYPE CASING SPACERS SHALL BE CONSTRUCTED OF PREFORMED SECTIONS OF HIGH DENSITY POLYETHYLENE. THE FLEXIBLE SECTIONS SHALL BE JOINED TOGETHER AROUND THE PIPE TO PROVIDE A MINIMUM OF 12 PLASTIC PROJECTIONS PER SPACER SECTION. PROJECTION TYPE CASING SPACERS SHALL BE "RAC" TYPE PROJECTION SPACERS OR ENGINEER PRE-APPROVED EQUAL.



**PIPE CASING SPACER DETAIL**

PIPE TYPE & SIZE	MAX. SPACING
PVC/HDPE 4"-14"	18"
PVC/HDPE 18"-36"	6'
Outside 30th Pipe	6'

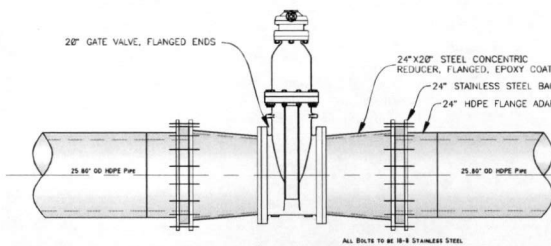


**PIPE CASING SPACER SECTION**

CARRIER PIPE SIZE (IN.)	MINIMUM CASING PIPE SIZE (IN.)
4	18
6	18
8	18
10	18
12	24
14	24
16	24
24	36
28" OD HDPE	36

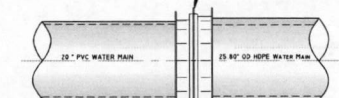
**TYPICAL CASING DETAIL**

NOT TO SCALE



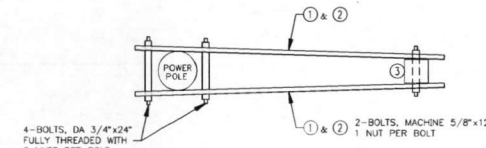
**HDPE TO GATE VALVE CONNECTION DETAIL**

NOT TO SCALE



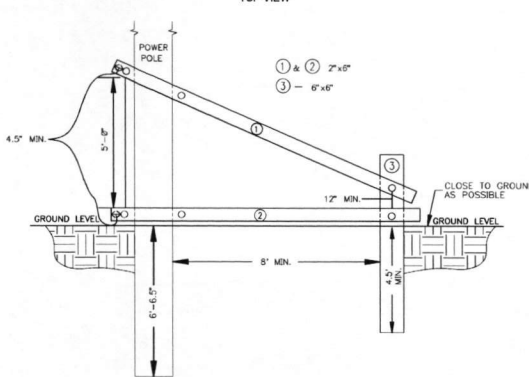
**HDPE TO PVC CONNECTION DETAIL**

NOT TO SCALE



NOTE: BRACING SHALL BE PERPENDICULAR TO EXCAVATION

**TOP VIEW**



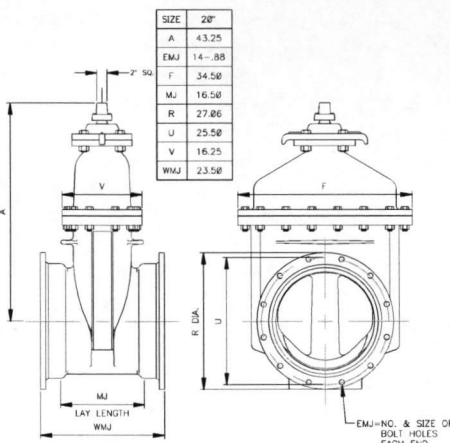
**SIDE VIEW**

**TYPICAL DIAMETER ON POWER POLE BASE-18"**

NOTE: THE CONTRACTOR SHALL COORDINATE WITH THE POWER COMPANY AND OBTAIN APPROVAL PRIOR TO UTILIZING THIS DETAIL. THE CONTRACTOR SHALL MAKE APPROPRIATE CHANGES TO MEET POWER COMPANY REQUIREMENTS.

**TEMPORARY POLE BRACING**

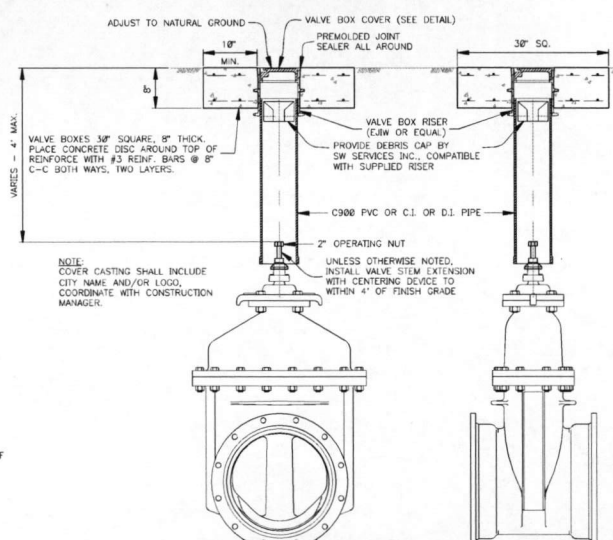
NOT TO SCALE



- NOTE:  
1. RESILIENT WEDGE GATE VALVE WITH MECHANICAL JOINT ENDS AND BEVEL GEARING ACTUATOR.  
2. ALL DIMENSIONS ARE IN INCHES.

**20" GATE VALVE DETAIL**

NOT TO SCALE



**VALVE BOX DETAIL**

NOT TO SCALE

NO.	DESCRIPTION	DATE	DWN.	CHK.

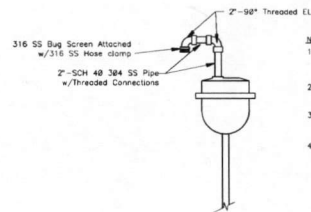
10/19/2017

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**PEARLAND**  
City of Pearland, Texas  
FM 521 Water Line  
(Broadway to Mooring Pointe)

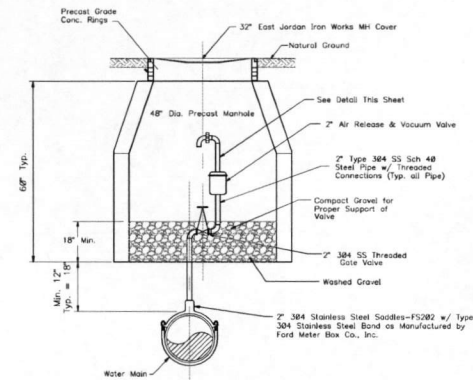
Miscellaneous Details I

Job No.: 16-012	Scale: HORIZ N/A	SHEET
Date: October 2017	VERT N/A	36
Drawn By: C. Chudoba	One Inch	OF 37
Checked By: M. Braun		

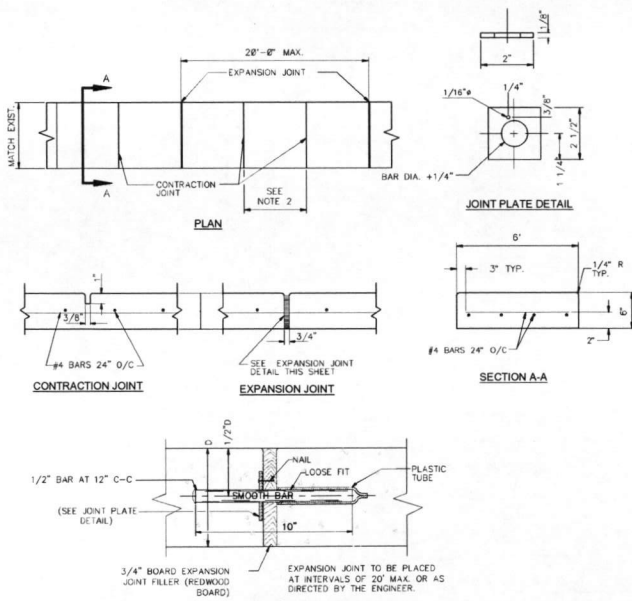


**NOTES:**

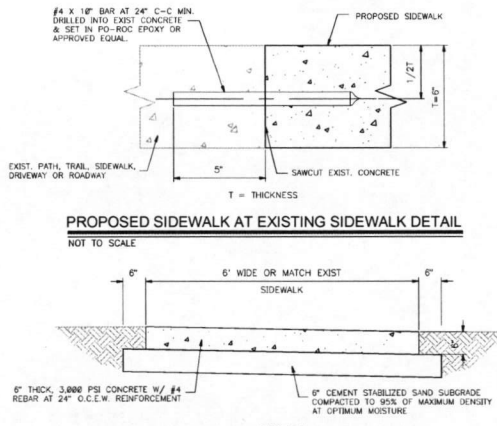
1. Manhole (Min. 4 feet Diameter) Shall be Constructed of 4 foot Diameter Precast Concrete Sections.
2. Depth of Manhole Determines Sections Required.
3. Seal Manhole Frame in Seland Per Specification.
4. Provide Backfill to Match Adjacent Pipe Trench Backfill Per Specification.



**AIR RELEASE/VACUUM RELIEF VALVE MANHOLE**  
NOT TO SCALE



**SIDEWALK JOINT DETAILS**  
NOT TO SCALE



**CONCRETE SIDEWALK REPAIR DETAILS**  
NOT TO SCALE

- NOTES:**
1. ALL EDGES SHALL BE ROUNDED WITH 1/4\"/>
  - 2. CONTRACTION JOINTS SHALL BE SPACED TO MATCH EXIST CURB PATH.
  - 3. CONTRACTION JOINTS SHALL BE 1\"/>
  - 4. EXPANSION JOINTS SHALL BE SPACED AT 20 FT. INTERVALS. (MAXIMUM).
  - 5. WHERE SIDEWALK JOINS EXISTING SIDEWALK, SAWCUT EXISTING SIDEWALK TO AN EVEN STRAIGHT LINE PRIOR TO INSTALLATION OF THE NEW SIDEWALK.

NO.	DESCRIPTION	DATE	DWG.	CHK.

10/19/2017

DAVID W. KASPER  
Professional Engineer

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(713) 490-2793 • www.arikkeengineers.com • ST. FE. Reg. No. 12672

**City of Pearland, Texas**  
FM 521 Water Line  
(Broadway to Mooring Pointe)

Miscellaneous Details II

Rev. No.: 16-012	Scale: HORIZ: N/A VERT: N/A	SHEET
Date: October 2017	Drawn By: C. Chudoba	<b>37</b>
Check By: M. Braun	Plot Date: 10/19/2017 11:20:12 AM	Of: 37