

Northeast Water Purification Plant (NEWPP)
Improvements Package No. 2 – High Service Pump Station
and Miscellaneous Piping Improvements
WBS No. S-000066-012A-4

ADDENDUM

Document 00910

ADDENDUM NO. 2

Date of Addendum: 11/16/15



PROJECT NAME: Northeast Water Purification Plant (NEWPP) Improvements
Package No. 2 – High Service Pump Station and Miscellaneous Piping Improvements

Yue Sun
11-13-2015

PROJECT NO: WBS No. S-000066-012A-4

BID DATE: November 19, 2015 (There is no change to the Bid Date.)

FROM: J. Timothy Lincoln, P.E., CPM, City Engineer
City of Houston, Office of City Engineer
611 Walker Street
Houston, Texas 77002
Attn: Tina Yao, P.E., 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

INTRODUCTORY INFORMATION

1. Document 00010 – Table of Contents. Replace Section in its entirety.

BIDDING REQUIREMENTS

1. Document 00410 – Bid Form Part B. Replace Section in its entirety.

SPECIFICATIONS

1. Section 16995 – Relay and Protective Device Settings (with Attachments). Remove Attachment and replace with revised Attachment.

CHANGES TO DRAWINGS

1. Replace Drawing E-3, Sheet 69, with revised E-3.
2. Replace Drawing E-20, Sheet 87, with revised E-20.
3. Replace Drawing E-31, Sheet 98, with revised E-31.
4. Replace Drawing I-3, Sheet 101, with revised I-3.
5. Replace Drawing I-4, Sheet 102, with revised I-4.
6. Replace Drawing I-11, Sheet 112, with revised I-11.

CLARIFICATIONS

1. Question: There are many temporary pipe supports shown on the drawings for the temporary 48" & 30" diameter steel piping that is to be installed. Are we responsible for designing and submitting an engineered system for these supports per 15140? Do these supports need to follow detail F on M-10?

Answer: The design of the temporary pipe supports shall be the responsibility of the Contractor, and shall be included in the submittal of the detailed installation plan as required by Section 11500, 1.03. The temporary pipe supports are not required to be per Detail F on M-10.

2. Question: Does The City want to salvage the 2 surge tanks? There is significant cost to transport these if they are to be salvaged and transported.

Answer: Contractor shall demolish the two surge tanks as shown on D-3 and D-5. Refer to the notes on these drawings and Spec 02050 for demolition work details.

3. Question: Does the Building Wage Scale apply to any of the work inside or within 5' of the HSPS building?

Answer: Document 00821 – Wage Scale for Building Construction and the Building Wage Scale will apply to the new High Service Electrical Building in this project.

4. Question: Can you please provide As-Built drawings for the HSPS Powerhouse & Transformer Pad to be demolished. How thick are these slabs? How many piers do we need to demolish?

Answer: Record Drawings provided by the City do not contain this information. Contractor shall assume entire area to be removed is concrete to 24 inches below grade.

5. Question: Please specify the lining required for the temporary piping.

Answer: The lining for the temporary bypass piping shall be of the same quality and standards as that of permanent steel water piping; NSF-61 approved for contact with potable water, in accordance with Specification 02518.

6. Question: Note 4 on sheet E-31 states to include crushed limestone fill or culverts in wet spots along the easement. There is no way for us to know how much fill is needed, or how many and of what size culverts to include. Please tell us specifically what is required or include Extra Work Ptems for this.

Answer: Drawing E-31 has been revised.

7. Question: Does there need to be a road way along the new easement. If so please provide a detail.

Answer: No road is required.

8. Question: Note 4 on sheet E-31 states to include crushed limestone for the temporary staging area parking lot & drive. Can this be crushed concrete?

Answer: No, crushed concrete is not acceptable, crushed limestone is required.

9. Question: For the stoppers & taps at the UV structures the driveways will be removed. The doors that the driveways lead to now will be inaccessible during the bypass. Where will the temp driveways need to lead to?

Answer: Refer to Note 6 on C-3 and Note 7 on C-4. Contractor is required to provide temporary driveway to maintain access to UV Building entrances during the bypass. Any damage to the existing driveway during installation of the temporary bypass piping shall be repaired per Section 02951 at no additional cost to the City.

10. Question: On Sheet D-6 there is a storm sewer line that crosses near the 48" line stop south of UV- Building 1. What is the depth of this 36" storm sewer? Can you confirm that it is below the 48" FW line?

Answer: According to Record Drawings, the flowline elevation of the 36" storm sewer is approximately 46.34 ft, and it is above the 48" FW line.

11. Question: See Section 2 Sheet M-1: please confirm that there is a new slip on flange welded at this location.

Answer: Confirmed. Provide a slip-on flange at this location.

12. Question: Can you please provide electrical As-Built drawings for underground conduits around the areas where we have to make line stops & taps?

Answer: Record Drawings provided by the City illustrating this area are included to the end of this document.

13. Question: Several mechanical drawings show limits of painting for new and existing piping & equipment. Are we required to blast down to bare metal before recoating all existing piping & equipment?

Answer: Surface preparation for existing piping and equipment shall be in accordance with Specification 09901 and 09901S.

14. Question: Please confirm that there is no lead abatement required for coatings or demolition of existing pipe & equipment on site?

Answer: The original plant was constructed in 2002. Based on available City provided records, no lead paint was used on existing piping and equipment.

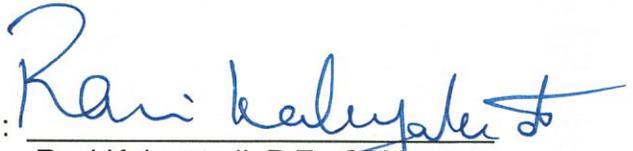
15. Question: On Sheet No. 28 of 113, Note 6. Coordinate with City Drinking Water Operations (DWO) for Pump Motor Preventive Maintenance Work on Pumps 6, 7 and 8. My question is who pulls pump motors and how long will it take for this work?

Answer: City DWO and a City Pump Motor Service Contractor will be responsible for removing the pump motors and it is estimated this work will take two weeks per City DWO. It is advised that Contractor shall coordinate; with sufficient lead time as per DIV 0 & 1 specifications, with City CM and NEWPP DWO prior to taking any pumps out of service for improvement work.

END OF ADDENDUM NO. 2

Northeast Water Purification Plant (NEWPP)
Improvements Package No. 2 – High Service Pump Station
and Miscellaneous Piping Improvements
WBS No. S-000066-012A-4

ADDENDUM

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

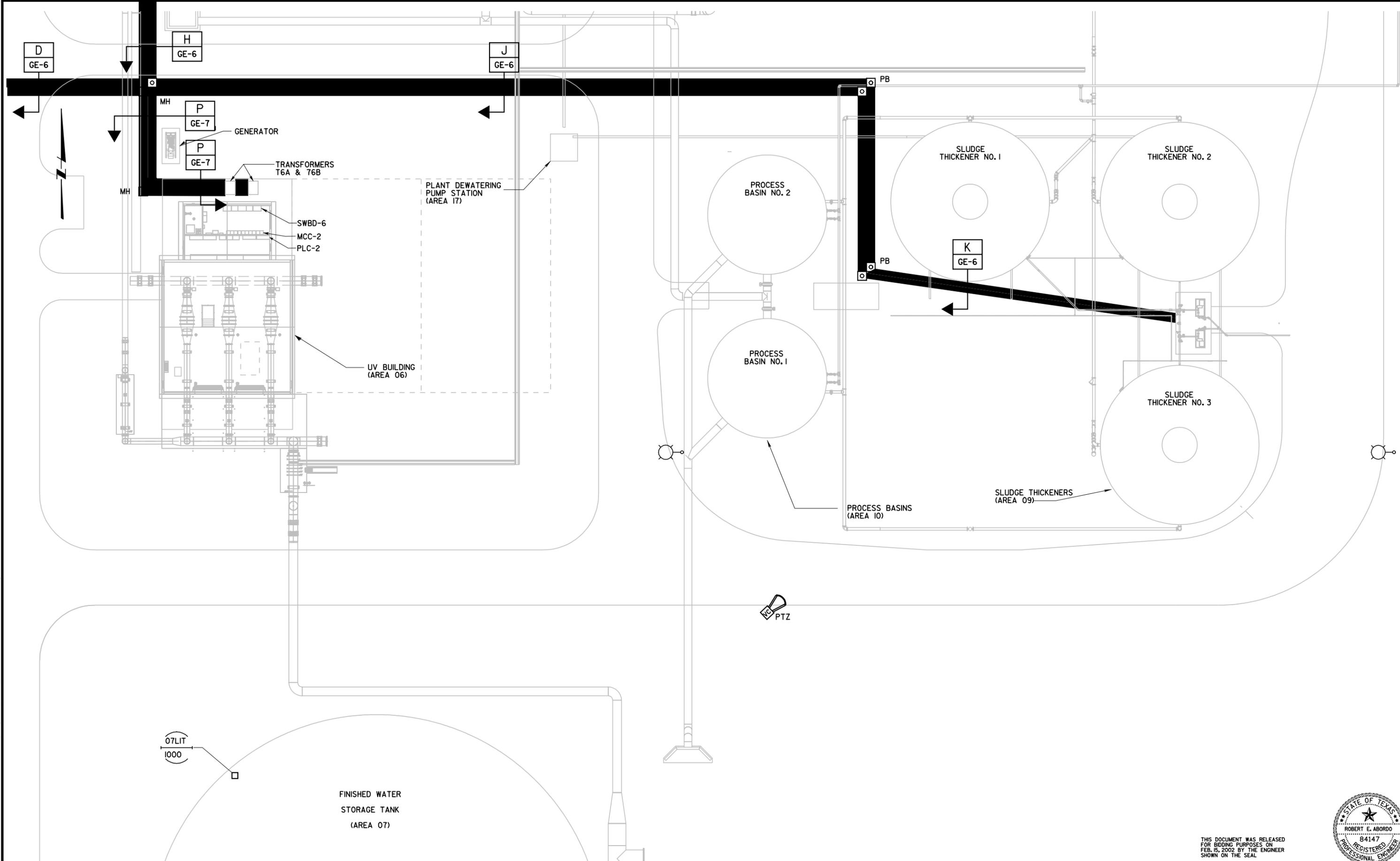
CDM Smith
TBPE Firm Registration No. F-3043

END OF DOCUMENT

Plot Date: 04-FEB-2002
User: hfserran

File: \\fh-caddsr\usr2\proj\newps\wtp\005\tr\ele\FI\new00Eil.dgn

Job No: 1650228



07LIT
1000

FINISHED WATER
STORAGE TANK
(AREA 07)

PROCESS BASINS
(AREA 10)

SLUDGE THICKENERS
(AREA 09)

THIS DOCUMENT WAS RELEASED
FOR BIDDING PURPOSES ON
FEB. 15, 2002 BY THE ENGINEER
SHOWN ON THE SEAL



REV	DATE	BY	DESCRIPTION
0	2-15-2002	REA	COH Building Permit Department

SCALE
1" = 20'

WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED L. PHELPS
DRAWN L. PHELPS
CHECKED R. ABORDO

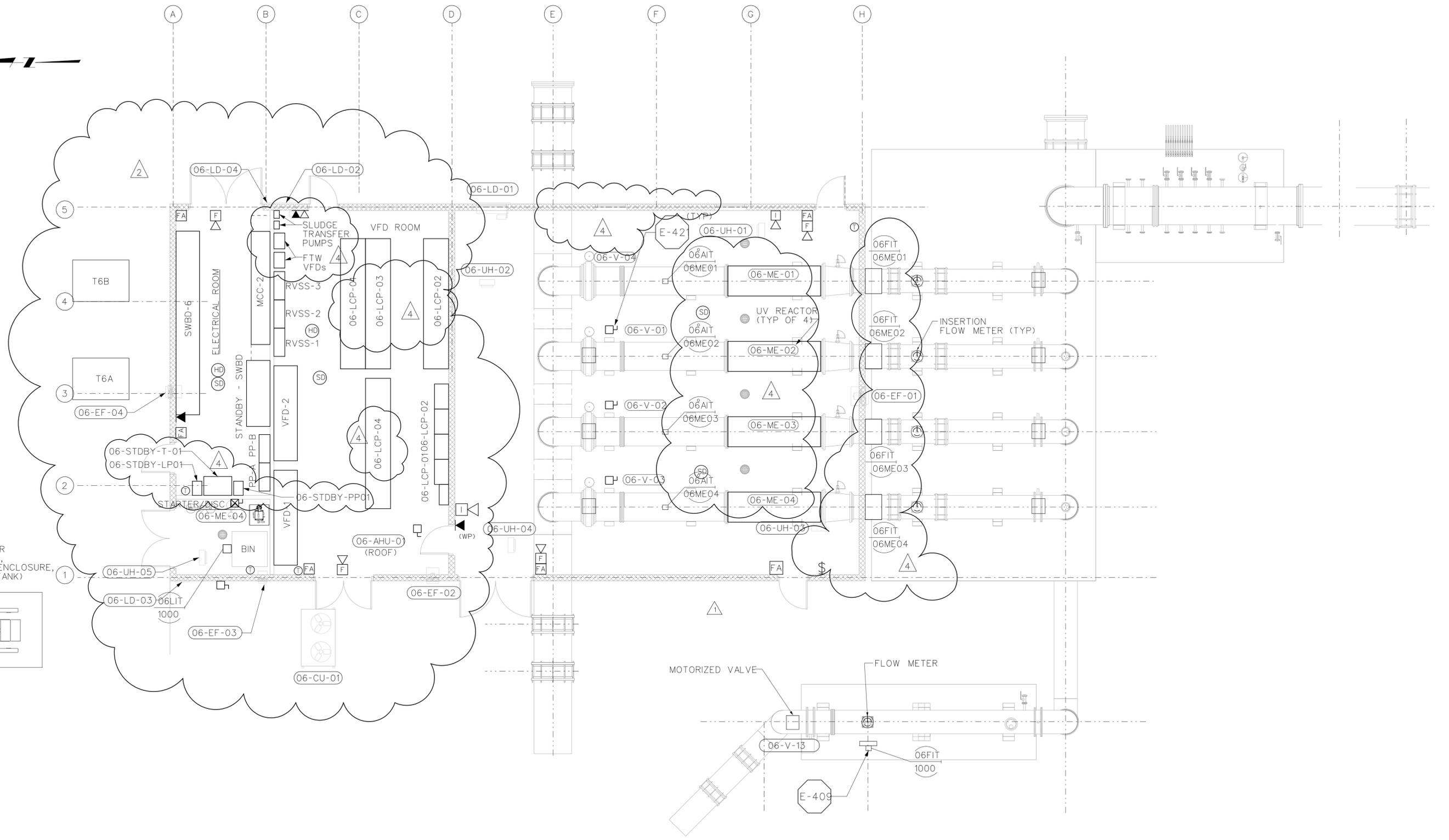
5100 Westheimer, Suite 580
Houston, TX 77056

MWH
MONTGOMERY WATSON HARZA

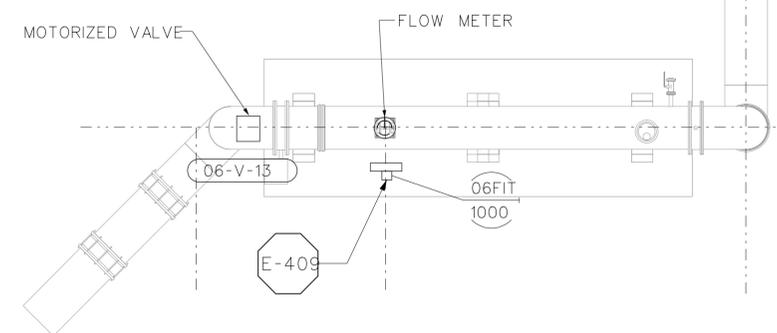
**Houston Area
Water Corporation**

NORTHEAST WATER PURIFICATION SYSTEM
ELECTRICAL SITE PLAN

SHEET
OE-II



350kW STANDBY DIESEL GENERATOR
480V, 3 PH, 0.8pf.
(WEATHERPROFF ENCLOSURE,
SUB-BASE FUEL TANK)



The Seal appearing on this document was authorized by Robert E. Abordo, P.E. 84147, on Date indicated.

REV	DATE	BY	DESCRIPTION
4	11-7-2005	DYN	RECORD DRAWING
3	1-15-2004	DYN	RECORD DRAWING
2	11-5-2002	REA	Bldg. Layout Changes
1	8-10-2002	REA	Design Changes
0	3-6-2002	REA	COH Building Permit Department

SCALE
3/16" = 1'-0"

WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED L. PHELPS
DRAWN L. PHELPS
CHECKED R. ABORDO

SUBMITTED BY
(RECOMMENDED)
LICENSE NO. DATE
LICENSE NO. DATE

5100 Westheimer, Suite 580
Houston, TX 77056

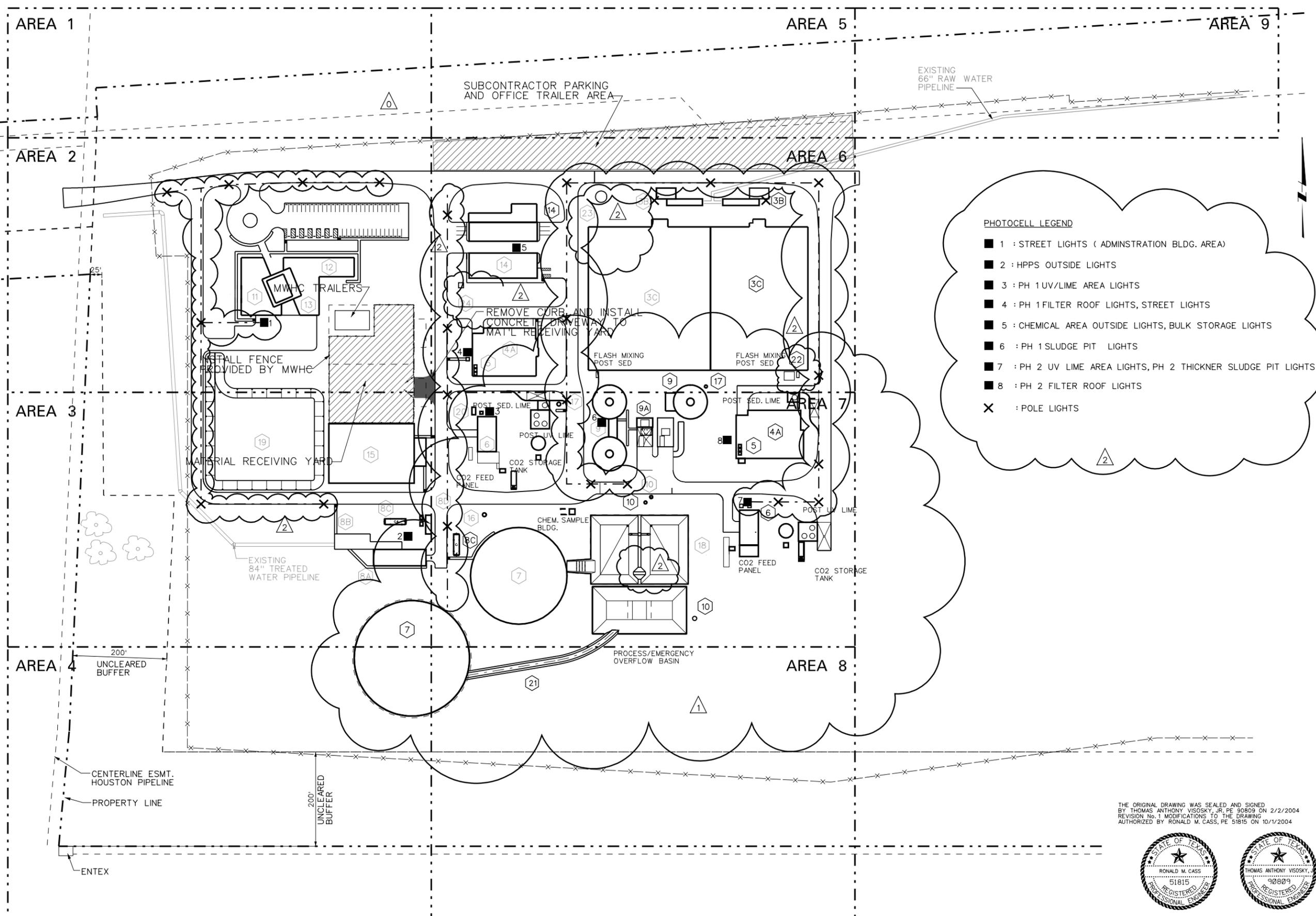
MONTGOMERY WATSON HARZA

Houston Area Water Corporation

NORTHEAST WATER PURIFICATION SYSTEM
PHASE - 1

UV BUILDING
EQUIPMENT LOCATION PLAN

SHEET
6E-2



PHOTOCELL LEGEND

- 1 : STREET LIGHTS (ADMINSTRATION BLDG. AREA)
- 2 : HPPS OUTSIDE LIGHTS
- 3 : PH 1 UV/LIME AREA LIGHTS
- 4 : PH 1 FILTER ROOF LIGHTS, STREET LIGHTS
- 5 : CHEMICAL AREA OUTSIDE LIGHTS, BULK STORAGE LIGHTS
- 6 : PH 1 SLUDGE PIT LIGHTS
- 7 : PH 2 UV LIME AREA LIGHTS, PH 2 THICKNER SLUDGE PIT LIGHTS
- 8 : PH 2 FILTER ROOF LIGHTS
- ✕ : POLE LIGHTS

THE ORIGINAL DRAWING WAS SEALED AND SIGNED BY THOMAS ANTHONY VISOSKY, JR., PE 90809 ON 2/2/2004 REVISION No. 1 MODIFICATIONS TO THE DRAWING AUTHORIZED BY RONALD M. CASS, PE 51815 ON 10/11/2004



2	1-5-06	YBN	RECORD DRAWING
1	10-1-04	RMC	HAWC and Permit Agency Approval
0	2-3-04	TAV	ISSUED FOR CONSTRUCTION
B	1-12-04	TAV	CLIENT REVIEW
A	12-22-03	TAV	INTERNAL QA/QC REVIEW
REV	DATE	BY	DESCRIPTION

SCALE
1" = 100'

WARNING
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DESIGNED S. MENDOZA
DRAWN I. THORNE
CHECKED T. VISOSKY

SUBMITTED BY
(RECOMMENDED) _____
LICENSE NO. _____ DATE _____
LICENSE NO. _____ DATE _____



MWH
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Houston, TX 77056

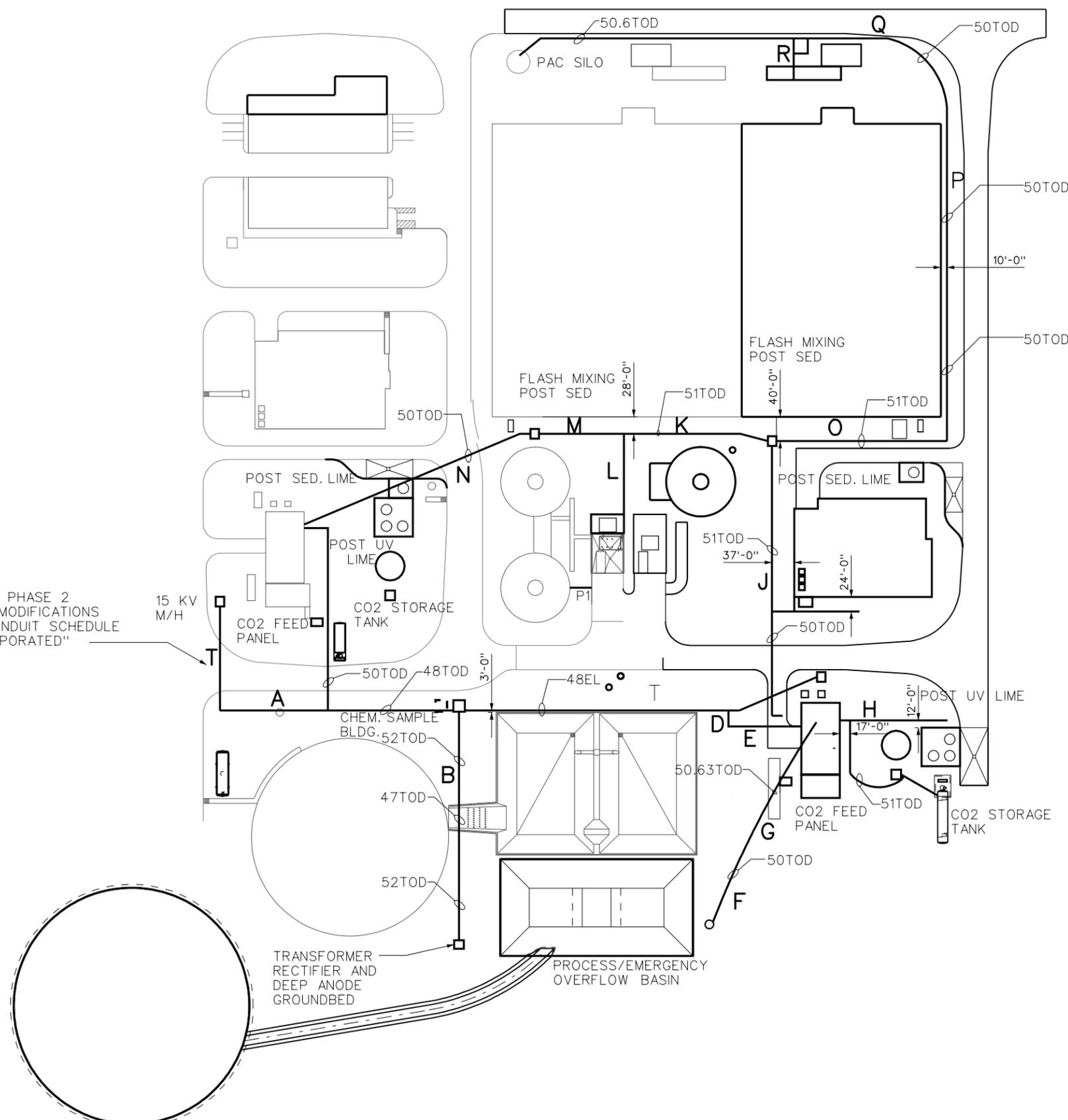
NORTHEAST WATER PURIFICATION SYSTEM
PHASE 2 EXPANSION
WTP LIGHTING PLAN

SHEET
OE-3



REFER "NEWPS PHASE 2 AND PHASE 2 MODIFICATIONS ELECTRICAL CONDUIT SCHEDULE BY FISK INCORPORATED"

A : 15 KV PRIMARY PHASE 2 POWER
TOD: TOP OF DUCTBANK



REV	DATE	BY	DESCRIPTION

SCALE
1" = 62.5'

WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED S. MENDOZA
DRAWN I. THORNE
CHECKED T. VISOSKY

SUBMITTED BY
(RECOMMENDED) LICENSE NO. DATE
LICENSE NO. DATE



5100 Westheimer, Suite 580
Houston, TX 77056
MWH
MONTGOMERY WATSON HARZA

Houston Area Water Corporation

NORTHEAST WATER PURIFICATION SYSTEM
PHASE 2 EXPANSION
ELECTRICAL CONDUIT PLAN

SHEET
OE-2

Document 00010

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NOTE: Bold capitalized Specification Sections are included in the City of Houston Department of Public Works and Engineering Standard Construction Specifications for Wastewater Collection Systems, Water Lines, Storm Drainage, Street Paving, and Traffic located here:

<http://edocs.publicworks.houstontx.gov/engineering-and-construction/specifications/division-02-16-standard-specifications.html>; and are incorporated in Project Manuals by reference as if copied

verbatim. Documents listed "for filing" are to be provided by Bidder and are not included in this Project Manual unless indicated for example only. The Document numbers and titles hold places for actual documents to be submitted by Contractor during Bid, post-bid, or construction phase of the Project.

Specification Sections marked with an asterisk (*) are amended by a supplemental specification, printed on blue paper and placed in front of the Specification it amends. Documents in the 200, 300 and 400 series of Division 00, except for Document 00410B – Bid Form, Part B, are not part of the Contract.

<u>Doc. No.</u>	<u>Document Title</u>	<u>Doc. Date</u>
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16475	Overcurrent Protective Devices	07-31-2015
16476	Disconnects and Circuit Breakers	07-31-2015
16481	Motor Controllers	07-31-2015
16485	Medium Voltage Adjustable Speed Drives	07-31-2015
16670	Lighting Protection System	07-31-2015
16995	Relay and Protective Device Settings (with Attachments).....	11-13-2015

END OF DOCUMENT

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	Unit of Measure	Estimated Quantity	Unit Price (this Column controls)	Total in Figures
1.	01502	Mobilization	LS	1	\$250,000 ⁽¹⁾	\$250,000 ⁽¹⁾
2.	01570	Installation of stormwater pollution prevention control measures including filter fabric fencing, storm inlet sediment trap, and inlet protection barrier to comply with the requirement of the Storm Water Pollution Prevention Plan, including furnishing all materials and incidentals.	LS	1		
3.	01110	Coordination of new CenterPoint easement installation, including clearing, grubbing, new electrical service and temporary roadway provisions in the Construction Staging Area, to be utilized for this and subsequent projects.	LS	1		
4.	09910S, 09910, 15114, 15120, 15140, 15200, 15953, 15954, Division 13, Division 16	Replacement of existing globe style silent check valves (quantity 8) at the plant High Service Pump Station with new pump control valves and actuators to provide fail-close upon power failure. Provide complete package in place with associated process mechanical demolition, piping modifications, structural, electrical, instrumentation and control improvements	LS	1		

B. BASE UNIT PRICE TABLE:

Item No.	Spec Ref.	Base Unit	Unit of Measure	Estimated Quantity	Unit Price (this Column controls)	Total in Figures
5.	02050	Demolition of two existing hydropneumatic surge tanks and associated piping, fittings, valves, all related electrical and structural foundation. Installation of flush-type hydrant.	LS	1		
6.	02050, 16060	Demolition and removal of the High Service Pump Station Powerhouse and two 10,000 kVA transformers. These items shall be the Contractors sole possession for Salvage	LS	1		
7.	Division 13, 16402	Installation of duct bank for 12.47kV Medium Voltage feeders and Communications from the 138kV Substation Electrical Building to the proposed Substation Transformers and High Service Electrical Building and new pad-mounted transformers	LS	1		
8.	Division 13, Division 16	Installation of four Medium Voltage 4.16 kV Adjustable Speed Drives (ASDs) and medium-voltage electrical switchgear with all required electrical and instrumentation and control improvements	LS	1		
9.	Divisions 2 through 10, 11501, 15500, 15855, 15860, and Division 13, Division 16	Construction of a new Electrical Building to house new electrical switchgear, ASDs and PLC control panel and ancillary equipment. Provide all associated building structural, architectural, HVAC and plumbing, and civil and site improvements	LS	1		
10.	13900	Implementation of a new pump operation and optimization software to maximize pump station operation efficiency.	LS	1		

B. BASE UNIT PRICE TABLE:

Item No.	Spec Ref.	Base Unit	Unit of Measure	Estimated Quantity	Unit Price (this Column controls)	Total in Figures
11.	13340	Replacement of existing 42-inch distribution flow meter (quantity 2.), existing 8-inch plant potable water (utility water) flow meter, HSPS suction and discharge header pressure indicating transmitters, plant potable water loop pressure indicating transmitter, post-GST1 chlorine analyzer, and associated electrical and instrumentation and control improvements	LS	1		
12.	02050, 02518, 02768, 11500, 15120, 15140	Miscellaneous piping elements and structural support improvements at the plant High Service Pump Station, Treated Water Flow Meter Station, and UV1 and UV2 Buildings areas as shown on the Drawings and specified herein, including installation of temporary line stops and bypass piping to remove existing Victaulic Depend-O-Lok couplings and replace with new piping connections	LS	1		
13.	01110	Enter equipment data of new material provided on this project into the City's work Management System (WMS) database. Coordinate with Drinking Water Operations (DWO) staff for training and data input	LS	1		
14.	Division 2	All miscellaneous civil and site work including paving, grading, drainage, and utilities as shown on the Drawings and specified herein, including provisions for storm water Inlet and storm water line to connect the existing storm water line.	LS	1		
<u>TOTAL BASE UNIT PRICES</u>						\$ _____

C. EXTRA UNIT PRICE TABLE:

Item No.	Spec Ref.	Extra Unit	Unit of Measure	Estimated Quantity	Unit Price (this Column controls)	Total in figures
1.	01576S, 01576	Stormwater quality detention basin cleaning as shown on the Drawings including handling, removing, laboratory testing, transporting, and disposal of vegetation and soil, and hydromulching the basin	CY	1,250	<u>[\$60.00]⁽²⁾</u>	<u>[\$75,000]⁽²⁾</u>
2.	02318	Hand Excavation and Backfill	CY	10	<u>[\$100.00]⁽²⁾</u>	<u>[\$1,000]⁽²⁾</u>
3.	02318	Machine Excavation and Backfill	CY	10	<u>[\$25.00]⁽²⁾</u>	<u>[\$250.00]⁽²⁾</u>
4.	02320	Bank Sand Backfill	CY	10	<u>[\$10.00]⁽²⁾</u>	<u>[\$100.00]⁽²⁾</u>
5.	02320	Select Backfill	CY	10	<u>[\$15.00]⁽²⁾</u>	<u>[\$150.00]⁽²⁾</u>
6.	02321	Cement Stabilized Sand Backfill	TON	10	<u>[\$40.00]⁽²⁾</u>	<u>[\$400.00]⁽²⁾</u>
7.	02465	30" Ø Drilled Pier with Reinforcement and Casing	LF	60	<u>[\$100.00]⁽²⁾</u>	<u>[\$6,000.00]⁽²⁾</u>
8.	02751	Concrete Pavement and Subgrade	SY	20	<u>[\$70.00]⁽²⁾</u>	<u>[\$1,400.00]⁽²⁾</u>
9.	02768	Extra Allowance on 42" Line Stop Installation on HSPS Suction Pipe including excavation, replacement of fill, and compaction etc. to complete the installation.	EA	4	<u>[\$65,500.00]⁽²⁾</u>	<u>[\$262,000.00]⁽²⁾</u>
10.	02768	Extra Allowance on 30" Line Stop Installation on HSPS Discharge Pipe including excavation, replacement of fill, and compaction etc. to complete the installation.	EA	4	<u>[\$50,000.00]⁽²⁾</u>	<u>[\$200,000.00]⁽²⁾</u>

C. EXTRA UNIT PRICE TABLE:

Item No.	Spec Ref.	Extra Unit	Unit of Measure	Estimated Quantity	Unit Price (this Column controls)	Total in figures
11.	03200	Grade 60 Reinforcement	Ton	5	<u>[\$1,200.00]⁽²⁾</u>	<u>[\$6,000.00]⁽²⁾</u>
12.	03300	Class A (4,000 psi) Concrete	CY	10	<u>[\$300.00]⁽²⁾</u>	<u>[\$3,000.00]⁽²⁾</u>
13.	03600	Non-shrink Epoxy Grout (14,000 psi)	CF	5	<u>[\$555]⁽²⁾</u>	<u>[\$2,775.00]⁽²⁾</u>
14.	03600	Concrete Grout (2,500 psi min)	CY	2	<u>[\$800]⁽²⁾</u>	<u>[\$1,600.00]⁽²⁾</u>
15.	05580	Fabricated Structural Steel	Ton	1	<u>[\$2,500]⁽²⁾</u>	<u>[\$2,500]⁽²⁾</u>
16.	02518, 15061	Steel Piping and Fittings	Ton	5	<u>[\$4,000.00]⁽²⁾</u>	<u>[\$20,000]⁽²⁾</u>
17.	15100	Extra Unit Cost for seat repairing/replacing existing 30" pump discharge butterfly valves with new as specified in Section 15100	EA	4	<u>[\$10,000.00]⁽²⁾</u>	<u>[\$40,000.00]⁽²⁾</u>
18.	15100	Extra Unit Cost for seat repairing or replacing existing 42" pump suction butterfly valves with new as specified in Section 15100	EA	4	<u>[\$25,000.00]⁽²⁾</u>	<u>[\$100,000.00]⁽²⁾</u>
19.	15120	Extra Allowance for Removing existing Depend-o-Lok couplings and replacement with welded butt strap connection complete with pipe interior coating repair and finish painting complete in place	EA	2	<u>[\$2,000.00]⁽²⁾</u>	<u>[\$4,000.00]⁽²⁾</u>
20.	16111	1" Rigid Aluminum Conduit installed above ground	LF	200	<u>[\$15.50]⁽²⁾</u>	<u>[\$3,100.00]⁽²⁾</u>
21.	16111	2" Rigid Aluminum Conduit installed above ground	LF	100	<u>[\$29.50]⁽²⁾</u>	<u>[\$2,950.00]⁽²⁾</u>
22.	16111	3" Rigid Aluminum Conduit installed above ground	LF	100	<u>[\$55.50]⁽²⁾</u>	<u>[\$5,550.00]⁽²⁾</u>

C. EXTRA UNIT PRICE TABLE:

Item No.	Spec Ref.	Extra Unit	Unit of Measure	Estimated Quantity	Unit Price (this Column controls)	Total in figures
23.	16120	Copper No. 12 AWG conductor with XHHW-2 insulation, installed	LF	2,000	<u>[\$0.72]⁽²⁾</u>	<u>[\$1,440.00]⁽²⁾</u>
24.	16120	Copper No. 10 AWG conductor with XHHW-2 insulation, installed	LF	1,000	<u>[\$0.94]⁽²⁾</u>	<u>[\$940.00]⁽²⁾</u>
25.	16120	Copper No. 6 AWG conductor with XHHW-2 insulation, installed	LF	500	<u>[\$1.68]⁽²⁾</u>	<u>[\$840.00]⁽²⁾</u>
26.	16120	Copper No. 2 AWG conductor with XHHW-2 insulation, installed	LF	500	<u>[\$3.25]⁽²⁾</u>	<u>[\$1,625.00]⁽²⁾</u>
27.	16120	Copper No. 1/0 AWG conductor with XHHW-2 insulation, installed	LF	250	<u>[\$4.63]⁽²⁾</u>	<u>[\$1,157.50]⁽²⁾</u>
28.	16120	Copper No. 4/0 AWG conductor with XHHW-2 insulation, installed	LF	100	<u>[\$7.25]⁽²⁾</u>	<u>[\$725.00]⁽²⁾</u>
29.	16123	Copper No. 2/0 AWG conductor with (15Kv) EPR insulation, installed, and terminated	LF	400	<u>[\$21.40]⁽²⁾</u>	<u>[\$8,560.00]⁽²⁾</u>
30.	16123	Copper 250 KCMIL conductor with (15Kv) EPR insulation, installed, and terminated	LF	300	<u>[\$27.90]⁽²⁾</u>	<u>[\$8,370.00]⁽²⁾</u>
31.	16126	2/C or 3/C, #16 AWG twisted shielded instrument cable, installed	LF	1,000	<u>[\$2.10]⁽²⁾</u>	<u>[\$2,100.00]⁽²⁾</u>
32.	16402	1" PVC SCH 40 Conduit installed in Underground duct bank	LF	500	<u>[\$2.50]⁽²⁾</u>	<u>[\$1,250.00]⁽²⁾</u>
33.	16402	2" PVC SCH 40 Conduit installed in Underground duct bank	LF	500	<u>[\$4.30]⁽²⁾</u>	<u>[\$2,150.00]⁽²⁾</u>
34.	16402	3" PVC SCH 40 Conduit installed in Underground duct bank	LF	400	<u>[\$5.50]⁽²⁾</u>	<u>[\$2,200.00]⁽²⁾</u>

C. EXTRA UNIT PRICE TABLE:

Item No.	Spec Ref.	Extra Unit	Unit of Measure	Estimated Quantity	Unit Price (this Column controls)	Total in figures
35.	16402	4" PVC SCH 40 Conduit installed in Underground duct bank	LF	200	<u>[\$6.50]⁽²⁾</u>	<u>[\$1,300.00]⁽²⁾</u>
36.	16402	Duct bank trenching, rebar, concrete encasement and backfill for duct bank where the top of the duct bank is 48" below grade or less	LF	200	<u>[\$35.00]⁽²⁾</u>	<u>[\$7,000.00]⁽²⁾</u>
37.	16402	Duct bank trenching, rebar, concrete encasement and backfill for duct bank where the top of the duct bank is 60" below grade or more	LF	200	<u>[\$50.00]⁽²⁾</u>	<u>[\$10,000.00]⁽²⁾</u>
38.	16402	12 strand fiber optic cable, installed in Underground duct bank	LF	200	<u>[\$30.00]⁽²⁾</u>	<u>[\$6,000.00]⁽²⁾</u>
<u>TOTAL EXTRA UNIT PRICES</u>						<u>[\$793,432.50]⁽²⁾</u>

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D. CASH ALLOWANCE TABLE:

Item No.	Spec Ref.	Cash Allowance Short Title	Cash Allowance in figures (1)
1	01110	Building Permit Fee	\$28,000
2	01110	CenterPoint Energy Temporary Power	\$50,000
3	01110	Tree Removal Permit Application and Planting Allowance	\$50,000
<u>TOTAL CASH ALLOWANCES</u>			\$128,000

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E. ALTERNATES TABLE: N/A

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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, but not decreased, by crossing out the Minimum and inserting revised price on the line above. **Cannot** be decreased by the Bidder.
- (3) Maximum Bid Price determined prior to Bid. Can be decreased by the Bidder, but not increased, by crossing out the Maximum and inserting revised price on the line above. A Bid that increases the Maximum Bid Price may be found non-conforming and non-responsive. **Cannot** be increased by the Bidder.
- (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.

5.1 RELAY SETTING RECORD (SIEMENS 7SJ601) FOR "SWGR-S" SIEMENS SWITCHGEAR

Date																			20-Mar-14
RELAY		RELAY DESCRIPTION			CT Ratio	PHASE SETTINGS						GROUND SETTINGS						COMMENTS AND ADDITIONAL SETTINGS	
Device ID	Location Bus Name	Mfg.	Model #	Long Time			Short Time		Instantaneous		Long Time			Short Time		Instantaneous			
				PU Ip		Curve Type	Time Dial	PU I>	Delay T	PU I>>	Delay T	PU Iep	Curve Type	Time Dial	PU Ie>	Delay T	PU Ie>>		Delay T
51/51N BUS A	12.47kV BUS A	Siemens	7SJ601	PH 1200:5 GD 1200:5	1	ANSI/ Ex. Inv	5	4	0.25	-	-	-	-	-	0.1	0.4	-	-	Recommended Settings
51/51N BUS B	12.47kV BUS B	Siemens	7SJ601	PH 1200:5 GD 1200:5	1	ANSI/ Ex. Inv	5	4	0.25	-	-	-	-	-	0.1	0.4	-	-	Recommended Settings
50-1P	138kV BUS	Siemens	7SJ601	PH 2000:5	-	-	-	-	-	1.2	0	-	-	.	-	-	-	-	Recommended Settings
50-1B	138kV BUS	Siemens	7SJ601	PH 2000:5	-	-	-	-	-	1.2	0	-	-	.	-	-	-	-	Recommended Settings
50-2P	138kV BUS	Siemens	7SJ601	PH 2000:5	-	-	-	-	-	1.2	0	-	-	.	-	-	-	-	Recommended Settings
50-2B	138kV BUS	Siemens	7SJ601	PH 2000:5	-	-	-	-	-	1.2	0	-	-	.	-	-	-	-	Recommended Settings

5.2 RELAY SETTING RECORD (SIEMENS 7SJ602) FOR "SWGR-S" SIEMENS SWITCHGEAR

Date: 20-Mar-14

RELAY		RELAY DESCRIPTION			CT Ratio	PHASE SETTINGS						GROUND SETTINGS						COMMENTS AND ADDITIONAL SETTINGS	
Device ID	Location Bus Name	Mfg.	Model #	Long Time			Short Time		Instantaneous		Long Time			Short Time		Instantaneous			
				PU I>		Curve Type	Time Dial	PU I>>	Delay T>>	PU I>>>	Delay T>>>	PU Ie>	Curve Type	Time Dial	PU Ie>>	Delay T>>	PU Ie>>>		Delay T>>>
50T/51T T1	CNP 138 kV	Siemens	7SJ602	PH 300:5	0.4	ANSI/ Ex. Inv	7	2.2	0.35	3.6	0	-	-	-	-	-	-	-	Recommended Settings
51NT-T1	T1 Neutral	Siemens	7SJ602	GD 600:5	-	-	-	-	-	-	-	0.1	ANSI/Mod. Inv	4	-	-	-	-	Recommended Settings
50T/51T T2	CNP 138 kV	Siemens	7SJ602	PH 300:5	0.4	ANSI/ Ex. Inv	7	2.2	0.35	3.6	0	-	-	-	-	-	-	-	Recommended Settings
51NT-T2	T1 Neutral	Siemens	7SJ602	GD 600:5	-	-	-	-	-	-	-	0.1	ANSI/Mod. Inv	4	-	-	-	-	Recommended Settings

5.3 RELAY SETTING RECORD (SIEMENS 7SJ62) FOR "SWGR-S" SIEMENS SWITCHGEAR

Date																			20-Mar-14
RELAY		RELAY DESCRIPTION			CT Ratio	PHASE SETTINGS						GROUND SETTINGS						COMMENTS AND ADDITIONAL SETTINGS	
Device ID	Location Bus Name	Mfg.	Model #	Long Time			Short Time		Instantaneous		Long Time			Short Time		Instantaneous			
				PU 51		Curve Type	Time Dial	PU 50-1	Delay 50-1	PU 50-2	Delay 50-2	PU 51N	Curve Type	Time Dial	PU 50N-1	Delay 50N-1	PU 50N-2		Delay 50N-2
50/51-T8A	12.47kV BUS-A	Siemens	7SJ62	PH 800:5 GD 800:5	6	ANSI/ V. Inv	6	25	0.15	40	0	-	-	-	0.25	0.25	-	-	Recommended Settings
50/51-T8B	12.47kV BUS-A	Siemens	7SJ62	PH 800:5 GD 800:5	6	ANSI/ V. Inv	6	25	0.15	40	0	-	-	-	0.25	0.25	-	-	Recommended Settings
50/51-T6A	12.47kV BUS A	Siemens	7SJ62	PH 200:5 GD 200:5	6	ANSI/ V. Inv	5	20	0.2	40	0	-	-	-	0.75	0.15	-	-	Recommended Settings
50/51-T6B	12.47kV BUS B	Siemens	7SJ62	PH 200:5 GD 200:5	6	ANSI/ V. Inv	5	20	0.2	40	0	-	-	-	0.75	0.15	-	-	Recommended Settings
50/51-T2A	12.47kV BUS A	Siemens	7SJ62	PH 200:5 GD 200:5	6	ANSI/ V. Inv	5	20	0.2	40	0	-	-	-	0.75	0.15	-	-	Recommended Settings
50/51-T2B	12.47kV BUS B	Siemens	7SJ62	PH 200:5 GD 200:5	6	ANSI/ V. Inv	5	20	0.2	40	0	-	-	-	0.75	0.15	-	-	Recommended Settings
50/51-T7A	12.47kV BUS A	Siemens	7SJ62	PH 200:5 GD 200:5	6	ANSI/ V. Inv	5	20	0.2	40	0	-	-	-	0.75	0.15	-	-	Recommended Settings
50/51-T7B	12.47kV BUS B	Siemens	7SJ62	PH 200:5 GD 200:5	6	ANSI/ V. Inv	5	20	0.2	40	0	-	-	-	0.75	0.15	-	-	Recommended Settings

5.4 RELAY SETTING RECORD (MULTILIN 850) FOR NEW HSPS1 SWITCHGEAR

Date																			11-Oct-15
RELAY		RELAY DESCRIPTION			CT Ratio	PHASE SETTINGS						GROUND SETTINGS						COMMENTS AND ADDITIONAL SETTINGS	
Device ID	ANSI DEVICE	Mfg.	Model Number	Long Time			Short Time		Instantaneous		Long Time			Short Time		Instantaneous			
				OC PU		Curve Type	Time Dial	SDPU	SDT	PU	Delay	PU	Curve Type	Time	SDPU	SDT	PU		Delay
				Set x CT Pri						Set x CT Pri		Set x CT Pri	Set x 0.1	Set x CT Pri		Set x CT Pri			
ML850 HSPS1-MA	50/51 51G	Multilin	850	PH 1200:5 GD 200:5	1.0	ANSI EX. INV	3	-	-	7	-	0.1	ANSI MOD INV	2	-	-	-	-	CT In Trans Neut See Note 1
	51N			1200:5	-	-	-	-	-	-	-	0.03	ANSI MOD INV	1.8	-	-	-	-	Sensitive Ground Input See Note 2
ML850 HSPS1-MB	50/51 51G	Multilin	850	PH 1200:5 GD 200:5	1.0	ANSI EX. INV	3	-	-	7	-	0.1	ANSI MOD INV	2	-	-	-	-	GND CT In Trans Neut See Note 1
	51N			1200:5	-	-	-	-	-	-	-	0.03	ANSI MOD INV	1.8	-	-	-	-	Sensitive Ground Input See Note 2
ML850 08-P-1	51 51G	Multilin	850	PH 150:5 GD 50:5	1.1	ANSI EX. INV	4	-	-	-	-	0.2	ANSI MOD INV	1	-	-	-	-	Feeder to ASD
ML850 08-P-2 Cap	51 51G	Multilin	850	PH 150:5 GD 50:5	0.4	ANSI EX. INV	2	-	-	-	-	0.2	ANSI EX. INV	1	-	-	-	-	Feeds to 250 kVAR Capacitor Bank
ML850 08-P-3	51 51G	Multilin	850	PH 150:5 GD 50:5	1.1	ANSI EX. INV	4	-	-	-	-	0.2	ANSI MOD INV	1	-	-	-	-	Feeder to ASD
ML850 08-P-4 Cap	51 51G	Multilin	850	PH 150:5 GD 50:5	0.4	ANSI EX. INV	2	-	-	-	-	0.2	ANSI EX. INV	1	-	-	-	-	Feeds 250 kVAR Capacitor Bank
ML850 08-P-6	51 51G	Multilin	850	PH 150:5 GD 50:5	1.1	ANSI EX. INV	4	-	-	-	-	0.2	ANSI MOD INV	1	-	-	-	-	Feeder to ASD
ML850 08-P-7 Cap	51 51G	Multilin	850	PH 150:5 GD 50:5	0.4	ANSI EX. INV	2	-	-	-	-	0.2	ANSI EX. INV	1	-	-	-	-	Feeds 250 kVAR Capacitor Bank
ML850 08-P-8	51 51G	Multilin	850	PH 150:5 GD 50:5	1.1	ANSI EX. INV	4	-	-	-	-	0.2	ANSI MOD INV	1	-	-	-	-	Feeder to ASD
ML850 T-HA	51 51G	Multilin	850	PH 150:5 GD 50:5	0.18	ANSI EX. INV	8	-	-	-	-	0.1	ANSI MOD INV	1	-	-	-	-	Feeds T-HA
ML850 T-HB	51 51G	Multilin	850	PH 150:5 GD 50:5	0.18	ANSI EX. INV	8	-	-	-	-	0.1	ANSI MOD INV	1	-	-	-	-	Feeds T-HB

Note 1. Ground CT is located in neutral of 7500 kVA transformers T8A and T8B
 Note 2. Residually connected phase CTs. Connected to sensitive ground input of relay.
 Note 3. 51G function of ML850 HSPS1-MA also trips 12.47 kV breaker in substation feeding T8A.
 Note 4. 51G function of ML850 HSPS1-MB also trips 12.47 kV breaker in substation feeding T8B.

5.5 RELAY SETTING RECORD (MULTILIN MOTOR PROTECTION RELAYS) FOR NEW HSPS1 SWITCHGEAR

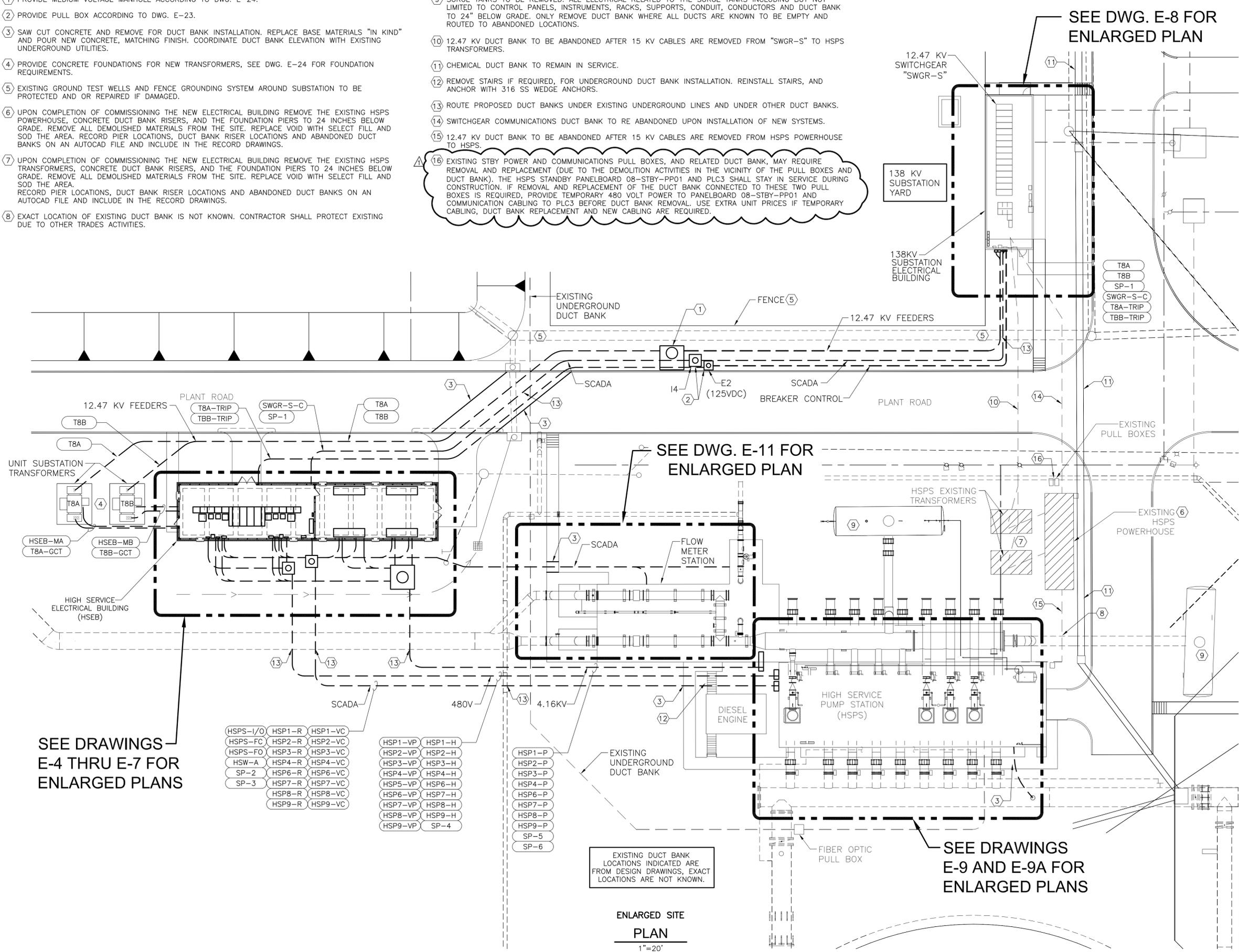
													Date	11-Oct-15
RELAY		RELAY DESCRIPTION			CT Ratio	GROUND SETTINGS				COMMENTS AND ADDITIONAL SETTINGS				
Device ID	Location Bus Name	Mfg.	Model Number	OL		Instantaneous		Definite Time			Instantaneous			
				PU I>		Stand OL Curve #	PU I>>>	Time Delay	PU Ie>		Time Delay	PU Ie>>>	Time Delay	
ML869 08-P-2	HSPS1- BUSB	GE-MULTILIN	ML869	PH 150/5 GND 50/5	1.1 -	4 -	- -	- -	- 0.2	- 0.1	- -	- -	Motor FLA =107 Est. Accel. Time ≤10 Sec	
ML869 08-P-4	HSPS1- BUSB	GE-MULTILIN	ML869	PH 150/5 GND 50/5	1.1 -	4 -	- -	- -	- 0.2	- 0.1	- -	- -	Motor FLA =107 Est. Accel. Time ≤10 Sec	
ML869 08-P-7	HSPS1- BUSA	GE-MULTILIN	ML869	PH 150/5 GND 50/5	1.1 -	4 -	- -	- -	- 0.2	- 0.1	- -	- -	Motor FLA =107 Est. Accel. Time ≤10 Sec	

NOTES:

- 1 PROVIDE MEDIUM VOLTAGE MANHOLE ACCORDING TO DWG. E-24.
- 2 PROVIDE PULL BOX ACCORDING TO DWG. E-23.
- 3 SAW CUT CONCRETE AND REMOVE FOR DUCT BANK INSTALLATION. REPLACE BASE MATERIALS "IN KIND" AND POUR NEW CONCRETE, MATCHING FINISH. COORDINATE DUCT BANK ELEVATION WITH EXISTING UNDERGROUND UTILITIES.
- 4 PROVIDE CONCRETE FOUNDATIONS FOR NEW TRANSFORMERS, SEE DWG. E-24 FOR FOUNDATION REQUIREMENTS.
- 5 EXISTING GROUND TEST WELLS AND FENCE GROUNDING SYSTEM AROUND SUBSTATION TO BE PROTECTED AND OR REPAIRED IF DAMAGED.
- 6 UPON COMPLETION OF COMMISSIONING THE NEW ELECTRICAL BUILDING REMOVE THE EXISTING HSPS POWERHOUSE, CONCRETE DUCT BANK RISERS, AND THE FOUNDATION PIERS TO 24 INCHES BELOW GRADE. REMOVE ALL DEMOLISHED MATERIALS FROM THE SITE. REPLACE VOID WITH SELECT FILL AND SOD THE AREA. RECORD PIER LOCATIONS, DUCT BANK RISER LOCATIONS AND ABANDONED DUCT BANKS ON AN AUTOCAD FILE AND INCLUDE IN THE RECORD DRAWINGS.
- 7 UPON COMPLETION OF COMMISSIONING THE NEW ELECTRICAL BUILDING REMOVE THE EXISTING HSPS TRANSFORMERS, CONCRETE DUCT BANK RISERS, AND THE FOUNDATION PIERS TO 24 INCHES BELOW GRADE. REMOVE ALL DEMOLISHED MATERIALS FROM THE SITE. REPLACE VOID WITH SELECT FILL AND SOD THE AREA. RECORD PIER LOCATIONS, DUCT BANK RISER LOCATIONS AND ABANDONED DUCT BANKS ON AN AUTOCAD FILE AND INCLUDE IN THE RECORD DRAWINGS.
- 8 EXACT LOCATION OF EXISTING DUCT BANK IS NOT KNOWN. CONTRACTOR SHALL PROTECT EXISTING DUE TO OTHER TRADES ACTIVITIES.

NOTES CONTINUED:

- 9 SURGE TANKS TO BE REMOVED. ALL ELECTRICAL RELATED TO THE SURGE TANKS INCLUDING BUT NOT LIMITED TO CONTROL PANELS, INSTRUMENTS, RACKS, SUPPORTS, CONDUIT, CONDUCTORS AND DUCT BANK TO 24" BELOW GRADE. ONLY REMOVE DUCT BANK WHERE ALL DUCTS ARE KNOWN TO BE EMPTY AND ROUTED TO ABANDONED LOCATIONS.
- 10 12.47 KV DUCT BANK TO BE ABANDONED AFTER 15 KV CABLES ARE REMOVED FROM "SWGR-S" TO HSPS TRANSFORMERS.
- 11 CHEMICAL DUCT BANK TO REMAIN IN SERVICE.
- 12 REMOVE STAIRS IF REQUIRED, FOR UNDERGROUND DUCT BANK INSTALLATION. REINSTALL STAIRS, AND ANCHOR WITH 316 SS WEDGE ANCHORS.
- 13 ROUTE PROPOSED DUCT BANKS UNDER EXISTING UNDERGROUND LINES AND UNDER OTHER DUCT BANKS.
- 14 SWITCHGEAR COMMUNICATIONS DUCT BANK TO RE ABANDONED UPON INSTALLATION OF NEW SYSTEMS.
- 15 12.47 KV DUCT BANK TO BE ABANDONED AFTER 15 KV CABLES ARE REMOVED FROM HSPS POWERHOUSE TO HSPS.
- 16 EXISTING STBY POWER AND COMMUNICATIONS PULL BOXES, AND RELATED DUCT BANK, MAY REQUIRE REMOVAL AND REPLACEMENT (DUE TO THE DEMOLITION ACTIVITIES IN THE VICINITY OF THE PULL BOXES AND DUCT BANK). THE HSPS STANDBY PANELBOARD 08-STBY-PP01 AND PLC3 SHALL STAY IN SERVICE DURING CONSTRUCTION. IF REMOVAL AND REPLACEMENT OF THE DUCT BANK CONNECTED TO THESE TWO PULL BOXES IS REQUIRED, PROVIDE TEMPORARY 480 VOLT POWER TO PANELBOARD 08-STBY-PP01 AND COMMUNICATION CABLE TO PLC3 BEFORE DUCT BANK REMOVAL. USE EXTRA UNIT PRICES IF TEMPORARY CABLING, DUCT BANK REPLACEMENT AND NEW CABLING ARE REQUIRED.



SEE DWG. E-8 FOR ENLARGED PLAN

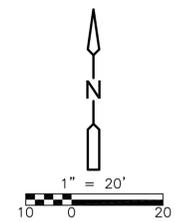
SEE DWG. E-11 FOR ENLARGED PLAN

SEE DRAWINGS E-4 THRU E-7 FOR ENLARGED PLANS

SEE DRAWINGS E-9 AND E-9A FOR ENLARGED PLANS

EXISTING DUCT BANK LOCATIONS INDICATED ARE FROM DESIGN DRAWINGS, EXACT LOCATIONS ARE NOT KNOWN.

ENLARGED SITE PLAN
1"=20'



11/15	ADDENDUM NO. 2	MHW
No.	Date	Revisions
		App.

PRIVATE UTILITY LINES SHOWN

N/A CENTER POINT/GAS

N/A SBC CO. VALID FOR ONE YEAR APPROVED ONLY FOR UNDERGROUND CONDUIT FACILITIES UNLESS NOTED.

N/A CENTER POINT/ELECTRIC APPROVED ONLY FOR CROSSING UNDERGROUND DUCTLINES UNLESS NOTED. VALID AT TIME OF REVIEW ONLY.

N/A CABLE COMPANY

APPROVED: MHW DATE: 06/12/15
DESIGNED BY: RHW DRAWN BY: CM

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SURVEYED BY: BRIONES FB NO. 1500

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
NORTHEAST WATER PURIFICATION PLANT
IMPROVEMENTS PACKAGE NO. 2
HIGH SERVICE PUMP STATION AND
MISCELLANEOUS PIPING IMPROVEMENTS

ENLARGED SITE PLAN

ELECTRICAL

WARNING 0 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	WBS NO. S-000066-012A-4
DWG. NO. E-3	DRAWING SCALE AS NOTED
	CITY OF HOUSTON PM
	NA YAO P.E.
	SHEET NO. 69 OF 113

TAG	DESCRIPTION	FROM	TO	CONDUIT & CONDUCTORS	COMMENTS
BSA-P	BATTERY SYSTEM A FEEDER	5KV SWGR CPT-1	BATTERY SYSTEM A DISCONNECT	SEE ONE LINE DIAGRAM	
BSB-P	BATTERY SYSTEM B FEEDER	5KV SWGR CPT-2	BATTERY SYSTEM B DISCONNECT	SEE ONE LINE DIAGRAM	
125VDC-A	125VDC BUS A FEEDER	BATTERY SYSTEM A OUTPUT	MTS-BATT-A	SEE ONE LINE DIAGRAM	USE SAME TAG FOR THREE SEGMENTS
125VDC-B	125VDC BUS B FEEDER	BATTERY SYSTEM B OUTPUT	MTS-BATT-B	SEE ONE LINE DIAGRAM	USE SAME TAG FOR THREE SEGMENTS
PSYP-I	HIGH SERVICE PIPE YARD INSTRUMENTS	HSEB SCADA CONTROL PANEL	PIPE YARD J-BOX	2" C-W-(7)#16 TSP, #12 GND	
PSYP-V	VALVE 08-V-38	HSEB SCADA CONTROL PANEL	VALVE 08-V-38	2" C-W-(3)#16 TSP, (8)#14, #12 GND	
HSPS-FO	FIBER OPTIC	HSEB SCADA CONTROL PANEL	HSPS EXISTING CONTROL PANEL	2" C-W-(2)6 STRAND FO CABLE	OCC ULTRA LASER FOX
HSPS-I/O	CIRCUITS RELOCATED TO NEW PLC-3	HSPS EXISTING CONTROL PANEL	HSEB SCADA CONTROL PANEL	2" C-W-(12)#16 TSP, 1-PROFIBUS DP, #12 GND *	RELOCATE SIGNALS TO NEW PLC-3 VIA TERMINATION CABINET
HSPS-FC	DISCRETE CIRCUITS RELOCATED TO NEW PLC-3	PUMP CONTROLLERS	HIGH VELOCITY FANS	2" C-W-(60)#14, #12 GND	CONTROL CIRCUITS FOR HIGH VELOCITY COOLING FAN
HSW-A	CHEMICAL ANALYZER SIGNAL CABLES	HSPS SOUTH WALL	HSEB SCADA CONTROL PANEL	2" C-W-(10) #16 TSP, #12 GND	TIE ANALYZERS INTO NEW PLC-3 VIA TERMINATION CABINET
HSP1-VP	480V VALVE POWER	PANELBOARD HB	HSP1 VALVE POWER DISCONNECT	1" C-W-(3)#8, #8 GND	ONLY REQUIRED FOR ALTERNATE VALVE
HSP2-VP	480V VALVE POWER	PANELBOARD HB	HSP2 VALVE POWER DISCONNECT	1" C-W-(3)#8, #8 GND	REQUIRED FOR ALL VALVES
HSP3-VP	480V VALVE POWER	PANELBOARD HB	HSP3 VALVE POWER DISCONNECT	1" C-W-(3)#8, #8 GND	REQUIRED FOR ALL VALVES
HSP4-VP	480V VALVE POWER	PANELBOARD HB	HSP4 VALVE POWER DISCONNECT	1" C-W-(3)#8, #8 GND	REQUIRED FOR ALL VALVES
HSP5-VP	480V VALVE POWER	PANELBOARD HB	HSP5 VALVE POWER DISCONNECT	1" C-W-(3)#8, #8 GND	REQUIRED FOR ALL VALVES
HSP6-VP	480V VALVE POWER	PANELBOARD HA	HSP6 VALVE POWER DISCONNECT	1" C-W-(3)#8, #8 GND	REQUIRED FOR ALL VALVES
HSP7-VP	480V VALVE POWER	PANELBOARD HA	HSP7 VALVE POWER DISCONNECT	1" C-W-(3)#8, #8 GND	REQUIRED FOR ALL VALVES
HSP8-VP	480V VALVE POWER	PANELBOARD HA	HSP8 VALVE POWER DISCONNECT	1" C-W-(3)#8, #8 GND	REQUIRED FOR ALL VALVES
HSP9-VP	480V VALVE POWER	PANELBOARD HA	HSP9 VALVE POWER DISCONNECT	1" C-W-(3)#8, #8 GND	REQUIRED FOR ALL VALVES
P1CF-P	CIRCULATION FAN POWER	PANELBOARD "08-STBY-LP01"	PUMP 1 FAN CONTROL BOX	1" C-W-(2)#12, #12 GND	CIRCUITS MAY BE COMBINED FOR HOME RUN
P2CF-P	CIRCULATION FAN POWER	PANELBOARD "08-STBY-LP01"	PUMP 2 FAN CONTROL BOX	1" C-W-(2)#12, #12 GND	CIRCUITS MAY BE COMBINED FOR HOME RUN
P3CF-P	CIRCULATION FAN POWER	PANELBOARD "08-STBY-LP01"	PUMP 3 FAN CONTROL BOX	1" C-W-(2)#12, #12 GND	CIRCUITS MAY BE COMBINED FOR HOME RUN
P4CF-P	CIRCULATION FAN POWER	PANELBOARD "08-STBY-LP01"	PUMP 4 FAN CONTROL BOX	1" C-W-(2)#12, #12 GND	CIRCUITS MAY BE COMBINED FOR HOME RUN
P6CF-P	CIRCULATION FAN POWER	PANELBOARD "08-STBY-LP01"	PUMP 6 FAN CONTROL BOX	1" C-W-(2)#12, #12 GND	CIRCUITS MAY BE COMBINED FOR HOME RUN
P7CF-P	CIRCULATION FAN POWER	PANELBOARD "08-STBY-LP01"	PUMP 7 FAN CONTROL BOX	1" C-W-(2)#12, #12 GND	CIRCUITS MAY BE COMBINED FOR HOME RUN
P8CF-P	CIRCULATION FAN POWER	PANELBOARD "08-STBY-LP01"	PUMP 8 FAN CONTROL BOX	1" C-W-(2)#12, #12 GND	CIRCUITS MAY BE COMBINED FOR HOME RUN
P1CF-C	CIRCULATION FAN AUTO CONTROL	PUMP 1 ASD	PUMP 1 FAN CONTROL BOX	1" C-W-(2)#14	CIRCUITS MAY BE COMBINED TO UG PULL BOX
P2CF-C	CIRCULATION FAN AUTO CONTROL	PUMP 2 MOTOR CONTROLLER	PUMP 2 FAN CONTROL BOX	1" C-W-(2)#14	CIRCUITS MAY BE COMBINED TO UG PULL BOX
P3CF-C	CIRCULATION FAN AUTO CONTROL	PUMP 3 ASD	PUMP 3 FAN CONTROL BOX	1" C-W-(2)#14	CIRCUITS MAY BE COMBINED TO UG PULL BOX
P4CF-C	CIRCULATION FAN AUTO CONTROL	PUMP 4 MOTOR CONTROLLER	PUMP 4 FAN CONTROL BOX	1" C-W-(2)#14	CIRCUITS MAY BE COMBINED TO UG PULL BOX
P6CF-C	CIRCULATION FAN AUTO CONTROL	PUMP 6 ASD	PUMP 6 FAN CONTROL BOX	1" C-W-(2)#14	CIRCUITS MAY BE COMBINED TO UG PULL BOX
P7CF-C	CIRCULATION FAN AUTO CONTROL	PUMP 7 MOTOR CONTROLLER	PUMP 7 FAN CONTROL BOX	1" C-W-(2)#14	CIRCUITS MAY BE COMBINED TO UG PULL BOX
P8CF-C	CIRCULATION FAN AUTO CONTROL	PUMP 8 ASD	PUMP 8 FAN CONTROL BOX	1" C-W-(2)#14	CIRCUITS MAY BE COMBINED TO UG PULL BOX
ASD1-COM	ASD ETHERNET CONNECTION	PUMP 1 ASD PLC	HSEB SCADA CONTROL PANEL	1" C-W-(2)CAT6	ASD ETHERNET CONNECTION
ASD3-COM	ASD ETHERNET CONNECTION	PUMP 3 ASD PLC	HSEB SCADA CONTROL PANEL	1" C-W-(2)CAT6	ASD ETHERNET CONNECTION
ASD6-COM	ASD ETHERNET CONNECTION	PUMP 6 ASD PLC	HSEB SCADA CONTROL PANEL	1" C-W-(2)CAT6	ASD ETHERNET CONNECTION
ASD8-COM	ASD ETHERNET CONNECTION	PUMP 8 ASD PLC	HSEB SCADA CONTROL PANEL	1" C-W-(2)CAT6	ASD ETHERNET CONNECTION
SHP-P	SUCTION PRESSURE TRANSMITTER POWER	SUCTION HEADER TRANSMITTER	HSPS PANEL 08-STBY-LP01	1" C-W-(2)#12, #12 GND	TRANSMITTER POWER
SHP-A	SUCTION PRESSURE SIGNAL	SUCTION HEADER TRANSMITTER	HSPS EXISTING CONTROL PANEL	1" C-W-(2)#16 TSP, #12 GND	TRANSMITTER SIGNAL
SP-2	SPARE HSPS WEST WALL TO PLC-3	HSPS SCADA PULL BOX ON WEST WALL	HSEB SCADA CONTROL PANEL	2" C-W-(24)#14, #12 GND	DIESEL ENGINE CONTROL
SP-3	SPARE HSPS WEST WALL TO SCADA UG PULL BOX	SCADA PULL BOX ON WEST WALL	HSEB UG SCADA PULL BOX	2" C-W-PULL STRING	FUTURE
SP-4	SPARE POWER CONDUIT	480V PULL BOX ON WEST WALL	HSEB UG 480V PULL BOX	2" C-W-PULL STRING	FUTURE
SP-5	SPARE POWER CONDUIT	4.16KV PULL BOX	4.16KV MANHOLE	4" C-W-PULL STRING	FUTURE
SP-6	SPARE POWER CONDUIT	4.16KV PULL BOX	4.16KV MANHOLE	4" C-W-PULL STRING	FUTURE
AC1	A/C CONTROLS UNIT 1	HVAC CONTROL PANEL	A/C UNIT 1 CONTROLS	1" C-W-(6)#14, #12 GND	TAGS NOT SHOWN ON PLAN DRAWINGS
AC2	A/C CONTROLS UNIT 2	HVAC CONTROL PANEL	A/C UNIT 2 CONTROLS	1" C-W-(6)#14, #12 GND	TAGS NOT SHOWN ON PLAN DRAWINGS
AC3	A/C CONTROLS UNIT 3	HVAC CONTROL PANEL	A/C UNIT 3 CONTROLS	1" C-W-(6)#14, #12 GND	TAGS NOT SHOWN ON PLAN DRAWINGS
AC4	A/C CONTROLS UNIT 4	HVAC CONTROL PANEL	A/C UNIT 4 CONTROLS	1" C-W-(6)#14, #12 GND	TAGS NOT SHOWN ON PLAN DRAWINGS
AC5	A/C CONTROLS UNIT 5	HVAC CONTROL PANEL	A/C UNIT 5 CONTROLS	1" C-W-(6)#14, #12 GND	TAGS NOT SHOWN ON PLAN DRAWINGS
AC6	A/C CONTROLS UNIT 6	HVAC CONTROL PANEL	A/C UNIT 6 CONTROLS	1" C-W-(6)#14, #12 GND	TAGS NOT SHOWN ON PLAN DRAWINGS
AC7	A/C CONTROLS UNIT 7	HVAC CONTROL PANEL	A/C UNIT 7 CONTROLS	1" C-W-(6)#14, #12 GND	TAGS NOT SHOWN ON PLAN DRAWINGS
AC8	A/C CONTROLS UNIT 8	HVAC CONTROL PANEL	A/C UNIT 8 CONTROLS	1" C-W-(6)#14, #12 GND	TAGS NOT SHOWN ON PLAN DRAWINGS
AC9	A/C CONTROLS UNIT 9	HVAC CONTROL PANEL	A/C UNIT 9 CONTROLS	1" C-W-(6)#14, #12 GND	TAGS NOT SHOWN ON PLAN DRAWINGS
TS1	TEMPERATURE SENSOR 1	HVAC CONTROL PANEL	TEMPERATURE SENSOR 1	1" C-W-(1)#16 TSP	TAGS NOT SHOWN ON PLAN DRAWINGS
TS2	TEMPERATURE SENSOR 2	HVAC CONTROL PANEL	TEMPERATURE SENSOR 2	1" C-W-(1)#16 TSP	TAGS NOT SHOWN ON PLAN DRAWINGS
TS3	TEMPERATURE SENSOR 3	HVAC CONTROL PANEL	TEMPERATURE SENSOR 3	1" C-W-(1)#16 TSP	TAGS NOT SHOWN ON PLAN DRAWINGS

* PROFIBUS DP CABLES SHALL BE AWC PART NO. 3196196-54 OR APPROVED EQUAL.

11/15	ADDENDUM NO.2	MHW
11/15	ADDENDUM NO.1	MHW
No.	Date	Revisions
		App.

PRIVATE UTILITY LINES SHOWN

N/A
CENTER POINT/GAS

N/A
SBC CO. VALID FOR ONE YEAR
APPROVED ONLY FOR UNDERGROUND CONDUIT FACILITIES
UNLESS NOTED.

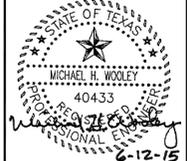
N/A
CENTER POINT/ELECTRIC
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UNLESS NOTED. VALID AT TIME OF REVIEW ONLY.

N/A
CABLE COMPANY

APPROVED: MHW DATE: 06/12/15
DESIGNED BY: RHW DRAWN BY: CM

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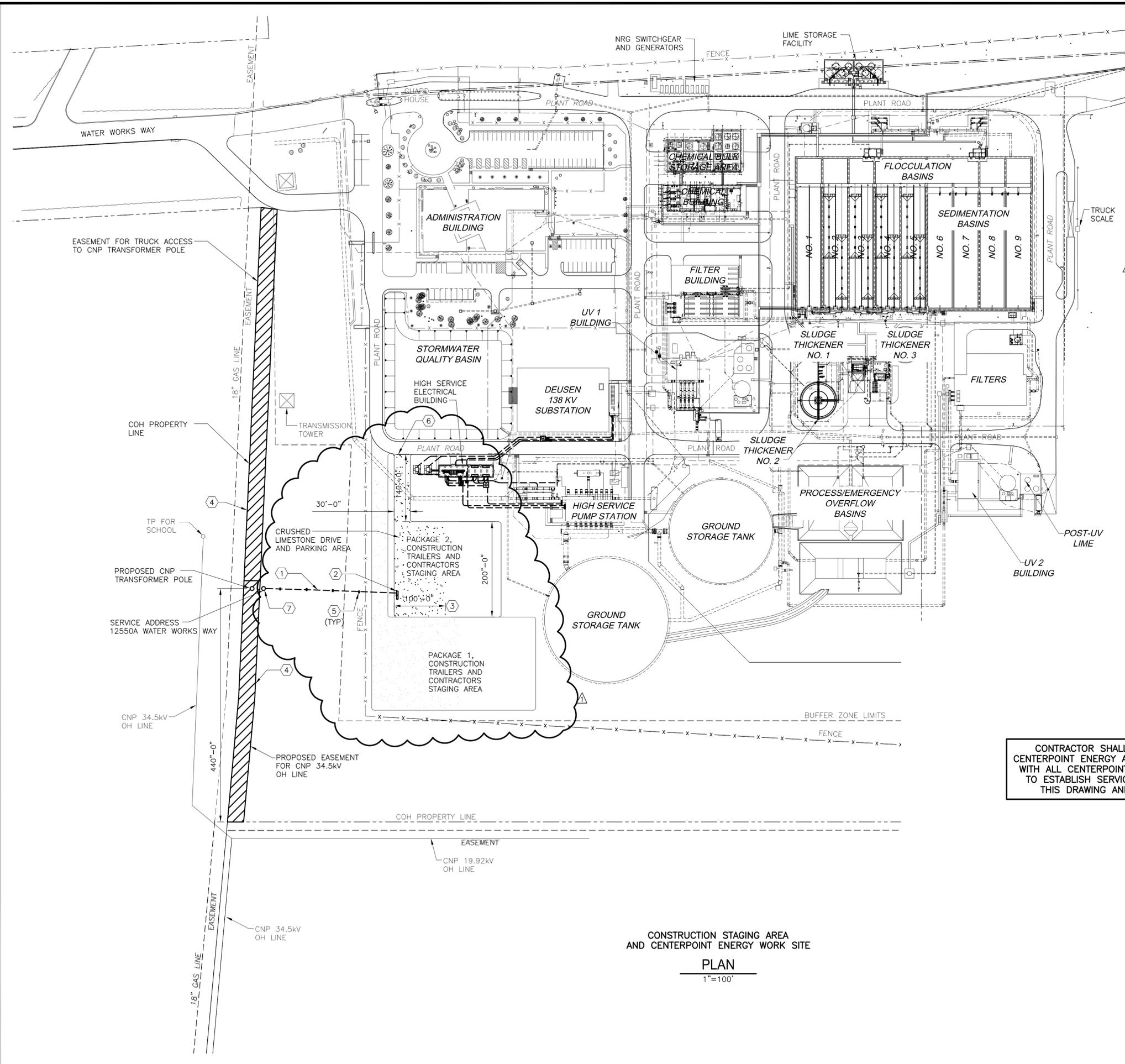


SURVEYED BY: BRIONES FB NO. 1500

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
NORTHEAST WATER PURIFICATION PLANT
IMPROVEMENTS PACKAGE NO. 2
HIGH SERVICE PUMP STATION AND
MISCELLANEOUS PIPING IMPROVEMENTS

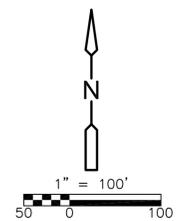
**CONDUIT AND CABLE
SCHEDULE
SHEET 2 OF 2
ELECTRICAL**

WARNING 0 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	WBS NO. S-000066-012A-4
DWG NO. E-20	DRAWING SCALE AS NOTED
	CITY OF HOUSTON PM
	NA YAO P.E.
	SHEET NO. 87 OF 113



- NOTES:
- 1 PROVIDE TWO TRENCHES, ONE FOR POWER WITH 2 - 2-1/2" SCHEDULE 40 PVC CONDUITS AND ONE WITH 1-2" CONDUIT FOR PHONE OR CABLE. USE A CHAIN TYPE WALK BEHIND TRENCHER TO AVOID TREES AND CAUSE MINIMAL IMPACT TO NATURAL VEGETATION. SPACE THE TRENCHES A MINIMUM OF 24 INCHES APART AND DIRECT BURY THE CONDUITS AT A MINIMUM DEPTH OF 36 INCHES, INSTALL A DETECTABLE WARNING TAPE 12 INCHES BELOW GRADE DURING TRENCH BACKFILL COMPACTION.
 - 2 PROVIDE SERVICE RACK PER CURRENT CNP STANDARDS, SEE DETAIL ON E-27 FOR CONCEPT.
 - 3 CLEAR VEGETATION, REMOVE STUMPS TO BELOW GRADE, AND GROOM CONSTRUCTION TRAILER AND STAGING AREA 200' BY 200', GRADE DRIVE AND PARKING AREA TO UNIFORMITY AND PROVIDE A CROWN RUNNING NORTH AND SOUTH FOR DRAINAGE. AFTER COMPACTION PROVIDE 4 INCHES OF CRUSHED LIMESTONE FOR DRIVE AND PARKING AREA. GRADE AND ROLL LIMESTONE TO UNIFORMITY AND STOCK PILE TEN CUBIC YARDS FOR REPAIR DURING THE PROJECT. CONTRACTOR SHALL GRADE AND TOUCH UP DRIVE AND PARKING AREA PRIOR TO EACH MONTHLY MEETING AS REQUIRED, DURING THE PROJECT. RETURN THE AREA TO NATURAL STATE AT THE END OF THE PROJECT.
 - 4 CLEAR A 30' RIGHT-OF-WAY ADJACENT TO PLANT PROPERTY LINE OF ALL TREES AND VEGETATION. GRIND TREE STUMPS FLUSH WITH GRADE. GRADE RIGHT-OF-WAY TO A UNIFORM ELEVATION SO THAT UTILITY COMPANY TRUCKS CAN DRIVE DOWN THE RIGHT-OF-WAY. CENTERPOINT ENERGY WILL SET POWER POLES 7' EAST OF THE PLANT PROPERTY LINE.
 - 5 PROVIDE, SET IN SACKCRETE, POST MOUNTED SIGNS TO MARK ROUTE FOR DIRECT BURIED CONDUITS. LOCATE MARKERS AT 50' INTERVALS BETWEEN POWER AND COMMUNICATION CONDUITS. SIGNS TO BE AN ALUMINUM, SET ON OPPOSITE SIDES WITH "POWER ON ONE SIDE AND "COMMUNICATION" ON THE OTHER SIDE. SEE DETAIL ON DRAWING E-27.
 - 6 REMOVE CURB AND CREATE A SMOOTH TRANSITION FROM THE STREET TO THE CRUSHED LIMESTONE DRIVE.
 - 7 SERVICE RISER POLE, SEE DETAIL ON DRAWING E-27.

CONTRACTOR SHALL COORDINATE ALL CENTERPOINT ENERGY ACTIVITIES AND COMPLY WITH ALL CENTERPOINT ENERGY STANDARDS TO ESTABLISH SERVICE AS INDICATED ON THIS DRAWING AND DRAWING E-27



CONSTRUCTION STAGING AREA AND CENTERPOINT ENERGY WORK SITE
PLAN
 1"=100'

No.	Date	Revisions	App.
11/15		ADDENDUM NO. 2	MHW
11/15		ADDENDUM NO.1	MHW

PRIVATE UTILITY LINES SHOWN

N/A
CENTER POINT/GAS

N/A
SBC CO. VALID FOR ONE YEAR APPROVED ONLY FOR UNDERGROUND CONDUIT FACILITIES UNLESS NOTED.

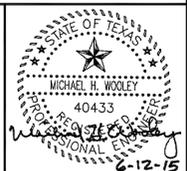
N/A
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N/A
CABLE COMPANY

APPROVED: MHW DATE: 06/12/15
 DESIGNED BY: RHW DRAWN BY: CM

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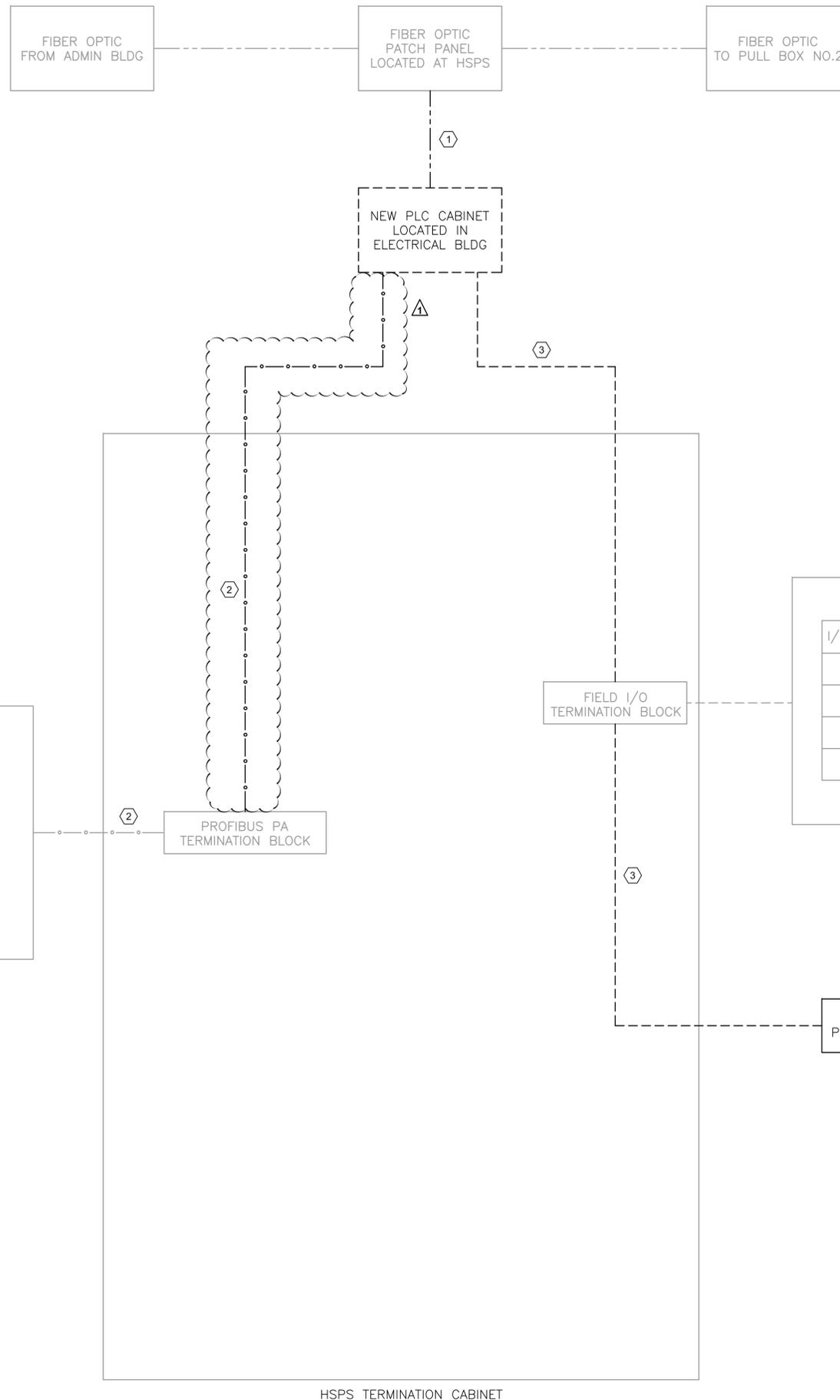
SURVEYED BY: BRIONES FB NO. 1500

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
 NORTHEAST WATER PURIFICATION PLANT
 IMPROVEMENTS PACKAGE NO. 2
 HIGH SERVICE PUMP STATION AND
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CONSTRUCTION STAGING AREA AND CENTERPOINT WORK SITE PLAN
 ELECTRICAL

WARNING 0 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	WBS NO. S-000066-012A-4
	DRAWING SCALE AS NOTED
DWG NO. E-31	CITY OF HOUSTON PM NA YAO P.E.
	SHEET NO. 98 OF 113

DWG: P:\Projects\0106 - City of Houston\07002 - NEWPP\Construction\Addenda\ADDEN 1\DWG\I-03.dwg
 DATE: Nov 16, 2015 9:59am XREFS:00-COH TBK pe-arm (Texas) USER: MMeindipour



- NOTES BY SYMBOL: " ⬡ "
- 12 STRAND MULTIMODE FIBER OPTIC CABLE
 - NETWORK SIGNAL (PROFIBUS PA)
 - COPPER WIRE CONNECTION

No.	Date	Revisions	App.
⚠	11/15	ADDENDUM NO.2	AM

PRIVATE UTILITY LINES SHOWN

N/A
CENTER POINT/GAS

N/A
SBC CO. VALID FOR ONE YEAR
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UNLESS NOTED.

N/A
CENTER POINT/ELECTRIC
APPROVED ONLY FOR CROSSING UNDERGROUND DUCTLINES
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N/A
CABLE COMPANY

APPROVED: AM DATE: JULY 2015
 DESIGNED BY: AM, RW DRAWN BY: MM

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MBROH ENGINEERING INC
 12810 HILLCREST ROAD
 SUITE 8221
 DALLAS, TEXAS 75230
 PHONE: 972.384.9090
 TBPE FIRM NO. 8439

Professional Engineer Seal for Anthony Mbroh, License No. 95793, State of Texas, dated 11-16-15.

SURVEYED BY: BRIONES FB NO. 1500

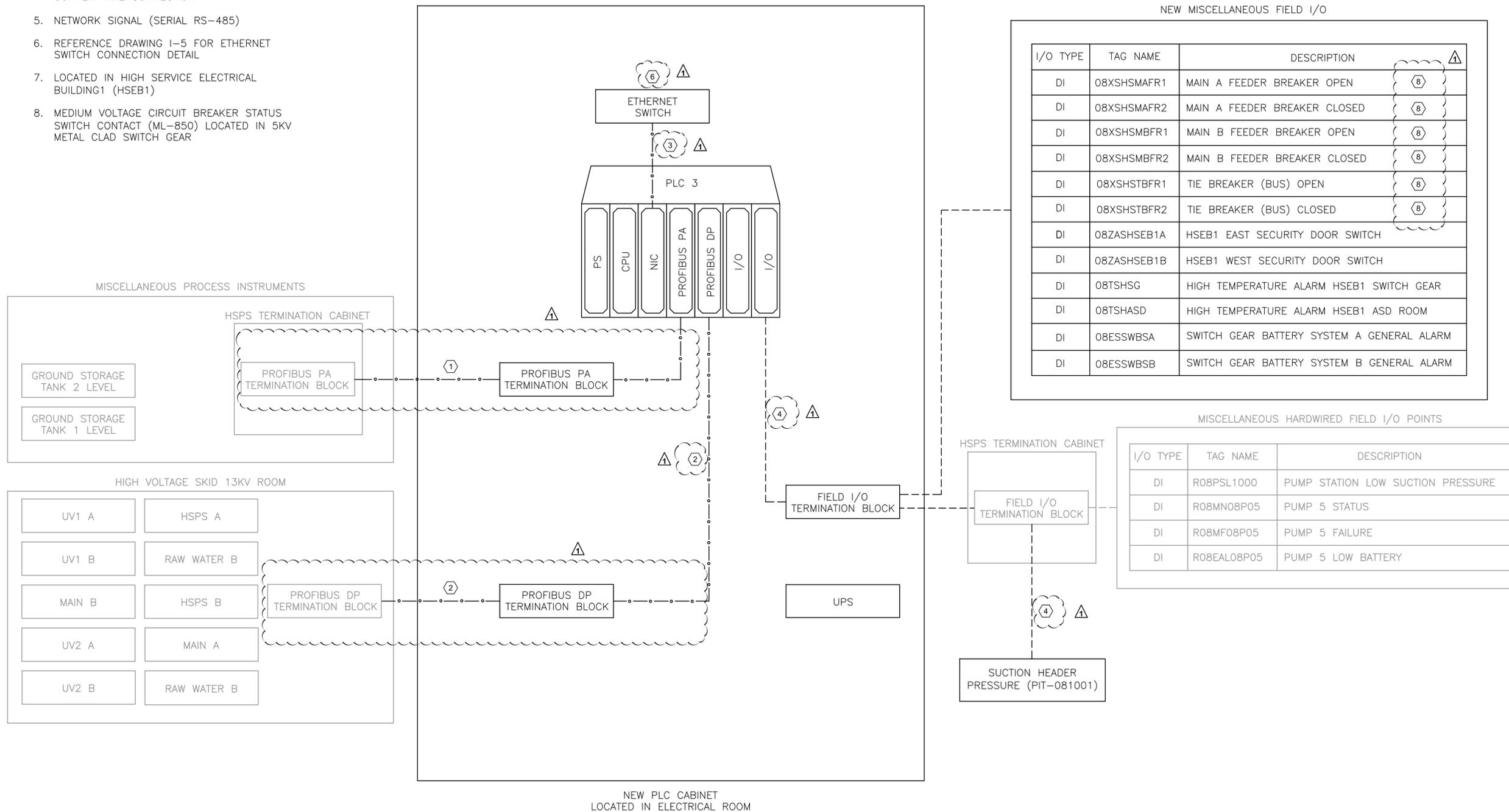
CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
 NORTHEAST WATER PURIFICATION PLANT
 IMPROVEMENTS PACKAGE NO. 2
 HIGH SERVICE PUMP STATION AND
 MISCELLANEOUS PIPING IMPROVEMENTS

**INSTRUMENTATION HIGH
 SERVICE PUMP STATION (HSPS)
 TERMINATION CABINET**

WARNING IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	WBS NO. S-000066-012A-4
	DRAWING SCALE N.T.S.
DWG. NO. I-3	CITY OF HOUSTON PM NA YAO, P.E.
	SHEET NO. 101 OF 113

NOTES BY SYMBOL: " ⬡ "

1. NETWORK SIGNAL (PROFIBUS PA)
2. NETWORK SIGNAL (PROFIBUS DP)
3. NETWORK SIGNAL (CAT 6)
4. COPPER WIRE CONNECTION
5. NETWORK SIGNAL (SERIAL RS-485)
6. REFERENCE DRAWING I-5 FOR ETHERNET SWITCH CONNECTION DETAIL
7. LOCATED IN HIGH SERVICE ELECTRICAL BUILDING1 (HSEB1)
8. MEDIUM VOLTAGE CIRCUIT BREAKER STATUS SWITCH CONTACT (ML-850) LOCATED IN 5KV METAL CLAD SWITCH GEAR



NEW MISCELLANEOUS FIELD I/O

I/O TYPE	TAG NAME	DESCRIPTION
DI	08XSHSMAFR1	MAIN A FEEDER BREAKER OPEN
DI	08XSHSMAFR2	MAIN A FEEDER BREAKER CLOSED
DI	08XSHSMBFR1	MAIN B FEEDER BREAKER OPEN
DI	08XSHSMBFR2	MAIN B FEEDER BREAKER CLOSED
DI	08XSHSTBFR1	TIE BREAKER (BUS) OPEN
DI	08XSHSTBFR2	TIE BREAKER (BUS) CLOSED
DI	08ZASHSEB1A	HSEB1 EAST SECURITY DOOR SWITCH
DI	08ZASHSEB1B	HSEB1 WEST SECURITY DOOR SWITCH
DI	08TSHSG	HIGH TEMPERATURE ALARM HSEB1 SWITCH GEAR
DI	08TSHASD	HIGH TEMPERATURE ALARM HSEB1 ASD ROOM
DI	08ESSWBSA	SWITCH GEAR BATTERY SYSTEM A GENERAL ALARM
DI	08ESSWBSB	SWITCH GEAR BATTERY SYSTEM B GENERAL ALARM

MISCELLANEOUS HARDWIRED FIELD I/O POINTS

I/O TYPE	TAG NAME	DESCRIPTION
DI	R08PSL1000	PUMP STATION LOW SUCTION PRESSURE
DI	R08MN08P05	PUMP 5 STATUS
DI	R08MF08P05	PUMP 5 FAILURE
DI	R08EAL08P05	PUMP 5 LOW BATTERY

No.	Date	Revisions	App.
11/15		ADDENDUM NO.2	AM

PRIVATE UTILITY LINES SHOWN

N/A
CENTER POINT/GAS

N/A
SBC CO. VALID FOR ONE YEAR
APPROVED ONLY FOR UNDERGROUND CONDUIT FACILITIES
UNLESS NOTED.

N/A
CENTER POINT/ELECTRIC
APPROVED ONLY FOR CROSSING UNDERGROUND DUCTLINES
UNLESS NOTED. VALID AT TIME OF REVIEW ONLY.

N/A
CABLE COMPANY

APPROVED: AM DATE: JULY 2015
DESIGNED BY: AM, RW DRAWN BY: MM

CDM Smith 3050 Post Oak Blvd., Suite 300
Houston, TX 77056
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TBPE Firm Registration No. F-3043

MBROH ENGINEERING INC
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STATE OF TEXAS
ANTHONY MBROH
95793
LICENSED PROFESSIONAL ENGINEER
11-16-15

SURVEYED BY: BRIONES FB NO. 1500

CITY OF HOUSTON
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NORTHEAST WATER PURIFICATION PLANT
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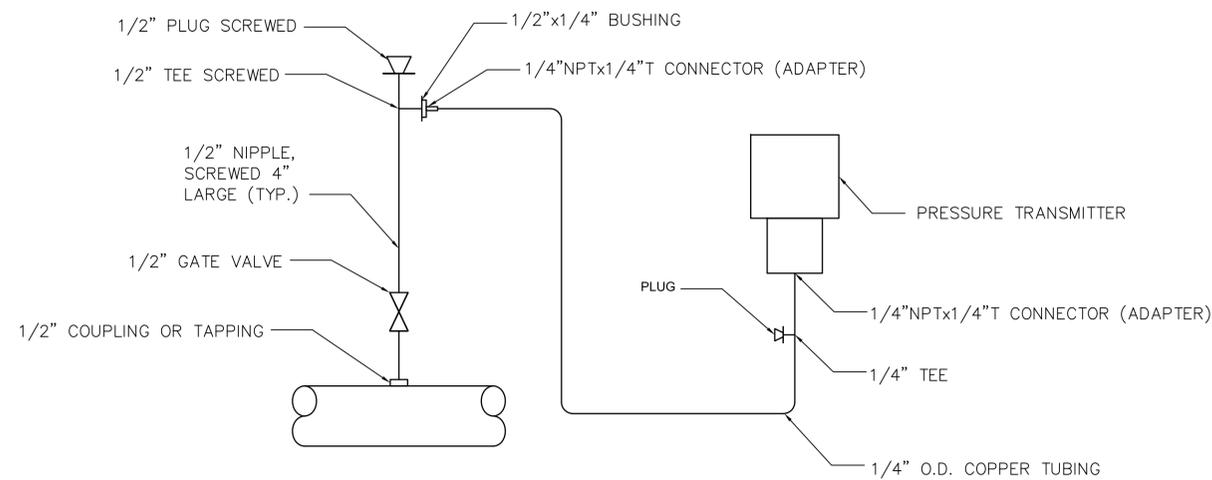
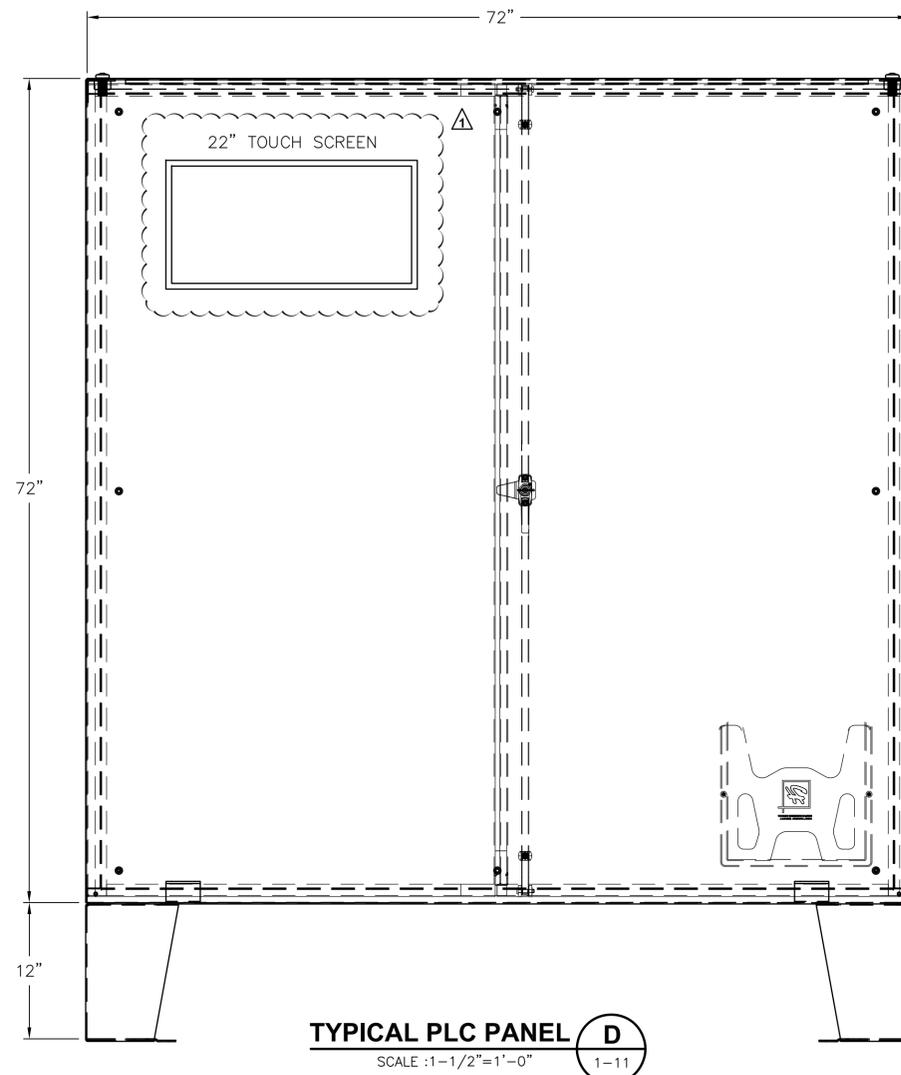
INSTRUMENTATION HIGH SERVICE PUMP STATION (HSPS) SYSTEM ARCHITECTURE I

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DWG. NO. **I-4**

WBS NO. S-000066-012A-4
DRAWING SCALE **N.T.S.**
CITY OF HOUSTON PM
NA YAO, P.E.
SHEET NO. **102** OF **113**

DWG: P:\Projects\0106 - City of Houston\07002 - NEWPP\Construction\Addenda\ADDEN 1\DWG\1-11.dwg
 DATE: Nov 16, 2015 10:01am XREFS:00-COH.TBK _pe-arm.(texas) USER: MMendipour



No.	Date	Revisions	App.
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**TYPICAL INSTRUMENT
 INSTALLATION DETAILS II**

WARNING 0 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	WBS NO. S-000066-012A-4
	DRAWING SCALE N.T.S.
DWG. NO. I-11	CITY OF HOUSTON PM NA YAO, P.E.
	SHEET NO. 112 OF 113