

Document 00911

NOTICE OF ADDENDUM NO. 1

Date of Addendum: 4/8/15

PROJECT NAME: Condition assessment support package for existing 96-inch water line along Clinton Drive

PROJECT NO: WBS No. S-000901-0008-4

BID DATE: April 9, 2015

FROM: J. Timothy Lincoln, P.E., City Engineer  
City of Houston, Department of Public Works and Engineering  
611 Walker, 15<sup>th</sup> Floor  
Houston, Texas 77002  
Attn: Anh H Hunter, P.E., Project Manager

TO: Prospective Bidders

The referenced Addendum forms a part of the Bidding Documents and will be incorporated into the Contract documents, as applicable.

Written questions regarding this Addendum may be submitted to the Project Manager following the procedures specified in Document 00200 – Instructions to Bidders. Immediately notify the City Engineer through the named Project Manager upon finding discrepancies or omissions in the Bid Documents.

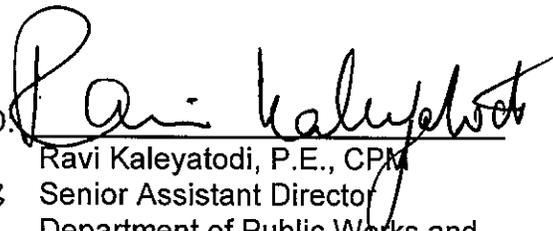
This Addendum includes:

ADDENDUM SYNOPSIS

Changes to Project Manual  
Bidding Requirements  
Specifications  
Changes to Drawings

DATED:

4-1-15  
MS  
AD.

  
Ravi Kaleyatodi, P.E., CPM  
Senior Assistant Director  
Department of Public Works and  
Engineering

END OF DOCUMENT

Document 00910

ADDENDUM NO. 1

Date of Addendum: 04/02/2015

PROJECT NAME: Condition assessment support package for existing 96-inch water line along Clinton Drive

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BID DATE: April 9, 2015

FROM: J. Timothy Lincoln, P.E. , City Engineer  
City of Houston, Department of Public Works and Engineering  
611 Walker  
Houston, Texas 77002  
Attn: Anh H Hunter , Project Manager

TO: Prospective Bidders

This Addendum forms a part of the Bidding Documents and will be incorporated into the Contract documents, as applicable. Insofar as the original Project Manual and Drawings are inconsistent, this Addendum governs.

*This Addendum uses the change page method: remove and replace or add pages, or Drawing sheets, as directed in the change instructions below. Change bars ( | ) are provided in the outside margins of pages from the Project Manual to indicate where changes have been made; no change bars are provided in added Sections. Reissued Drawing Sheets show the Addendum number below the title block and changes in the Drawing are noted by a revision mark and enclosed in a revision cloud.*

CHANGES TO PROJECT MANUAL

Addendum No. 1  
00910-1  
04-02-2015

**BIDDING REQUIREMENTS**

1. Document 00410 – Bid Form. Replace entire Document

**SPECIFICATIONS**

2. Document 01110 – Summary of Work. Replace entire Document.
3. Specification Section 02519 – Condition Assessment of LDWL. Replace entire Specification.
4. Specification Section 02614 – Temporary Pipe Plugs. Insert entire Specification.

**CHANGES TO DRAWINGS**

5. Drawing Sheet 100. Replace Test Station Table with the following:

Test Station	Station No.	Segment	Type of Test Station	Structure (s)
1	6+24	Clinton Drive	Flush Mounted Isolation	96-Inch Water/ Butterfly Valve
2	6+56	Clinton Drive	Flush Mounted Isolation	96-Inch Water/ Butterfly Valve
3	9+84	Clinton Drive	Flush Mounted Potential	96-Inch Water
4	21+46	Clinton Drive	Flush Mounted Isolation	96-Inch Water/ Butterfly Valve
5	21+90	Clinton Drive	Flush Mounted Isolation	96-Inch Water/ Butterfly Valve
6	24+43	Clinton Drive	Flush Mounted Potential	96-Inch Water
7	41+30	Clinton Drive	Flush Mounted Potential	96-Inch Water
8	54+58	Clinton Drive	Flush Mounted Potential	96-Inch Water
9	70+60	Clinton Drive	Flush Mounted Isolation	96-Inch Water/ Butterfly Valve
10	71+60	Clinton Drive	Flush Mounted Isolation	96-Inch Water/ Butterfly Valve
11	78+00	Clinton Drive	Flush Mounted Potential	96-Inch Water
12	89+51	Clinton Drive	Flush Mounted Potential	96-Inch Water
13	93+51	Clinton Drive	Flush Mounted Potential	96-Inch Water
14	112+28	Clinton Drive	Flush Mounted Potential	96-Inch Water
15	115+45	Clinton Drive	Flush Mounted Isolation	96-Inch Water/ Butterfly Valve
16	115+79	Clinton Drive	Flush Mounted Isolation	96-Inch Water/ Butterfly Valve
17	120+13	Clinton Drive	Flush Mounted Potential	96-Inch Water
18	125+48	Clinton Drive	Flush Mounted Potential	96-Inch Water
19	132+94	Clinton Drive	Flush Mounted Potential	96-Inch Water
20	152+88	Clinton Drive	Flush Mounted Potential	96-Inch Water
21	158+87	Clinton Drive	Flush Mounted Isolation	96-Inch Water/ Butterfly Valve
22	159+00	Clinton Drive	Flush Mounted Isolation	96-Inch Water/ Butterfly Valve

6. Add attached drawing sheet 101.

END OF ADDENDUM NO.   1



*Gregory J. Henry*  
LOCKWOOD, ANDREWS & NEWNAM, INC  
FIRM F-2614

DATED: *Ravi Kaleyatodi*  
Ravi Kaleyatodi, P.E., CPM  
Senior Assistant Director  
Department of Public works and Engineering

*SD:ACM:AHH*  
RK:SD:ACM:AHH

Document 00410A

BID FORM – PART A

To: **The Honorable Mayor and City Council of the City of Houston  
City Hall Annex  
900 Bagby Street  
Houston, Texas 77002**

Project: Clinton Drive Condition Assessment Support Package

Project No.: WBS No. S-000901-0008-4

Bidder: \_\_\_\_\_  
(Print or type full name of business entity, such as corporation, LLC,  
etc)

**OFFER**

- A. Total Bid Price:** Having examined the Project location and all matters referred to in Bid Documents for the Project, we, the undersigned, offer to enter into a Contract to perform the Work for the Total Bid Price shown on the signature page of this Document
- B. Security Deposit:** Included with the Bid is a Security Deposit in the amount of 10 percent of the Total Bid Price subject to terms described in Document 00200 – Instructions to Bidders.
- C. Period for Bid Acceptance:** This offer is open to acceptance and is irrevocable for 90 days from Bid Date. That period may be extended by mutual written agreement of the City and Bidder.
- D. Addenda:** All Addenda have been received. Modifications to Bid Documents have been considered and all related costs are included in the Total Bid Price.
- E. Bid Supplements:** The following documents are attached:
  - Security Deposit (*as defined in Document 00200 – Instructions to Bidders*)
  - Document 00450 - Bidder's Statement of MWSBE Status
  - Document 00452 - Contractor's Submission List - Fair Campaign Ordinance Form A
  - Document 00453 – Bidder's Statement of Residency (*not required for AIP funded project*)
  - Document 00454 - Affidavit of Non-interest
  - Document 00455 - Affidavit of Ownership or Control
  - Document 00456 - Bidder's Certificate of Compliance with Buy American Program (*required for AIP funded project*)
  - Document 00457 – Conflicts of Interest Questionnaire (CIQ)
  - Document 00458 - Bidder's Certificate Regarding Foreign Trade Restriction (*required for AIP funded project*)

- Document 00459 - Contractor's Statement Regarding Previous Contracts Subject to EEO (*required for AIP funded project*)
  - Document 00460 – (POP 1) Pay or Play Acknowledgement Form
  - Document 00470 – Bidder's MWSBE Participation Plan (*required unless no MWSBE participation goal is provided in Document 00800 (the "Goal")*).
  - Document 00471 – Pre-bid Good Faith Efforts (*required if the goal in Bidder's Participation Plan–Document 00470 is lower than the Goal*).
  - Document 00472 – Bidder's Goal Deviation Request (*required if the goal in Bidder's Participation Plan–Document 00470 is lower than the Goal*).
  - Others as listed: Valid official letter from OBO with your designation as a City or Local Business (*Bidder's Participation Hire Houston First*)
- 

**CONTRACT TIME**

- A. If offer is accepted, Contractor shall achieve Date of Substantial Completion within 323 days after Date of Commencement of the Work, subject to adjustments of Contract Time as provided in the Contract.

Document 00410B

BID FORM – PART B

**1.0 TOTAL BID PRICE HAS BEEN CALCULATED BY BIDDER, USING THE FOLLOWING COMPONENT PRICES AND PROCESS (PRINT OR TYPE NUMERICAL AMOUNTS):**

**A. STIPULATED PRICE: \$N/A**

(Total Bid Price; minus Base Unit Prices, Extra Unit Prices, Cash Allowances and All Alternates, if any)

**B. BASE UNIT PRICE TABLE:**

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
<b>GENERAL</b>						
1	01502	Mobilization	LS	1	\$150,000 <sup>(1)</sup>	\$150,000 <sup>(1)</sup>
2	01555	Traffic Control and Regulation	LS	1	\$100,000 <sup>(2)</sup>	\$100,000 <sup>(2)</sup>
3	01555	Flagmen	LS	1	\$75,000 <sup>(2)</sup>	\$75,000 <sup>(2)</sup>
4	01555	Install Low Profile Concrete Barriers	LF	100		
5	01555	Relocate Low Profile Concrete Barriers	LF	1200		
6	01555	Remove Low Profile Concrete Barriers	LF	100		
7	01570	Filter Fabric Fence	LF	1000		
8	01570	Reinforced Fabric Fence	LF	4900		
9	01570	Inlet Protection Barrier	LF	460		
10	01578	Ground Water Control	LF	433		
11	02105	Preparatory work for Sampling and Analysis in Potentially Petroleum Contaminated Ares (PPCA)	LS	1	\$10,000 <sup>(2)</sup>	\$10,000 <sup>(2)</sup>
12	02120	Transportation and Disposal of Category I Soil	CY	500		

Addendum No. 1  
00410B-1  
04-02-2015

Bidder's Initials [     ]

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
13	02120	Ground Water Control for Open-Cut Construction in PPCA	LF	100		
14	02120	Transportation & Disposal of Contaminated Groundwater	GAL	2000		
15	02233	Clearing and grubbing	ACRE	0.2		
16	02260	Trench Safety System	LF	433		
17	02915	Remove, Temporary Store and Replant ½" trees	EA	1		
18	02915	Remove, Temporary Store and Replant 1½" trees	EA	4		
19	02915	Remove, Temporary Store and Replant 2" trees	EA	3		
20	02915	Remove, Temporary Store and Replant 2½" trees	EA	1		
21	02915	Remove, Temporary Store and Replant 3" trees	EA	1		
22	02915	Remove, Temporary Store and Replant 4" trees	EA	1		
<b>CONDITION ASSESSMENT</b>						
23	02082	72-inch Service Manhole with 24" access manway	EA	6		
24	02082	Extra depth manhole	VF	18		
25	02519	Dewater 96-inch waterline	LF	15,726		
26	02519	Pressure Washing of 96-inch Water Line	LF	15,726		
27	02519	Electromagnetic Survey	LF	15,726		
28	02519	Confined space entry assistance	DAY	45		
29	02519	Dewatering, remove and partial abandonment of existing PRV station 55	LS	1		

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
30	02519	Remove & dispose access manway flange	EA	16		
31	02519	Remove & dispose access manway flange within PPCA limits	EA	2		
32	02519	Remove & dispose 2" air release valve, vent piping w/ bollards	EA	6		
33	02519	Remove and dispose 2" air release valve, vent piping w/ bollards within limits of PPCA	EA	1		
34	02519	Access manway flange w/ 6-inch outlet and gate valve	EA	10		
35	02519	Access manway flange w/ 6-inch outlet and gate valve within limits of PPCA	EA	1		
36	02519	4-inch AI/VR valve, vent piping w/ bollards and access manway flange	EA	6		
37	02519	4-inch AI/VR valve, vent piping w/ bollards and access manway flange within limits of PPCA	EA	1		
38	02519	Remove 6" vent piping w/ bollards	EA	5		
39	02519	Install 6" vent piping w/ bollards	EA	5		
40	02519	Remove and replace 96-inch butterfly valve seat	EA	3		
41	02519	Recoat 96-inch butterfly valve	EA	3		
42	02519	Reconnect Vacuum Relief Vault and Piping w/ 6" Gate Valve	EA	2		
43	02519	Reconnect Vacuum Relief Vault and Piping w/ 6" Gate Valve within limits of PPCA	EA	1		
44	02519	Excavation around existing pipe	CY	5000		
45	02519	Excavation around existing pipe within limits of PPCA	CY	125		
46	02519	Cut and remove existing 96-inch Concrete pipe	LF	96		
47	02519	Procure 96-inch steel waterline	LF	88		

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
48	02519	Install 96-inch Steel Waterline	LF	88		
49	02519	Lockout/Tag out Devices	EA	14		
50	02519	Temporary Blow-offs	EA	18		
51	02519	Remove and Dispose Air-Cooled Rectifier and Anode Junction Box and Reconnect existing leads from main to proposed facilities	EA	1		
52	15641S	Cathodic Protection Test Station	EA	22		
53	02522S	96-inch Butterfly Valve w/ Operator manhole and support	EA	4		
54	02614	96-inch Tapping Sleeve for Temporary Pipe Plug	EA	2		
55	02614	96-inch Installation and Removal of Temporary Pipe Plug	EA	2		
56	02614	96-inch Temporary Pipe Plug In Place	EA	2		
57	16640S	Proposed Deep Anode Well Rectifier, Anode Junction Box and Electrical Service Pole	EA	1		
<b>WATER</b>						
58	02221	Remove and Dispose of 18-inch Diameter Storm Sewer	LF	20		
59	02221	Remove and Dispose pf Existing 60-Storm Manhole	EA	1		
60	02221	Plug existing 18-inch RCP storm sewer	EA	1		
61	02221	Remove and Dispose 8-inch Waterline	LF	25		
62	02221	Remove and Dispose 8-inch waterline within limits of PPCA	LF	5		
63	02221	Remove and Dispose 16-inch Waterline	LF	32		
64	02221	Remove and Dispose 36-inch Waterline	LF	40		

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
65	02221	Remove and Dispose 36-inch Waterline within limits of PPCA	LF	5		
66	02511	Remove Existing 10-Plug	EA	1		
67	02511	Remove Existing 12-Plug	EA	1		
68	02511	Remove Existing 16-Plug	EA	1		
69	02511	Adjust manhole frame and cover to match existing grade	EA	2		
70	02511	12-inch Plug & Clamp	EA	2		
71	02511	8-inch Waterline by Trenchless method	LF	170		
72	02511	10-inch Waterline by Trenchless method	LF	20		
73	02511	12-inch Waterline by Trenchless method	LF	3,211		
74	02511	12-inch Waterline by Trenchless method within limits of PPCA	LF	700		
75	02511	12-inch DIP Waterline w/ Restrained Joints by Trenchless method	LF	633		
76	02511	12-inch Waterline in 24-inch Steel Casing	LF	36		
77	02511	20-inch DIP Waterline	LF	8		
78	02512	3/4" to 1" Diameter Copper Service Connection, Long Side	EA	5		
79	02512	1.5" to 2" Diameter Copper Service Connection, Long Side	EA	5		
80	02513	8-inch Wet Connection	EA	2		
81	02513	10-inch Wet Connection	EA	1		
82	02513	12-inch Wet Connection	EA	1		
83	02513	16-inch Wet Connection	EA	1		
84	02513	20-inch Wet Connection	EA	2		

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
85	02516	Cut, Plug & Abandon Existing 8-inch Waterline	EA	14		
86	02516	Cut, Plug & Abandon Existing 8-inch Waterline within limits of PPCA	EA	2		
87	02516	Cut, Plug & Abandon Existing 12-inch Waterline	EA	1		
88	02516	Cut, Plug & Abandon Existing 36-inch Waterline	EA	6		
89	02516	Cut, Plug & Abandon Existing 36-inch Waterline within limits of PPCA	EA	2		
90	02520	Remove and Salvage Fire Hydrant	EA	8		
91	02520	Remove and Salvage Fire Hydrant within limits of PPCA	EA	2		
92	02520	Fire Hydrant Assembly, all depths w/ 6-inch Gate Valve & Box, Complete in place	EA	13		
93	02520	Fire Hydrant Assembly, all depths w/ 6-inch Gate Valve & Box, Complete in place within limits of PPCA	EA	2		
94	02520	6-inch Fire Hydrant Lead, Open-cut, Complete in place	LF	375		
95	02520	6-inch Fire Hydrant Lead, Open-cut, Complete in place within limits of PPCA	LF	160		
96	02521S	20-inch Gate Valve w/ Box	EA	1		
97	02525	8"x6" Tapping, Sleeve & Valve	EA	4		
98	02525	8"x8" Tapping, Sleeve & Valve	EA	2		
99	02525	12"x12" Tapping, Sleeve & Valve within limits of PPCA	EA	2		

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
100	02525	16"x12" Tapping, Sleeve & Valve	EA	1		
101	02531	Remove and Dispose 6-inch Sanitary Sewer	LF	18		
102	02531	Construct 6-inch Sanitary Sewer, Pressure Class 150 PSI, Complete in place	LF	18		
103	02532	Remove & dispose 6-inch forcemain within limits of PPCA	LF	18		
104	02532	Construct 6-inch Forcemain, Pressure Class 150 PSI, complete in place within limits of PPCA	LF	18		
105	02531	Remove and Dispose 8-inch Sanitary Sewer	LF	54		
106	02531	Construct 8-inch Sanitary Sewer, Pressure Class 150 PSI, Complete in place	LF	54		
<b>PAVING</b>						
107	02221	Remove and Dispose of Reinforced Concrete Pavement, with or without Asphalt Overlay(with or without curb), All thickness	SY	461		
108	02221	Remove and Dispose of Asphaltic Pavement, with or without Base	SY	417		
109	02741	Temporary Asphalt Concrete Pavement for Detour/ Roadway and Shoulder (install and remove)	SY	170		
110	02741	Hot Mix Asphalt Base Course	TON	140		
111	02741	Asphaltic Concrete Pavement	TON	35		
112	02751	6-inch Concrete Paving	SY	461		

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
113	02771	6" Concrete Curb	LF	230		
114	02772	6" Concrete Median	SY	200		
115	02922	Sodding	SY	490		
116	02764	Temporary Type I-C, Type W Raised Pavement Markers	EA	480		
117	02764	Temporary Type II-A-A, Type Y Raised Pavement Markers	EA	480		
118	02764	Temporary Type Y (Yellow) Non-Reflective Pavement Markers	EA	1575		
119	02764	Temporary Type W (White) Non-Reflective Pavement Markers	EA	1220		
120	02767	Thermoplastic Pavement Marking (4-inch-wide) (broken) White	LF	250		
121	02767	Thermoplastic Pavement Marking (4-inch-wide) (solid) Yellow	LF	250		
122	02767	Thermoplastic Pavement Marking (12-inch-wide) (solid) Yellow	LF	100		
123	02767	Thermoplastic Pavement Marking (Symbols) White	EA	2		
124	TxDOT 540	Install Guardrail with Timber Post	LF	125		
125	TxDOT 540	Downstream Anchor Terminal	EA	1		
126	TxDOT 542	Remove Guardrail	LF	150		

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**C. EXTRA UNIT PRICE TABLE:**

Item No.	Spec Ref.	Extra Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
127	02915	Level 1 Demobilization/ Remobilization	EA	1	\$20,000 <sup>(2)</sup>	\$20,000 <sup>(2)</sup>
128	02915	Level 2 Demobilization/ Remobilization	EA	1	\$50,000 <sup>(2)</sup>	\$50,000 <sup>(2)</sup>
129	02614	Extended Rental for Temporary Pipe Plug	WK	2	\$7,500 <sup>(2)</sup>	\$15,000 <sup>(2)</sup>
130	02317	Extra Excavation around obstructions	CY	250	\$20 <sup>(2)</sup>	\$5,000 <sup>(2)</sup>
131	02317	Extra Excavation around obstructions within limits of PPCA	CY	100	\$25 <sup>(2)</sup>	\$2,500 <sup>(2)</sup>
132	02317	Extra Hand Excavation	CY	125	\$15 <sup>(2)</sup>	\$1,875 <sup>(2)</sup>
133	02317	Extra Hand Excavation within limits of PPCA	CY	125	\$20 <sup>(2)</sup>	\$2,500 <sup>(2)</sup>
134	02318	Extra Machine Excavation	CY	50	\$20 <sup>(2)</sup>	\$1,000 <sup>(2)</sup>
135	02318	Extra Machine Excavation within limits of PPCA	CY	50	\$25 <sup>(2)</sup>	\$1,250 <sup>(2)</sup>
136	02318	Extra Placement of Backfill Material	CY	125	\$6 <sup>(2)</sup>	\$750 <sup>(2)</sup>
137	02318	Extra Placement of Backfill Material within limits of PPCA	CY	125	\$10 <sup>(2)</sup>	\$1,250 <sup>(2)</sup>
138	02511	Extra Ductile Iron compact fittings in place	TON	1	\$2,000 <sup>(2)</sup>	\$2,000 <sup>(2)</sup>
139	02519	Extra Remove and Replace 96-inch Butterfly Valve Actuator	EA	2	\$10,000 <sup>(2)</sup>	\$20,000 <sup>(2)</sup>
140	02519	Extra Remove and Replace 96-inch Butterfly Valve Actuator within limits of PPCA	EA	2	\$30,000 <sup>(2)</sup>	\$60,000 <sup>(2)</sup>

Item No.	Spec Ref.	Extra Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
141	02519	Extra Remove and Dispose Existing 96-inch PCCP Waterline (16-foot section)	EA	1	\$15,000 <sup>(2)</sup>	\$15,000 <sup>(2)</sup>
142	02519	Extra Procurement of 16-foot Closure Section of 96-inch Steel Waterline	EA	1	\$12,500 <sup>(2)</sup>	\$12,000 <sup>(2)</sup>
143	02519	Extra Installation of 16-foot Closure Section of 96-inch Steel Waterline	EA	1	\$15,500 <sup>(2)</sup>	\$15,500 <sup>(2)</sup>
144	02519	Remove existing mortar, clean and Regrout	EA	150	\$750 <sup>(2)</sup>	\$112,500 <sup>(2)</sup>
145	02519	Remove existing mortar, clean, weld joint, and Regrout welded interior pipe joint on 96-inch water line	EA	25	\$3,500 <sup>(2)</sup>	\$87,500 <sup>(2)</sup>
146	15640S	Extra Internal Joint Bonding Devices	EA	75	\$350 <sup>(2)</sup>	\$26,250 <sup>(2)</sup>
147	02529	Extra Internal Liner for PCCP Rehabilitation	EA	1	\$125,000 <sup>(2)</sup>	\$125,000 <sup>(2)</sup>
<b><u>TOTAL EXTRA UNIT PRICES</u></b>						<b>\$ 576,875.00</b>

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**D. CASH ALLOWANCE TABLE:**

Item No.	Spec Ref.	Cash Allowance Short Title	Unit of Measure	Cash Allowance in figures (1)
148	01110	Street cut permit fee	CA	\$ 5,000
<b><u>TOTAL CASH ALLOWANCES</u></b>				<b>\$ 5,000</b>

**E. ALTERNATES TABLE:**

Item No.	Spec Ref.	Alternate Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total Price for Alternate in figures
		N/A				
<b><u>TOTAL ALTERNATES</u></b>						\$ _____

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**F. TOTAL BID PRICE: \$** \_\_\_\_\_  
(Add Totals for Items A., B., C., D., and E. above)

**2.0 SIGNATURES:** By signing this Document, I agree that I have received and reviewed all Addenda and considered all costs associated with the Addenda in calculating the Total Bid Price.

Bidder: \_\_\_\_\_  
(Print or type full name of your proprietorship, partnership, corporation, or joint venture.\*)

\*\* By: \_\_\_\_\_  
Signature Date

Name: \_\_\_\_\_  
(Print or type name) Title

Address: \_\_\_\_\_  
(Mailing)  
\_\_\_\_\_  
(Street, if different)

Telephone and Fax Number: \_\_\_\_\_  
(Print or type numbers)

\* If Bid is a joint venture, add additional Bid Form signature sheets for each member of the joint venture.

\*\* Bidder certifies that the only person or parties interested in this offer as principals are those named above. Bidder has not directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding.

Note: This document constitutes a government record, as defined by § 37.01 of the Texas Penal Code. Submission of a false government record is punishable as provided in § 37.10 of the Texas Penal Code.

Footnotes for Tables B through E:

- (1) Fixed Unit Price determined prior to Bid. Cannot be adjusted by the Bidder.
- (2) Minimum Bid Price determined prior to Bid. Can be increased by the Bidder by crossing out the Minimum and noting revised price on the line above.
- (3) Maximum Bid Price determined prior to Bid. Can be decreased but not increased by Bidder by crossing out the Maximum and noting revised price on the line above. A Bid that increases the Maximum Bid Price may be found non-conforming and non-responsive.
- (4) Fixed Range Bid Price determined prior to Bid. Unit Price can be adjusted by Bidder to any amount within the range defined by crossing out prices noted and noting revised price on the line above.

SECTION 01110

SUMMARY OF WORK

PART 1 GENERAL

1.01. SECTION INCLUDES

- A. Summary of the Work including Project Description, Work Covered by Contract Documents, Definitions, Cash Allowances, Work by City, City furnished products, Work sequence, future Work, Contractor use of Premises, and City occupancy.

1.02. PROJECT DESCRIPTION

- A. Surface Water Transmission Program (SWTP) consists of major improvements to the transmission system to convert from primarily groundwater to surface water in order to comply with Harris-Galveston Coastal Subsidence District's (HGCSO) regulatory plan. Program includes transmission and distribution of surface water and associated consolidation of groundwater plants in the City.
- B. The project is a combination of Condition Assessment, rehabilitation of appurtenances, and valve installation along the existing 96-inch water line on Clinton Drive from east of Wayside Drive to Mascot Street.
- C. This project includes work within an existing 96-inch potable water pipeline, and therefore, contractor should anticipate work within a confined space.

1.03. DEFINITIONS

- A. Large Diameter Water Lines: Water Lines 24-inches in diameter and larger. References to large diameter water lines shall apply to pipe, valves and appurtenances 24-inch and larger. Cost to procure pipe will be paid separately.
- B. Small Diameter Water Lines: Water Lines 20-inches in diameter and smaller. Unless otherwise noted in the Contract Documents, requirements pertaining to large diameter water lines do not apply to pipe, valves and appurtenances 20-inches in diameter and smaller. Some materials may be provided by the City.

1.04. WORK COVERED BY CONTRACT DOCUMENTS

This work will include, but not be limited to, the following:

- A. GRID EXTENSIONS ALONG CLINTON DRIVE

1. Construction of approximately 3,900 linear feet of 12-inch water line and 160 linear feet of 8-inch water line using trenchless methods.
2. Transfer services of fire hydrants from existing 96-inch water line to existing 8-inch water line as shown in Drawings.
3. Grid extension water lines must be complete and in service prior to shutting down the 96-inch water line.

**B. INSTALLATION OF 96-INCH VALVES**

1. Temporary 96-inch line stop valves will be installed at the outer limits of the project, in order to install new permanent isolation butterfly valves.
2. Install two 96-inch isolation valves with service manholes and access manways on each end of the project limits: west of North Wayside Drive and west of Mascot Street.

**C. CONDITION ASSESSMENT OF EXISTING 96-INCH WATER TRANSMISSION LINE ALONG CLINTON DRIVE**

1. Refer to map exhibit at the end of this document for limits of condition assessment work, and Specification 02519.
2. The project includes the dewatering of an existing 96-inch diameter water line situated within the existing Clinton Drive right of way.
  - a. The approximate length of this existing water line is approximately 16,000 linear feet which equates to approximately 825,000 cubic feet of water volume that requires dewatering as a component of the overall scope of work for this project.
  - b. Manned access requires dewatering to less than 12-inches standing water along entire portion of 96-inch main. No payment will be made for any section not dewatered sufficiently to perform Work.
    - i. Contractor is expected to dewater this existing water line at a maximum rate of 5 cubic feet per second at one location at a time.
    - ii. The dewatering process will discharge into the local Clinton Drive drainage system at specific locations indicated on the plans and/or designated by the City of Houston (COH) Public Works Engineering (PWE) Construction Project Manager.

- iii. Contractor is required to implement confined space entry permit procedures, traffic control plans, tree preservation/protection plans and storm water pollution prevention measures prior to the dewatering process.
      - iv. Contractor to monitor dewatering process to avoid flooding.
      - v. Dewatering may not be allowed during heavy precipitation/storm conditions and as directed by the COH PWE Construction Project Manager so that the existing Clinton Drive roadway drainage system is not adversely impacted by the proposed dewatering process.
    - c. The contractor is required to provide a schedule of planned activities impacting the 96-inch WL within the first 30 days after NTP. In addition, the contractor must notify the COH PWE Construction Project Manager a minimum of 72 hours prior to any planned dewatering.
  - 3. A specialty electromagnetic inspection subcontractor (the specialty subcontractor) will be required to provide inspection services to identify broken prestressing wires.
- D. 6-INCH CONNECTION AT VACUUM RELIEF VALVE VAULTS
- 1. Installation of a 6-inch gate valve and piping at the location of three (3) existing vacuum relief valve vaults.
- E. ABANDONMENT OF PRESSURE REDUCING VALVE STATION
- 1. An existing pressure reducing valve (PRV) station located at Clinton Dr. and Harbor Street (Wayside) will be abandoned during this work.
  - 2. The existing vault is to be partially demolished, and existing valves and fittings replaced as shown on Drawings.
- F. REHABILITATION OR REPLACEMENT OF PIPE AND APPURTENANCES
- 1. Removal of existing air release valves (ARVs) and associated piping, installation of new ARVs and associated piping. Work also includes providing cathodic protection potential test stations at each manhole, as shown in Contract Drawings.
  - 2. Remove and replace 6-inch vent piping
  - 3. Remove and replace access manway flange and 6-inch outlet valve

4. Rehabilitation may also include correction of deficiencies identified during the assessment, including items such as: providing electrical bonding of joints, replacing joint grout, replacing 96-inch pipe sections, and refurbishing existing 96-inch butterfly valves, as directed.
5. Remove and replace sections of the existing 96-inch Prestressed Concrete Cylinder Pipe (PCCP).
  - a. Care is to be taken to protect the bell & spigot of the adjacent pipe to remain in place.
  - b. Notify the City a minimum of 24 hours prior to breaking any mortar or cutting pipe.
  - c. Installation of two or more adjacent sections of mortar coated steel pipe, including cutting and welding butt-strap closure on one section. Cost to procure pipe will be paid separately.
6. Remove & replace three sections (up to 48 feet) of existing 96-inch prestressed concrete cylinder pipe (PCCP) from Station 6+17 to Station 6+65 and Station 158+52 to Station 159+00. Contractor shall maintain one of the three sections intact and on site for City observations and for the specialty subcontractor to perform calibration of testing equipment, but may cut one section for removal. The two halves of the cut section shall be “belled up” to each side of the intact section during the calibration process.
7. Provide confined space entry assistance for Condition Assessment inspection by Engineer in compliance with all applicable OSHA regulations. Confined space entry assistance associated with inspection of Contractor’s work such as pressure washing, joint repair, point repairs and similar work shall be included in the pay items associated with this work.
  - 7.01. Each segment must remain accessible for at least 14 days with a minimum of 8 hours accessibility per day as permitted by traffic control requirements, to perform condition assessment inspection.
8. Following the initial walk through, the Engineer will provide a list of joints requiring repair, if any. Clean loose grout, install bonding clips and weld & regrout interior joints as recommended by Engineer.
9. The Engineer will also provide a list of other rehabilitation needs for the line. These items will not be known until the internal assessment effort is complete, but will use existing Pay Items in the Contract.

10. Upon completion of all internal work, clean the pipe interior, install temporary blow-offs for City to perform disinfection, flushing and testing, and remove blow-offs upon notice of placement in service.

**G. LEAK REPAIR LOCATION (STA 14+93)**

1. A leak exists at the connection between the 96-inch WL and a 20-inch WL at approximate STA 14+93. The City of Houston excavated this location and indicated that the leak may be a cracked flange on an existing 20-inch butterfly valve. While the 96-inch WL is out of service, this valve should be excavated, removed and replaced with a 20-inch gate valve.
2. The existing valve was reported to be over 20 feet deep, and the pipe appeared to be partially enclosed in a corrugated metal shaft and backfilled with stabilized material. A photo of the exposed valve is shown below.



3. In 2013, storm sewer pipes and a manhole were installed to collect water from the leak and divert it to a nearby storm sewer (as shown on Drawings). This existing 48-inch manhole may be removed, and the storm sewer lead plugged once the 96-inch WL is isolated.
4. Excavate to locate leak on the existing 96-/20-inch connection, and replace valve according to Drawings. Include cost of cutting existing 20-inch pipe

and removing existing valve in unit price for installation of new 20-inch gate valve.

H. POTENTIALLY PETROLEUM CONTAMINATED AREAS (PPCA)

1. Construction will occur in some areas designated as potentially petroleum contaminated areas (PPCA). These areas are located between STA 8+76 and STA 10+76, STA 57+40 to STA 60+40, STA 61+40 to STA 65+40 and STA 76+90 to STA 79+90. Comply with necessary requirements identified in Specification Section 02105 – Sampling and Analysis in PPCA and 02120 – Off Site Transportation and Disposal when working within these areas. Work not requiring excavation within these limits, such as work within the existing 96-inch WL will not be paid separately due to PPCA.

1.05. CASH ALLOWANCES

- A. Include the following specific Cash Allowances in the Contract Price under provision of Document 0700 – General Conditions, Paragraph 3.11.
  1. Stipulated sum of \$5,000 for Street Cut Permit Fee(s) as described in Street Cut Ordinance.

1.06. WATER LINE SHUT DOWN

- A. Due to the criticality of the 96-inch water line, Work requiring shutdown shall be performed during low-demand period, between November and March.
- B. Small diameter water line improvements included in this project shall be installed, tested, and placed in service prior to isolating the 96-inch water line.
- C. Should the City not be able to isolate the 96-inch water line or if the line has to be placed back in service prior to completion of the required work, the Project Manager may demobilize the Contractor using the Extra Unit Price “Demobilization/Remobilization” Items included in Specification 02519.

1.07. WORK SEQUENCE

- A. Perform critical locates and provide major project submittals (large diameter pipe and valves) within 30 days from Notice to Proceed. Field verify dimensions and conditions before commencing work. Report any discrepancies to Project Manager before commencing work. Submit documentation of work completion to the Project Manager.
- B. Submit a sequence of construction for review by Project Manager. Proposed sequence of construction shall address proposed method and timing of major

construction activities. Refer to Section 01325 – Construction Schedule (Bar Chart) for specific details. General order of work shall follow:

1. Submit and complete submittals review and begin procurement process for long lead-time items, such as 96-inch valves and pipe fittings. Request for shut down of 96-inch WL will not be granted until all materials required for shut down are on site, and specialty subcontractor is on board.
  2. Construct grid extensions. Complete construction of small diameter water lines. Transfer all existing services to the small diameter water lines before shut down of 96-inch WL.
  3. Request shut down of 96-inch WL. Install line stop valves to facilitate butterfly valve. Install butterfly valve. Once butterfly valve are in place, remove line stop valves.
  4. Condition Assessment. Provide support for assessment by City and specialty subcontractor.
  5. Rehabilitation of 96-inch WL. If required, construct rehabilitation as determined by Engineer and directed by Project Manager.
    - i. The scope and magnitude of rehabilitation is unknown until the assessment phase is complete, but may include items such as: installation of joint bonding clips, regrouting internal joints, installing internal liner, and/or replacing sections of pipe.
  6. Assist with placement in service of 96-inch WL. Install temporary blow-offs as requested by Drinking Water Operations for flushing, disinfection, and assist with placing line in service. Blow-off locations will be determined by DWO.
- C. Schedule Condition Assessment work on 96-inch water line with rehabilitation work to minimize time 96-inch main is out of service. Schedule work for rehabilitation to correspond to section of the 96-inch water line to be shut down for Condition Assessment work.
- D. Coordinate with City of Houston Drinking Water Operations (DWO) of Public Utilities Division to operate valves.
- E. Incorporate Traffic Control Plan and Traffic Control General Notes as shown in the construction drawings in proposed sequence of work.

1.08. COORDINATION OF WORK

- A. Schedule the Work with any other contractors of any trade of discipline working adjacent to the project site prior to and during construction. Schedule Work with contractor performing Work for Texas Department of Transportation (TxDOT) Project CSJ: 0912-72-075 (Clinton Dr. Reconstruction from Port of Houston Gate No. 8 to IH 610 East Loop).
- B. Coordinate with Project Manager and City of Houston Public Utilities Division to isolate existing water lines.
- C. Schedule construction operations with City Project Manager, Traffic Management, Maintenance Division, and private utilities.
- D. Contact METRO regarding facilities and bus routes that may be affected during construction activities.
- E. Coordination of the Work: Refer to Section 01312 – Coordination and Meetings.
- F. Schedule inspection of protective coatings for pipe, witness testing of valves and commissioning and testing of cathodic protection system with the Project Manager.

1.09. CONTRACTOR USE OF PREMISES

- A. A field office is required for this contract.
- B. Comply with procedures for access to site and Contractor's use of rights-of-way as specified in Section 01145 - Use of Premises.
- C. Comply with procedures for site mobilization as specified in Section 01502 – Mobilization. No separate payment for mobilization at each separate construction activity appurtenance location identified on the construction plans, include cost in pay item for mobilization.
- D. Construction Operations: Limited to City of Houston rights-of-way, water line easements and areas shown or described in the contract documents. All construction activities should be performed within the easement illustrated on the construction plans. If at any point the construction activities are needed to be performed outside the easement or ROW; the Contractor shall coordinate with the property owner and acquire written approval from the property owner.
- E. Utility Outages and Shutdown: Provide notification to City and private utility companies (when applicable) a minimum of 48 hours, excluding weekends and

holidays, in advance of required utility shutdown. Coordinate all work with City Project Manager as required.

- F. Work to be done to lines, grades, elevations, and locations are as shown on Drawings.
- G. Prevent overstress of any structure, and any part or member of it, during construction. This applies to existing work and structures affected by operations. Check effect of operations in this regard, and provide temporary supports and connections required to assure safety and stability of both new and existing work and to prevent overstress of any part.
- H. Coordinate activity schedule and extend full cooperation to other contractors who have responsibilities either concurrent with, proceeding or following this Contractor's time along work site. Ensure availability of access, availability of selected portions of this area to others and provide appropriate information for planning purposes to other contractors.
- I. Traffic Control:
  - 1. Traffic control plan responsive to Texas Manual on Uniform Traffic Control Devices (TMUTCD) and sealed by a Registered Professional Engineer is incorporated into Drawings for the known work. If traffic control will be implemented without modification to plan provided, submit letter confirming that decision. If traffic control will be modified from what is shown, submit traffic control plan in conformance with TMUTCD and sealed by Registered Professional Engineer.
  - 2. Traffic control provided is based on the assumption there is no conflict with traffic control from separate projects within construction limits. Coordinate work to prevent traffic control conflicts or submit revised traffic control plans sealed by Registered Professional Engineer and conform to TMUTCD at no additional cost. Submit traffic control plan to Project Manager for approval.
  - 3. Implement groundwater control methods, while maintaining accessibility to driveways and cross streets.
  - 4. Maintain local driveway access to residential and commercial properties adjacent to work areas. Provide temporary driveway access to driveways in accordance with Section 01145 – Use of Premises. Coordinate with business owners and residents.

#### 1.10. STREET CUT ORDINANCE

- A. Excavations on or under pavement in the City’s right-of-way must have a permit. Comply with City of Houston, Texas Ordinance No. 2000-1115, an ordinance amending Chapter 40 or the Code of Ordinances, Houston, Texas, relating to excavating in the Public right-of-way and comply with amendments provided Texas Ordinance No. 2006-0595, including the following fee schedule:

Schedule of Permit Application Fees\*

Initial Application Fee:

Tunneling, Jacking, and Boring only	\$150.00
All other Methods of Excavation	\$200.00

Permit Extension Application Fee:

Other Than Steel Plate Temporary Surface	\$25.00
Steel Plate Temporary Surface	\$50.00
Data Entry Fee for Non-Electronic Submission (per application):	\$50.00

\* All fees/charges are non-refundable

Comply with the latest edition of street cut “New Pavement Repair and Pavement Replacement details.

Contractor shall comply with requirements from Chapter 12 of the City of Houston’s Infrastructure Design Manual (dated July, 2009), entitled Street Cut Requirements.

- B. The bid items for the cost of street cut pavement repair and replacement identified on the drawings are included in the Bid Form Part B (Document 00410 B).
- C. Obtain all required permits and signs prior to performing any methods of Construction involving street excavation in the existing pavement.

1.11. WARRANTY

- A. Comply with warranty requirements in accordance with Document 00700 - General Conditions.

1.12. INTERPRETATION OF CONFLICTS

- A. Should conflicts occur in Contract Documents, request interpretation before proceeding with Work. Such requests shall first be preceded by a diligent investigation into Contract Documents. Contain evidence of such investigation in requests for interpretation.

1.13. GENERAL CONSTRUCTION NOTES

- A. Conduct all construction operations under this contract in conformance with the erosion control practices described in Document 01410 "TPDES Requirements" and Document 01570 "Storm Water Pollution Control" and the Storm Water Pollution Prevention Plans included in the construction drawings. Work identified in this project falls under Small Construction Activity with area disturbed to be one or more acres but less than five acres. TPDES requirements applicable to Small Construction Activity shall apply.
- B. Any pavement (such as wheel chair ramps, pavement curbs, sidewalks, driveways, bikeways, etc.), fences, gates, lawns, irrigation utilities, landscapes, ditches, culverts, inlets, manholes, signs or mail boxes and other improvements that have been disturbed due to utility construction shall be restored or replaced as necessary to pre-construction conditions or better, in accordance with City of Houston standard specifications. The cost for this work shall be incidental to the various bid items, unless otherwise included as a specific bid item.
- C. Call Traffic Management and Maintenance Division of the City of Houston Public Works and Engineering Department when work is scheduled near signal conduits within the City of Houston (713) 881-3179 or (713) 803-3070. Call at least five working days in advance. Contractor responsible for any damages to existing traffic signal cables as a result of construction activities for the project. No separate payment for repair to signal.
- D. Contractor must refer to the City of Houston standard detail drawings included in the City of Houston's "Standard Construction Details for Wastewater Collection Systems, Water lines, Storm Drainage, and Street Paving" dated October, 2002, for any other details not included in Contract Documents.
- E. Coordinate ahead of time with business owners and residents for installation of proposed facilities in encroached areas of the public right-of-way. No separate pay.
- F. Notify Utility Coordinating Committee at 1-800-669-8344 or (713) 223-4567, and City of Houston Department of Public Works and Engineering, Civil Construction at (832) 394-9620, at least 48 hours prior to commencement of work.
- G. Comply with OSHA Regulations and State of Texas laws concerning excavation, trenching and shoring as specified in City of Houston Ordinance No. 87-1457.
- H. Field verify existing facilities shown on Drawings by whatever means necessary (metal detection equipment, probes, excavation, survey, other) prior to excavation

for proposed utilities. Field verification work and utility adjustments shall be completed prior to excavation for proposed utilities. No separate pay item.

1.14. EXISTING UTILITIES

- A. Underground utilities exist in the vicinity of this project. While effort has been made to show locations for existing utilities, they are approximate and other utilities may exist in the vicinity of this project, which are not shown on these plans. The location and grades of existing utilities are based on as-built information. The Contractor shall field determine the exact locations prior to commencing construction.
- B. Public and private utility lines and customer service lines may exist that are not shown on the construction drawings. It shall be the contractor's responsibility to locate, maintain and protect the integrity of these lines. Hand excavation may be required.
- C. Coordinate with the proper utility company to relocate or divert any utility in conflict with proposed construction so as not to disrupt service of same. Restore relocated or diverted utility to its original condition and location upon completion of construction.
- D. The Contractor is fully responsible for damages to existing utilities. If damaged, the Contractor shall replace in compliance with the latest City Specifications and Details, at no additional cost to the City.
- E. Maintain existing water service and sanitary sewer service within construction area until construction of new system is complete.
- F. Verify sizes of water meters that are found in field.

1.15. WATER LINES

- A. This project shall be built by means of open-cut.
- B. All utilities present on these drawings are shown at approximate locations based on best available information. The contractor shall field determine the exact locations prior to commencing construction. Protect and support existing utilities and structures along alignment as necessary for construction. Contractor shall be fully responsible for any and all damages caused by failure to exactly locate and maintain these underground utilities, at no additional cost to City of Houston.
- C. Do not interrupt existing water service without approval of Project Manager. Proposed water lines shall be constructed and service transferred per City of

Houston requirements prior to the commencement of any underground construction that may interfere with existing water service.

D. Determine the sizes of water meters that are found in the field and record on as-built drawings.

E. Small Diameter Water Lines

1. The trenchless construction method will be used for water line construction unless otherwise shown on the construction drawings and project manual or otherwise instructed by the City Engineer. Whenever possible, the contractor shall make an effort to locate pits away from existing concrete or asphalt pavement, sidewalks, driveways, fences, culverts, inlets, manholes, power poles, light poles, trees, lawns, landscapes, existing structures and other improvements. No pits are allowed within driveways, canopy of 6-inch or larger trees or landscapes unless otherwise instructed by the City Engineer.
2. Conduct all construction operation under this contract in conformance with the erosion control practices described in Document 01410 "TPDES Requirements" and Document 01570 "Storm Water Pollution Control" and the Storm Water Pollution Prevention Plans included in the construction drawings. Work identified in this project falls under Small Construction Activity with area disturbed to be one or more acres but less than five acres. TPDES requirements applicable to Small Construction Activity will apply.
3. Any pavement (including wheel chair ramps, pavement curbs, sidewalks, driveways, bikeways, etc.), fences, gates, lawns, irrigation utilities, landscapes, ditches, culverts, inlets, manholes, signs or mail boxes and other improvements that have been disturbed due to utility construction shall be replaced with same quality material or better, according to City of Houston standard specifications. Contractors are required to bid accordingly.
4. After abandoning the existing water line and transferring services to the proposed water line, the Contractor shall contact City of Houston, Drinking Water Operations Branch at 832-395-3800 for retrieving the automatic blow off valve assembly.

#### 1.16 STORM SEWERS

- A. Adequate drainage shall be maintained at all times during pipe dewatering and construction and any drainage ditch or structure disturbed during construction shall be restored to the satisfaction of the owning authority. All construction storm runoff shall comply with the final draft of the Stormwater Management

Handbook for construction activities, as prepared by Harris County, HCFCD and the City of Houston in compliance with NPDES requirements.

- B. Remove siltation in existing and proposed storm sewer systems that result from construction activities associated with this project.

#### 1.16. SANITARY SEWERS

- A. Maintain service to all sewers during construction. Contractor is responsible for locating all sanitary sewer service lateral affected by construction. The City does not warrant the location, or number of any sanitary leads shown in plans.
- B. Remove siltation in existing and proposed storm sewer systems that result from construction activities associated with this project.

#### 1.17. STORM WATER POLLUTION PREVENTION PLAN

- A. The Storm Water Pollution Prevention Plan for this project is governed by Section 01410 TPDES Requirements and the layouts provided in the construction drawings. Comply with Storm Water Pollution Prevention Plan as detailed in the construction documents. Drawings are included as an Appendix to this project manual.

#### 1.18. PAVEMENT REPLACEMENT

- A. Contract Drawings identify anticipated pavement to be removed and replaced.
- B. Contractor's Trench Safety System (reference Section 02260), special shoring (reference Section 02317, 1.08, 3.04D, 3.05F, H & I), and means and methods shall protect adjacent lanes of pavement that are not scheduled for removal and replacement. Assume risk for damaged pavement and, unless otherwise directed by City, remove and replace damaged pavement in accordance with Section 02951 and Street Cut Ordinance at no additional cost to City. Damage includes but is not limited to pavement cracks, chipped or broken pavement, and voids under adjacent pavement that is to remain. City may also assess additional costs to Contractor related to damaged pavement such as City laboratory testing and inspection.
- C. Where work requires cutting existing pavement, provide positive shoring extending minimum of 6-inches above pavement surface.
- D. Unless otherwise directed by City, provide full-depth saw-cut 2-inch maximum away from pavement construction joints (ex., deformed metal joints, tooled joints, partially saw cut joints, etc.). Saw cut minimum distance from joint necessary for clean straight edge, and if joint is at crown, saw cut as close to crown as possible.

- E. Dowels at existing expansion joints shall be saw cut to eliminate possible damage to adjacent pavement scheduled to remain. The cost for this saw cut is incidental to pavement removal and disposal pay item(s).
- F. If existing pavement thickness is less than 7-inches thick, the dowels will be deleted and the Non Doweled Joint detail will be used instead, unless directed otherwise by City.
- G. Pavement that is scheduled to be removed and replaced shall be removed no earlier than fourteen (14) days prior to excavating to install new utilities and/or pavement.

1.19. ADDITIONAL CONDITIONS FOR SUBSTANTIAL COMPLETION

- A. In addition to requirements outlined in Document 00700 – General Conditions, for Contractor to be substantially complete with the Work and call for inspection by Project Manager to confirm, the following conditions must be met or completed in accordance with Contract Documents:
  - 1. All Pay items complete.
  - 2. All testing shall be completed and accepted by Project Manger.
  - 3. Notify Project Manager to complete Texas Department of Licensing and Regulation Post Construction Inspection of pedestrian elements for Texas Accessibility Standards.
  - 4. Draft O&M manuals shall be approved by Project Manager.
  - 5. All safety related systems and equipment shall be installed, accepted by manufacturer's representative and approved for use.
  - 6. All safety related work including pavement striping, signing, and signalization to be complete.
  - 7. No additional condition described in Paragraph 1.09 may be included in Contractor's punch list.

1.20. PIPELINES

- A. Refer to Specification Section 02317 – Excavation and Backfill for Utilities for Specific requirements on excavation near existing large diameter water lines.

1.21. SOIL CONDITIONS & ENVIRONMENTAL SITE ASSESSMENTS (ESA)

- A. Bidder(s) must consider soil conditions and ESA findings provided in Geotechnical Report, and ESA Phase I & II Reports, respectively. These reports have been provided on a CD, which is attached to the Project Manual.

1.22. POTENTIALLY PETROLEUM CONTAMINATED AREAS

- A. PPCA was identified within project limits. Refer to Phase I & Phase II ESA Reports prepared by Geotest Engineering for additional information.
- B. Inform Project Manager of any observed soil contaminations. Where soil contamination exists, test soil needs and take proper action as described in Section 02105 - Chemical Sampling and Analysis and Section 02120 – Off-Site Transportation and Disposal.

1.23. SAFETY SYSTEMS

- A. Drawings and any attendant drawings (including shop drawings, as built drawings or record drawings), addenda, change orders and specifications, prepared by Lockwood, Andrews & Newnam, Inc., do not extend to or include designs or systems pertaining to the safety of the construction contractor or its employees, agents, or representatives in their performance of the work. The seal of Lockwood, Andrews and Newnam's registered/licensed professional engineers hereon does not extend to any such safety systems that may now or hereafter be incorporated in these plans. Prepare or obtain appropriate safety systems, including Drawings and specifications required by House Bill 662 and 665 enacted by the Texas Legislature.

1.24. UTILITY SERVICE LINES

- A. Public utility service lines (water and sanitary sewer) not shown on Drawings. Anticipate such service lines exist and repair if damaged during construction. No separate pay will be made for repairs. The cost shall be incidental to the Work.

1.25. CENTERPOINT ENERGY ELECTRICAL FACILITIES

- A. Overhead lines may exist on property. We have not attempted to mark those lines since they are clearly visible. All lines should be located prior to construction. Texas law, section 752, health & safety code, forbids all activities in which persons or things may come within six (6) feet of live overhead high voltage lines. Parties responsible for work, including contractors, are legally responsible for safety of construction workers under this law. This law carries both criminal and civil liability. To arrange for lines to be turned off or removed call Centerpoint Energy at (713) 207-2222.

- B. Location of CenterPoint Energy electrical facilities , are approximate and have not been verified by actual field check
- C. Hand dig within one (1) foot of CenterPoint Energy underground electrical facilities.
- D. Overhead lines exist on and adjacent to the project site, which may be live during the construction period. Facilitate work so as not to interrupt services unless permitted by CenterPoint Energy.
- E. Exercise caution when working in the vicinity of CenterPoint Energy electrical cable, underground wiring and overhead lines.
- F. When excavation within 5 feet and beneath a depth of 3 feet below existing grade of a utility pole or anchor to which CenterPoint Energy facilities are attached, CenterPoint Energy will secure or brace these poles and anchor prior to excavation. The cost of CenterPoint Energy's efforts is incidental. "No separate pay item"

1.26. CENTERPOINT ENERGY UNDERGROUND GAS FACILITIES

- A. Locations of Center Point Energy main lines (to include Unit Gas Transmission and/or Industrial Gas Supply Corporation where applicable) are shown in an approximate location only. Service lines are not usually shown. The contractor shall contact the Utility Coordinating Committee at (713) 223-4567 or 1-800-669-8344 a minimum of 48 hours prior to construction to have main and service lines field located.
- B. When Center Point Energy pipeline markings are not visible, call (713)967-8037 (7:00 am to 4:30 pm) for status of line location request before excavation begins.
- C. When excavating within eighteen inches (18") of the indicated location of CenterPoint Energy facilities, all excavation must be accomplished using non-mechanized excavation procedures.
- D. When Center Point Energy facilities are exposed, sufficient support must be provided to the facilities to prevent excessive stress on the piping.
- E. The contractor is fully responsible for any damages caused by his failure to exactly locate and preserve these underground facilities.
- F. All gas facilities are the property of CenterPoint Energy, unless otherwise noted.

1.27. SBC (Telephone Facilities)

- A. The locations of SBC utilities are shown in an approximate way only. The contractor shall determine the exact location before commencing work. He agrees to be fully responsible for any damages and all damages, which might be occasioned by his failure to exactly locate and preserve these underground utilities.
- B. Call 1-800-344-8377 a minimum of 48 hours prior to construction to have underground lines field located.
- C. When excavation within eighteen inches (18") of an indicated location of SBC facilities, all excavations must be accomplished by using non-mechanized excavation procedures. When boring, the contractor shall expose SBC facilities.
- D. When SBC facilities are exposed, the contractor will provide support to prevent damage to the conduit ducts or cables. When excavating near telephone poles, the contractor shall brace the pole for support.

## PART 2 P R O D U C T S

### 2.01. REPLACEMENT PIPE

- A. Any new replacement 96-inch pipe must be mortar coated steel, in accordance with Specification 02518 and 02519.

## PART 3 E X E C U T I O N (Not Used)

END OF SECTION

Section 02519

**ASSESSMENT SUPPORT AND  
REHABILITATION OF EXISTING WATER LINES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Rehabilitation and replacement of existing pipe and appurtenances.
- B. Contractor support for the City or their assigned representatives to perform internal Condition Assessment of existing large diameter water lines.

**1.02 MEASUREMENT AND PAYMENT**

- A. Temporary Lockout/Tagout Devices: Payment is on a unit price basis for each isolation valve. 50% of the unit price will be paid once the lockout system is in place and operating as specified. The remaining 50% will be paid once the tagout operations are completed and removed.
  - a. Prepare for shutdown by identifying the location and type of the isolation valves that will be closed to permit dewatering and entry. Identify whether valves have 2-inch operator nut or handwheel and if they are accessible in a vault, manhole, or buried with an A-box.
  - b. Submit product data for lockout/tagout devices capable of preventing valves identified by Contractor and/or City from being opened.
  - c. The City of Houston Public Utilities Division will handle, at no additional cost to the Contractor, operations involving opening and closing valves. The Contractor is not permitted to operate existing valves.
  - d. After the valves are closed, install lockout/tagout devices on each isolation valve.
  - e. All lockout/tagout devices must remain in place until work requiring entry of the line is complete. After completion of the work requiring entry of the water line, and the water line is ready for service, remove all lockout/tagout devices. Notify all affected personnel that the lockout or tagout has been removed.
- B. Confined space entry assistance: Payment is on a unit price basis for each day this assistance is required by Project Manager for performing internal inspections and includes all items necessary to provide assistance with confined space entry for City

Representatives for assessment purposes. Confined Space Safety for contractor's Work and workers is considered incidental to the Work and should be included in applicable pay items.

1. Contractor assistance shall include providing OSHA trained supervisor and attendants with two-way radios, air blowers, air monitoring equipment, personal protective equipment, other safety equipment as appropriate, lighting, and use of an additional portable pump to maintain water level in pipe due to minor leaks.
  2. Provide lockout-tagout of valves that are to remain closed during manned entry. Proposed method of lockout-tagout should be submit for review, discussed in the field with all pipe entrants, and confirmed prior to each entry.
  3. Any required excavation and dewatering of pipe and removal and replacement of access manway flanges to provide adequate air circulation will be paid under separate Pay Items included in Document 00410.
  4. Cost of confined space support for contractor's or subcontractor's crews to perform work and for Project Manager's construction inspection of work should be included in Pay Items requiring entry.
- C. Dewater water line - Payment is on a unit price basis per foot of 96-inch water line, and includes all items necessary for dewatering (draining) each waterline for the internal condition assessment of the pipe interior (requiring manned entry) as specified in Specification 01110 – Summary of Work. Additional dewatering required for all other pay item work is incidental to the pay items for the other work.
1. Contractor is to utilize adequate size and number of pumps needed to remove water in a timely manner, anticipate using a 6-inch pump at each low point in the line for large diameter water line work. Contractor is responsible for monitoring the pumping rates to avoid the flooding of any private property, streets or sidewalks.
  2. The line may be partially dewatered by gravity using drain outlets; however, much of the effort will require pumping from within the pipe. In order to maneuver pump suction hoses or submersible pumps into low areas in the line, anticipate manned entry, and pumping in stages to lower the water level.
  3. Continuous pumping due to leaky valves that may require periodic or continuous pumping during Work.
- D. Pressure Washing of Water Line: Payment is on a per linear foot unit price basis and includes all equipment, materials and labor necessary to pressure wash and dispose of resulting water and debris from interior pipe surface.
- E. Temporary Blow-offs: Payment is on a unit price for each location required.

- a. Payment includes installation of temporary blow-off piping and valves on existing outlets on existing large diameter water lines, removal, coordination and assistance with City employees. Blow-off piping may range from 2-inches to 6-inches in diameter, based on the diameter and location of existing outlets. Blow-off sizing should be coordinated with Drinking Water Operations.
  - b. Blow-offs for flushing and testing new small diameter water lines installed through this contract is considered incidental to installation of those new water lines.
  - c. Contractor is responsible for locating and maintaining drainage in order to prevent flooding during flushing in accordance with Specification 02514.
- F. Electromagnetic Surveying. Contractor shall procure and utilize the services of a specialty electromagnetic inspection subcontractor (the specialty subcontractor) to provide and internal, non-destructive survey to identify broken prestressing wires, pipe lengths, and outlet locations along the length of the pipe.
1. These services will be paid on the basis of the number of feet surveyed, paying 10% upon Mobilization of specialty subcontractor, 50% upon completion of field work, and 40% upon acceptance of a report of findings.
- G. Dewatering, Remove and Partial Abandonment of Existing PRV 55: Payment is on a lump sum basis for the pressure reducing valve to be abandoned. Payment includes the following:
1. Dewatering, removal of existing pressure reducing valve, piping, slab and supports; includes installing 20-inch gate valve, new piping and backfill per drawings.
- H. Remove and Dispose Existing Access Manway Flange: Payment is on a unit price basis for each access manway flange to be removed. Payment includes the following:
1. Remove existing access manway flange/cover; includes removal of blind flange cover bolts and nuts, removal of blind flange cover, removal and replacement of gasket. Existing flanges may be 18-, 20- or 24-inch diameter.
- I. Remove and Dispose Air Release Valve: Payment is on a unit price basis for each air release valve assembly removed. Payment includes the following:
1. Remove existing access manway flange/cover; includes removal of existing outlet and gate valve, blind flange cover bolts and nuts, removal of blind flange cover, removal and replacement of gasket
  2. Remove existing vent piping and existing bollards.

- J. Remove and Dispose Rectifier and Anode Junction Box: Payment is on a unit price basis for each rectifier and anode junction box removed. Payment includes the following:
1. Remove and dispose air-cooled rectifier and anode junction box; includes reconnecting existing leads from proposed facilities.
- K. Remove and Replace 6" Vent Piping: Payment is on a unit price basis for each vent pipe to be removed and replaced. Payment includes the following:
1. Remove existing 6" vent piping and connect to new 6" vent piping; includes removal of existing bollards and installing 3 new bollards with concrete foundation.
- L. Access Manway Flange: Payment is on a unit price basis for each access manway (blind) flange installed. Payment includes the following:
1. Install new flange/cover of matching dimensions with 6-inch flanged outlet and gate valve; includes installing new blind flange cover with new bolts, nuts and gaskets.
  2. New blind flanges may be 18-, 20- or 24-inch diameter, and should match existing flange removed.
  3. If deemed acceptable, by Project Manager, existing flange may be cleaned, retrofitted as needed (to provide 6-inch outlet and gate valve, and remove baffle), recoated and reused, at the same cost.
- M. 4" Air Inlet/Vacuum Release Valve: Payment is on a unit price basis for each 4-inch air release valve assembly installed. Payment includes the following:
1. Install new flange/cover of matching dimensions with 4-inch flanged outlet and gate valve; includes installing new blind flange cover with new bolts, nuts and gaskets.
  2. Connect 4-inch vent piping and install 3 bollards with concrete foundation.
- N. Reconnect Existing Vacuum Vaults, with 6-inch GV w/Box: At three locations, 6-inch GV are to be installed at existing 6-inch connections between the 96-inch WL and vacuum relieve valve vaults. This pay item shall be full compensation for excavation, cutting, removing and reinstalling 6-inch piping, fittings, installation of a new 6-inch GV with Box, and backfill.
- O. Remove and Replace Butterfly Valve Seat: Payment is on a unit price basis for each diameter of valve. Pipe dewatering and access will be paid separately.
- P. Recoat Existing Butterfly Valve Disk: Payment is on a unit price basis for each diameter BFV that is being recoated. Pipe dewatering and access will be paid separately.

- Q. Remove and Replace Joint Grout:
1. Payment is on a unit price basis for each size and type of joint (whether interior or exterior), and includes effort to clean loose or damaged grout, remove rust and scale, brush clean steel surfaces, and apply new grout.
  2. Excavation for exterior grout and dewatering for interior grout will be paid by separate pay items. Joint grout for new joints installed under this project are considered incidental to the installation of new water line.
- R. Excavation Around Existing Pipe:
1. Payment is on a unit price basis for excavation and shoring around the existing 96-inch WL in accordance with Specification Section 02317.
  2. Anticipate that hand excavation and non-standard trench shoring may be necessary. The entire length of pipe (16 feet), plus a minimum of 2 feet beyond the joints on each side (a total of 20 feet) should be exposed.
  3. The item may be used for each excavation around the complete circumference of the existing pipe, including installation of tapping sleeves, BFVs, or to permit observations of the existing pipe exterior, and may or may not be followed by removal and replacement of the pipe section.
- S. 24-inch Access Manway on New Steel water line: Payment is for each 24" flanged outlet provided on a pipe section, complete in place, including bolts, gaskets, and blind flange with 6-inch flanged outlet and 6-inch gate valve, as shown in Drawings.
- T. Remove and Replace Butterfly Valve Actuator: Payment is on a per each unit cost basis. Actuator shall be compatible with the existing BFV, and manufactured in accordance with Specification 02522. Removal and replacement of existing manhole will be paid separately, if needed.
- U. Procurement, Removal and Installation of large Diameter Water Line. Items have been included separately for the procurement and installation of new large diameter water lines, and removal of existing large diameter water lines.
1. Procure Water Line:
    - a. When shown on drawings, payment will be on a Unit Price basis per foot installed. Include price of required outlets or flanges, and loose butt-straps when shown in Drawings.
    - b. For Extra pipe sections:
      - 1) One "Section" is defined as a closure piece, consisting of two 8-foot pipe pieces and a butt-strap for closure. Pipe ends are to be

manufactured or adapted to fit the bell/spigot joints of the existing PCCP.

- 2) Anticipate Extra pipe will need to be stored at a location off-site and moved to the site for use. If not used, the pipe should be delivered to a City facility as directed by the Project Manager. Cost to relocate pipe should be included in Pay Item.

2. Cut and Remove Existing Prestressed Concrete Cylinder Pipe (PCCP):

- a. When shown on drawings, payment will be on a Unit Price basis per foot to excavate, cut and remove each full section of each diameter of pipe removed. Include effort to remove water line appurtenances within the same trench as required.
- b. For Extra pipe sections:
  - 1) Payment is for each 16-foot section of pipe removed. Effort to excavate and shore the pipe will be paid separately.

3. Install new Mortar Coated Steel Water Line:

- a. When shown on drawings, payment will be on a Unit Price basis per foot installed.
- b. For Extra pipe sections, payment will be for each 16-foot closure section installed between two existing pipe sections.
- c. Installation of pipe by open cut methods, all depths; including welding in accordance with Specification 02511 and 02518 (LD).
- d. Payment includes labor, materials and equipment necessary to install the pipe, connect to the existing pipe (may require an adapter or built up end) and or adjacent new pipe, and backfill.

- V. Demobilization/ Remobilization – This Item is to be used in the event that the Project Manager requires the contractor to discontinue Work and return at a later date to complete Work. Contract Time will be suspended during the demobilized period, or additional time may be added to the contract for the demobilized period, including time to break down and set back up. Some Unit Price Pay Items identified in Document 00410 may have to be repeated (eg: Dewatering 96-inch WL, Excavation). These repeated work items shall be paid under their respective Unit Price Items the appropriate number of times the work is performed. Contractor shall notify the Project Manager which items are anticipated to be repeated upon notice of demobilization and work conscientiously to minimize repeated work. Payment also includes effort to Remobilize following the demobilized period: All equipment and materials, including traffic control, should be returned to the site and temporary restoration measures will be removed.

1. Level 1 Demobilization/Remobilization: To be used prior to dewatering and interior work within the 96-inch WL. Payment will be made for each occurrence, and includes, but not limited to the following:
  - a. Remove equipment, materials, waste products, temporary facilities, storage boxes, and other resources from site.
  - b. Temporary backfill open excavations. Backfill shall comply with applicable specifications, including type of materials and compaction requirements.
  - c. Reopen roads, driveways, sidewalks and other public facilities. Temporary restoration measures shall comply with applicable Federal, State and City regulatory requirements. Temporary restoration shall include but not be limited to temporary asphalt, pavement striping, traffic control signage and street signage.
  - d. Remove temporary traffic control from project site area.
  - e. Coordination with and rescheduling of proposed work and subcontractors.
2. Level 2 Demobilization/Remobilization: To be used after the 96-inch water line has been breached, and dewatering and interior work within the 96-inch WL has begun. Payment will be made for each occurrence, and includes, but not limited to the following:
  - a. Level 1 Demobilization/Remobilization items
  - b. Cleaning and removal of work-related debris from pipe interior.
  - c. Reinstallation of access manway flanges.
  - d. Remove Temporary Line Stop Valves.
  - e. Preparatory work to assist the City with flushing and disinfection to place line back in service.

W. Refer to Section 01270 - Measurement and Payment for unit price procedures.

X. Stipulated Price (Lump Sum): If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

### 1.03 REFERENCES

- A. ANSI A 21.11/AWWA C111 - Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
- B. ANSI/NSF Standard 61 - Drinking Water System - Health Components.
- C. ASTM A 36 - Standard Specification for Carbon Structural Steel.
- D. ASTM A 536 - Standard Specification for Ductile Iron Castings.
- E. ASTM A 126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
- F. ASTM B 21 - Standard Specification for Naval Brass Rod, Bar, and Shapes.

- G. ASTM B 98 - Standard Specification for Copper-Silicon Alloy Rod, Bar, and Shapes.
  - H. ASTM B 301 - Standard Specification for Free-Cutting Copper Rod and Bar.
  - I. ASTM B 584 - Standard Specification for Copper Alloy Sand Casting for General Application.
  - J. ASTM E 165 - Standard Test Method for Liquid Penetrant Examination.
  - K. ASTM E 709 - Standard Guide for Magnetic Particle Examination.
  - L. ASTM F 1674 - Standard Test Method for Joint Restraint Products for Use with PVC Pipe.
  - M. AWWA C 206 - Standard for Field Welding of Steel Water Pipe.
  - N. AWWA C 207 - Standard for Steel Pipe Flanges for Waterworks Service - Sizes 4 Inches through 144 Inches.
- 1.04 SUBMITTALS
- A. Conform to requirements of Section 01330 - Submittal Procedures.
  - B. Conform to submittal requirements of applicable Section for type of pipe used.

## PART 2 P R O D U C T S

### 2.01 PIPE MATERIALS

- A. Install pipe materials which conform to following:
  - 1. Section 02501 - Ductile Iron Pipe and Fittings.
  - 2. Section 02507 - Prestressed Concrete Cylinder Pipe.
  - 3. Section 02518 - Steel Pipe and Fittings for Large Diameter Water Lines.
  - 4. Section 02613 - Bar-Wrapped Steel Cylinder Pipe.
- B. Conform to American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 61 and have certified by an organization accredited by ANSI.
- C. Type of pipe materials shall match existing pipe, unless specifically identified on Drawings.

PART 3 EXECUTION

3.01 PREPARATION

- A. Conform to applicable installation specifications and details for types of pipe used.
- B. Employ workmen who are skilled and experienced in laying pipe of type and joint configuration being furnished.

3.02 GENERAL REQUIREMENTS

- A. Excavation around existing pipe:
  - 1. When excavating around an existing large diameter water line, follow requirements described in Specification Section 02317.
  - 2. Excavate the shore trench a width of at least 4 feet wider than pipe, and 4 feet longer than the length of pipe to be exposed to permit observations of circumference of pipe.
  - 3. Provide field surveyed (horizontal and vertical elevations) "as-builts" existing underground utilities encountered and all new work installed.
- B. Removal of existing pipe:
  - 1. Where directed to remove existing pipe sections cut around the circumference of the existing pipe, whether with saw, torch, or other means.

- 2. **For PCCP, no partial pipe sections may be removed. Completely remove an entire section of pipe between existing joints. Remove pipe section without damaging adjacent pipe joints. Contractor shall be responsible for repairing damage caused by their work to existing pipe not intended for removal.**
  - a. **All "cuts" must be made on pipe sections intended to be removed. The entire bell or spigot on pipe sections to remain in place should not be disturbed.**
- 3. **Only one pipe section may be cut at a particular location, unless approved by Engineer, regardless of how many are removed. Once the first section is cut and removed, the adjacent pipe sections to be removed (if any) shall be pulled from their joints intact.**

- 4. All new pipe to be designed, manufactured and installed in accordance with Specification Section 02511, and with materials compatible with the existing pipe.

For example, for replacing and existing PCCP, mortar coated and lined steel pipe with ends built up to match PCCP bells and spigots shall be used.

C. Pipeline Dewatering (Draining) and Cleaning:

1. Contractor is to utilize adequate size and number of pumps needed to remove water in a timely manner and to maintain no more than 12-inches of water.
2. Provide continuous pumping as needed due to leaking valves that may be required to keep water line dewatered during internal inspection.
3. Avoid surface runoff or groundwater from entering water line.
4. The pipe shall be dewatered and accessible for a minimum of fourteen (14) full working days, Monday through Friday, between 8:00 AM and 5:00 PM, excluding City holidays, as allowed by traffic control plans and water line shut down requirements.
5. Contractor shall schedule the dewatering of each phased segment of pipe for condition assessment as early as possible within the waterline shutdown period and shall provide a minimum of four (4) business days (excluding holidays) prior written notice of when the phased segment will be dewatered and ready for safe confined space entry for the City's condition assessment.
6. Each section of water line required to be cleaned shall be pressure washed
  - a. Limit pressure washing to less than 500 psi spray. The spray pressure should be monitored and adjusted as necessary to clean the pipe interior without damaging joint grout and mortar lining of the pipe.
  - b. Wash water is to be disposed of lawfully using a vacuum truck, or other approved method, avoiding discharge into any City storm facility or Harris County Flood Control drainage facility, unless prior approval is granted.

D. Internal manned entry:

1. Provide positive shut-off and lockout-tagout of all valves prior to entering pipe.
  - a. It is preferred to provide two valve shutoff (two valves closed between the work zone and source of water pressure), whenever possible. In this case, it is also preferred to relieve the pressure between the two closed valves (but not drain water from the pipe between the valves).
2. Provide confined space entry support to City and their representatives for internal manned entry.

- a. Provide certified attendants at each surface access point within the limits to be assessed. Attendants shall be able to communicate with assessment crew at all times.
  - b. Provide confined space safety equipment for City or their representatives (at least 3 people) intended the specific spaces to be entered. Verify calibration and expiration dates on all equipment.
- E. Joint Grout (Concrete Cylinder Pipe, Bar Wrapped Pipe, Mortar Coated or Lined Steel Pipe):
1. The City or their representative will identify existing joints for regrouting.
  2. Clean joint of all loose or damaged grout, rust, scale, or other debris, and wire brush to clean steel surfaces where accessible.
    - a. Make note of existing joint type (welded, O-ring gasket, etc., and whether joint bonding clips or cables are present. Provide this information to the Project Manager before installing grout, and document in “as-built” drawings.
    - b. If directed, install new joint bonding devices in accordance with Specification 15640.
  3. Prepare grout in small batches to prevent stiffening before it is used. Do not use grout which has become so stiff that proper placement cannot be assured without retempering. Use grout for filling grooves of such consistency that it will adhere to pipe.
  4. Surface Preparation: Remove defective concrete, laitance, dirt, oil, grease and other foreign material from concrete surfaces with wire brush or hammer to sound, clean surface. Remove rust and foreign materials from metal surfaces in contact with grout.
  5. Grouting Exterior Joint Space: Hold wrapper in place on both sides of joint with minimum 5/8-inch-wide steel straps or bands. Place no additional bedding or backfill material on either side of pipe until after grout band is filled and grout has mechanically stiffened. Pull ends of wrapper together at top of pipe to form access hole. Pour grout down one side of pipe until it rises on other side. Rod or puddle grout to ensure complete filling of joint recess. Agitate for 15 minutes to allow excess water to seep through joint band. When necessary, add more grout to fill joint completely. Protect gap at top of joint band from backfill by allowing grout to stiffen or by covering with structurally protective material. Do not remove band from joint. Proceed with placement of additional bedding and backfill material.

6. Interior Joints for Water Lines: Clean joint space, wet joint surfaces, fill with stiff grout and trowel smooth and flush with inside surfaces of pipe using steel trowel so that surface is smooth. Accomplish grouting at end of each work day. Obtain written acceptance from Project Manager of inside joints before proceeding with next day's pipe laying operation. During inspection, insure no delamination of joint mortar has occurred by striking joint mortar lining with rubber mallet. Remove and replace delaminated mortar lining.
7. Butterfly Valve Rehabilitation:
  - a. Where directed, remove and replace actuators on existing butterfly valves.
    - 1) Prior to purchasing new actuator, identify markings on existing actuator (make, model, serial number, etc.). Submit new actuator of similar or larger size, compatible with existing valve.
    - 2) Procure and install new actuator in accordance with City of Houston Specification 02522 – Butterfly Valves.
  - b. Where directed, field replace the rubber seat which may be located around the perimeter of the disk edge, or around the inner circumference of the valve body, depending on the original manufacturer's design.
  - c. Verify valve and valve seat type and check for availability of replacement seat parts prior to removing existing seat.
    - 1) New seat to be Buna-N or approved equal manufactured to specifications of original product.
    - 2) Anticipate removal and re-installation of stainless steel retainer glands and bolts.
  - d. Where directed, remove any existing coatings on the valve disk and around the inner circumference of the valve body which have become loose or disbonded. In those areas, expose the bare metallic surface. Intact coatings may remain in place, but must be thoroughly cleaned and prepared (roughened) for recoating.
    - 1) Coat with 2 part epoxy coating certified for potable water condition in accordance with City of Houston Specification 02522.
8. A specialty electromagnetic inspection subcontractor (the specialty subcontractor) will be required to provide specialty inspection services to identify broken prestressing wires. The specialty contractor shall also attempt to determine if joints along the pipe are electrically continuous (bonded).

- a. The specialty contractor shall have at least 10 years of experience and with pipe of this diameter and type (Embedded Cylinder PCCP).
- b. Contractor shall provide schedule coordination and any necessary traffic control and confined space safety support required by their specialty subcontractor.

### 3.03 DISINFECTION OF WATER LINES

- A. Following the assessment and all repairs, remove construction debris or foreign material and thoroughly broom clean and flush piping systems. Provide equipment and labor for cleaning. City will inspect water line for cleanliness prior to reinstalling access manway flanges and filling.
- B. Contractor to provide support during filling, disinfection and flushing by providing reasonable labor, blow-off piping at all new manway flanges, and traffic control where needed.
- C. Conform to requirements of Section 02514 - Disinfection of Water Lines.

### 3.04 FIELD HYDROSTATIC TESTS

- A. Unless otherwise specified, no hydrostatic test shall be performed on existing pipe.

END OF SECTION

Section 02614

TEMPORARY PIPE PLUG

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Temporary pipe plugs for connecting existing water mains and isolating sections of existing PCCP water mains.

1.02 MEASUREMENT AND PAYMENT

- A. Unit Prices.

- 1. Payment for temporary plug valves is on basis of each temporary pipe plug (Line Stop Valve) installed as required by the Project Manager. Payment will be made using a combination of three separate Pay Items:
  - a. Tapping Sleeve for Temporary Pipe Plug.
    - 1) Payment is on a unit price basis for installation of tapping sleeve(s) for each temporary pipe plug in place. Payment includes labor, equipment and material required to install tapping sleeves for temporary pipe plug including but not limited to excavation and concrete blocking, required for the installation of a temporary pipe plug. Sleeve and tap diameter shall be sized for the plug to be installed. Payment also includes installation of secondary sleeves and taps for additional outlets required for the tapping and plugging process.
  - b. Temporary Pipe Plug Installation and Removal.
    - 1) Payment is on a unit price basis for each temporary pipe plug installation and removal. Payment includes labor, equipment and material to install temporary pipe plug, remove the pipe plug and complete closure after removal of plug.
  - c. Temporary Pipe Plug in place.
    - 1) Payment is on a unit price basis for each temporary pipe in place. Payment includes labor, equipment and material required and rental duration required for the temporary pipe plug to be in place as required for construction 96-inch butterfly valves complete in place.
  - d. Extended Rental for Temporary Pipe Plug.
    - 1) Payment for this Extra Unit Price Item shall be considered full compensation for extended rental of plugging equipment, for each plug in

Addendum No. 1

02614-1

04/02/2015

place. Payment also includes labor, equipment and material required extended plugging equipment rental process during the extended period of time.

- 2) This extra unit price can only be used due to any intermediate delays caused by City/City Project Manager during in the 96-inch butterfly valve construction activities or Reinstallation of Temporary Pipe Plug for any unforeseen reasons or as approved by City project manager.

2. Refer to Section 01270 - Measurement and Payment for unit price procedures.

- B. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

### 1.03 REFERENCES

- A. ASTM A 36 - Standard Specification for Carbon Structural Steel.
- B. ASTM A 105 - Standard Specification for Carbon Steel Forgings for Piping Applications.
- C. ASTM A 181 - Standard Specification for Carbon Steel Forgings, for General-Purpose Piping.
- D. ASTM A 283 - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates.
- E. AWWA C 111 - American National Standard for Rubber Gasket Joints for Ductile- Iron Pipe and Fittings for Water.
- F. ASME B16.5 - Pipe Flanges and Flanged Fittings.
- G. Hanson Pressure Pipe – Products and Services Guide – Tapping Procedures

### 1.04 DEFINITIONS

- A. Temporary pipe plug valves – plugging mechanisms used for isolating sections of existing water line.
- B. Plugged – when 95 percent or more of pipe’s existing water flow has been stopped.

### 1.05 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit qualifications and certificate from manufacture certifying operators are qualified to operate manufacturer’s pipe plugging equipment.
- C. Submit qualifications of hot tap operating technician as being certified by manufacturer to operate hot tapping equipment.

- D. Submit qualifications of manufacturer verifying a minimum of 5 years of experience performing hot tapping operations.
- E. Submit six (6) sets of shop drawings for approval prior to start of fabrication. Identify any special procedures required during and or after tapping procedure for the specified pipe material being tapped.
- F. Submit requirements for flow and pressure in line during tapping, plugging, and plug removal stages of the work. Include anticipated durations of each step.

## PART 2 PRODUCTS

### 2.01 MATERIALS

- A. General:
  - 1. Conduct welding in accordance with applicable codes and standards. Stress relieve all welds.
  - 2. Clearly mark pipe plug saddle and attachments to permit proper alignment in field and to ensure ends are properly matched when installed around pipe.
- B. Saddle:
  - 1. Provide as a minimum saddle and attachments fabricated in accordance with ASTM A36 or ASTM A283 standards. Provide line plugging saddle which conforms to and reinforces existing pipe.
  - 2. Saddle and attachments used in hot tapping procedure are to be in compliance with maximum working pressure of system as specified and/or shown on Drawings.
  - 3. Provide flanges manufactured in accordance with ASTM A-181, ASTM A-105 grade steel, ASME B16.5 in sizes up to 24 inches and MSS-SP 44 in sizes 26 inches and larger.
  - 4. Provide external bolting, studs and nuts consisting of corrosion resistant, high strength, low alloy (AWWA C 111). As an option, stainless steel 18-8 type 304 bolts, studs and nuts may be used.

## PART 3 EXECUTION

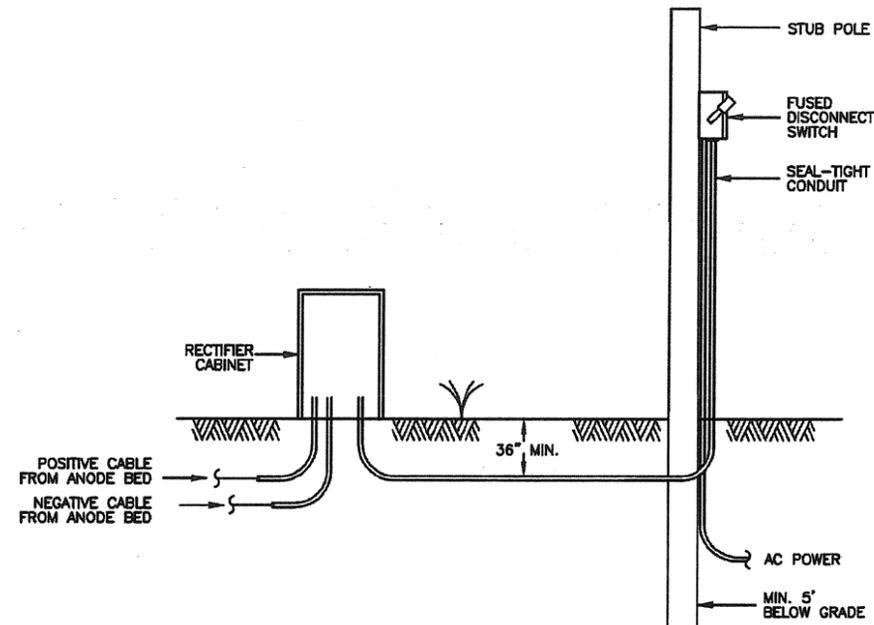
### 3.01 INSTALLATION

- A. Conduct pipe excavation in accordance with Section 02317 - Excavation and Backfill for Utilities.
- B. Plan pipe plugging procedure in such a manner and at such hours as to least inconvenience public. Notify City Engineer at least 48 hours in advance of pipe plugging procedure.

- C. Do not operate valves on mains in use by City. City of Houston Utility Operations Division will handle, at no cost to Contractor/subcontractors, operations involving opening and closing valves for wet connections. Provide at a minimum 2 weeks notice for valve operations.
- D. Conduct plugging operations in presence of Project Manager. Continue pipe plugging work without interruption until pipe plugging operation is complete and water line is plugged. Perform work on connection to water main or associated work requiring installation of an isolation valve continuously and without interruption.
- E. Pipe Preparation:
  - 1. Thoroughly clean pipe down to factory supplied outside diameter. Carefully inspect pipe, especially at point where tap will take place. Do not tap within 4 feet of an existing joint unless approved.
  - 2. Diameter of tap should be no greater than 75% of pipe diameter, without approval.
  - 3. Cement mortar coating may be carefully removed within limits of tapping assembly outlet, exposing prestressing wire, prior to installing saddle.
- F. Saddle Installation:
  - 1. Place top half of saddle with flanged outlet at the 12 o'clock position on pipe, unless otherwise approved by Project Manager.
  - 2. Install saddle and attachments in accordance with manufacturer's recommendation. In no case will saddle or attachments be retrofitted while it is on pipe, unless otherwise approved by Project Manager. Any misalignment in saddle installation will require removal of saddle from pipe.
  - 3. Fill space between saddle and pipe with quick-set grout.
  - 4. Pour concrete foundation around tapping saddle. Foundation dimensions and materials to be designed by contractor.
- G. Remove prestressing wire and outer concrete core within opening of tapping saddle.
- H. Install gland with O-ring and tighten bolts to provide compression seal between O-ring and steel cylinder.
- I. Pressure Testing: After saddle is attached and before line tapping procedure begins, pressure test saddle in accordance with Section 02525 - Tapping Sleeves and Valves.
- J. Tap through cylinder and inner concrete core, and retrieve pipe coupon. Tap Procedure: Perform tap in accordance with Section 02512 - Water Tap and Service Line Installation and Section 02525 - Tapping Sleeves and Valves.

- K. Remove tapping assembly and mount plugging assembly.
- L. If pipe plug is unsuccessful in reducing 95 percent of existing water flow, mechanically clean interior of pipe as approved by Project Manager. Do not damage pipe's interior lining during mechanical cleaning.
- M. Pipe plug will reduce approximately 95 percent of existing water flow. Anticipate water leakage from pipe plug and include cost of water removal in unit price bid for Plug work.
- N. After connection to water main or associated work requiring installation of an isolation valve is complete, remove hot tapping/line plugging equipment from water main and seal hot tapping/line plugging saddle with blind flange.
- O. Apply external coating to saddle, flange and water main in accordance with Section 02502 - Steel Pipe and Fittings.

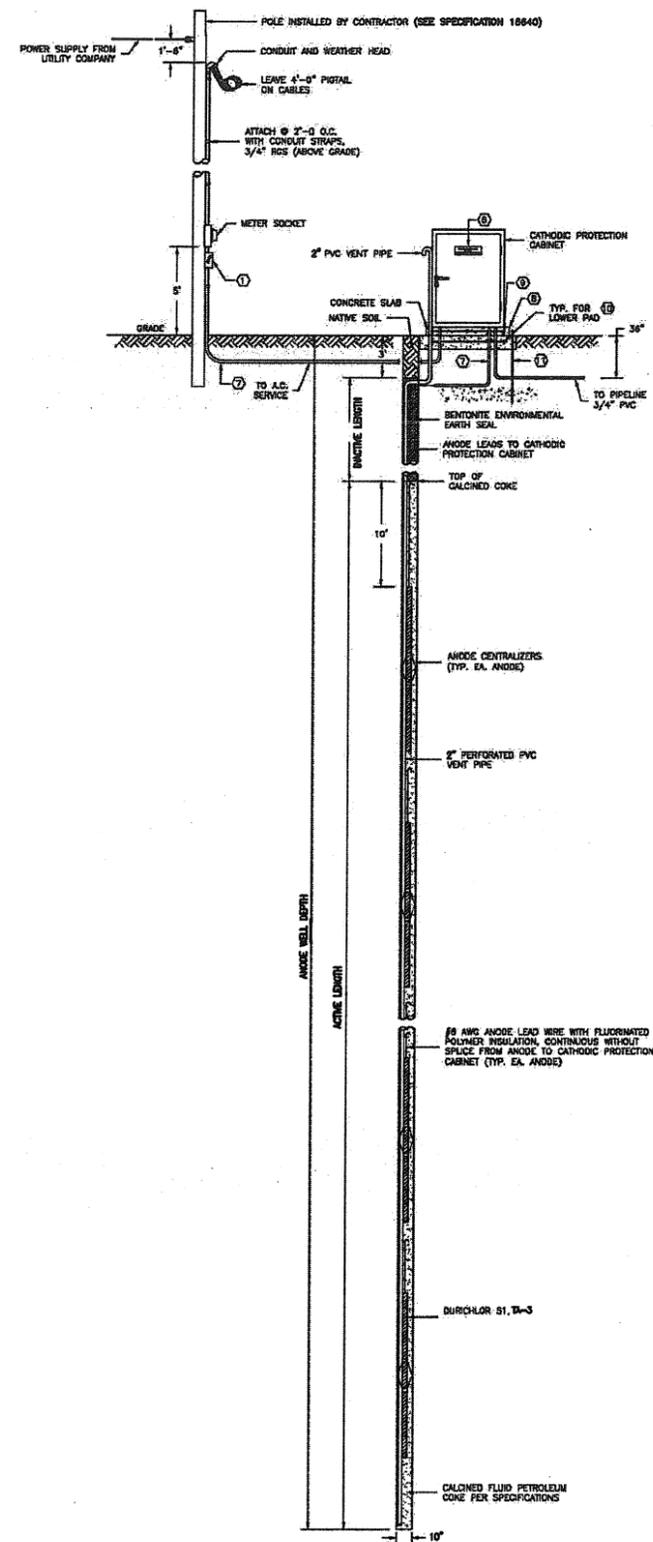
END OF SECTION



5 AC SERVICE FOR RECTIFIER  
NO SCALE

RECTIFIER INFORMATION

PIPE MATERIAL	RECTIFIER NO.	STATION NO.	SIZE OF RECTIFIERS (AMPS/VOLTS)	NUMBER OF ANODES	ANODE WELL DEPTH	ACTIVE LENGTH	INACTIVE LENGTH
DIELECTRIC COATED STEEL PIPE							
CEMENT MORTAR COATED STEEL PIPE							
PRESTRESSED CONCRETE CYLINDER OR BAR WRAPPED PIPE	1	128+75	30/24	15	260'	240'	17'
DUCTILE IRON PIPE WITH POLY WRAP							



6 TYPICAL DEEP ANODE GROUND BED AND A.C. SERVICE FOR CATHODIC PROTECTION CABINET  
NO SCALE (SEE SPECIFICATION 16640 FOR DETAILS)

**KEYED NOTES:**

- FUSED DISCONNECT SWITCH IN A NEMA 1 ENCLOSURE WITH 1-30A FUSED DISCONNECT SWITCH.
- PLASTIC WIRING DUCT (PANDUIT OR EQUAL) 2" W. x 4" H. (MIN.) LENGTH AS REQUIRED. FURNISH WITH COVERS.
- BACK PANEL LOCATED INSIDE OF ENCLOSURE.
- ENCLOSURE: 36" W. x 48" H. x 24" D., 12 GA. TYPE 304 S.S. NEMA 4X, SINGLE DOOR, FREE STANDING, PROVISIONS TO PADLOCK UNIT, LIFTING EYES AND GROUNDING STUD ON DOOR. PROVIDE LOUVERED DOOR TO VENTILATE RECTIFIER UNIT. PROVIDE DRIP SHIELD AND INSIDE SCREEN TO REPEL INSECTS.
- PLACE STICKERS THAT READ:  
"DANGER  
HIGH VOLTAGE  
KEEP OUT"  
ON ALL FOUR SIDES AND TOP OF ENCLOSURE.
- PROVIDE PERMANENT ENGRAVED NAME PLATE (BLACK LETTERS ON WHITE BACKGROUND) THAT READS: "CATHODIC PROTECTION CABINET, PROPERTY OF CITY OF HOUSTON, IN CASE OF EMERGENCY CALL 311"
- MAKE TRANSITION FROM PVC CONDUIT (UNDERGROUND TO RGS CONDUIT) ABOVE GROUND.
- COORDINATE SIZE OF CONCRETE PAD WITH SIZE OF CABINET. THE CONCRETE PEDESTAL THAT THE CABINET RESTS ON TO BE 3" WIDER THAN THE CABINET ON ALL SIDES.
- #4 GRADE 80 REBAR @12" OC BOTH WAYS.
- #5 GRADE 80 REBAR @12" OC BOTH WAYS.
- 3/4" x 10" GROUND ROD AND #6 COPPER GROUND CABLE.



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STATE OF TEXAS  
GREGORY J. HENRY  
91828  
Professional Engineer

**CITY OF HOUSTON**  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

CLINTON DRIVE CONDITION  
ASSESSMENT SUPPORT PACKAGE

CATHODIC PROTECTION  
RECTIFIER AND DEEP ANODE  
GROUND BED  
(SHEET 1 OF 2)

WBS NO.  
S-000901-0008-4

DRAWING SCALE  
N.T.S.

CITY OF HOUSTON PM  
ARTHUR C. MORRIS, P.E.

SHEET NO. 101 OF 122