ADDENDUM NO. 1
February 6th, 2025

PROJECT: TRI-TRY WSC
PUMP STATION IMPROVEMENTS

BID DATE: February 12th, 2025

The following changes and/or additions shall be made to the Plans, Specifications, and Contract Documents for the above referenced project. Bidder shall acknowledge receipt of this Addendum by signing below and returning this Addendum with the Bid.

1) CONTRACT DOCUMENTS

Bid Schedule – The bid schedule has been revised to include the following:

i) Base bid has been modified to include a different fiberglass tank size and include different building piping material.
ii) Additional additive alternatives have been included for the ground storage tank, yard piping and building piping.
iii) Additional deductive alternatives have been included for the pressure tank recoat and building piping.

Please utilize the updated bid schedule when placing a bid.

2) PLAN SHEETS

Sheet 5 – Proposed Site Plan – This sheet has been modified to modify the building orientation and provide updated details on the waterline connections.
Sheet 6 – Building Layout – This sheet has been modified to update the building orientation and provide additional details on the tank fill valve.
Sheet 9 – Piping and Pump Sections – This sheet has been modified to provide additional details on the tank fill valve model and materials.
Sheet 10 – Pressure Tank Details – This sheet has been modified to remove the ¾" hose bib outside the building.
Sheet 11 – Building Elevations – This sheet has been modified to update the building orientation and provide additional details on the pump station building -- by others.
Sheet 12 – Storage Tank Plan and Elevation – This sheet has been modified to clarify the tank details and the tank additive options.
Sheets 15-18 – All Electrical Pages – These pages have been modified to update the building orientation.

3) SPECIFICATIONS

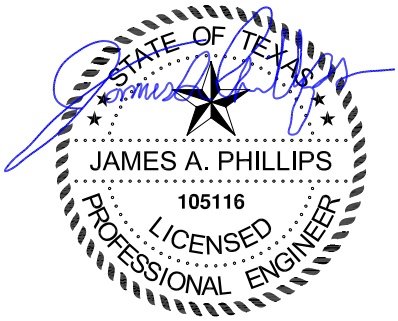
01 03 01 – Measurement and Payment – This specification has been modified to include additional details of the measurement and payment.

13 07 01 – Welded Steel Water Storage Reservoirs – This specification has been included to provide additional details related to the welded steel ground storage tanks.

33 01 03 – Ductile Iron Pipe – This specification has been included to provide additional details related to the ductile iron pipe.

Prepared by:

JACOB | MARTIN
TBPE Firm No. 2448



2/6/2025

_____

Bidder's Acknowledgment

_____

Date

TRI-TRY WSC
PUMP STATION IMPROVEMENTS
BASE BID SCHEDULE - ADDENDUM #1

Show prices in numerals. Round off unit prices to two decimal places only.
These Bid Prices must include all labor, materials, equipment, insurance, overhead, superintendence, transportation, profits & incidentals to cover the finished Work called for in the Contract Documents.

For all Labor, Materials, Equipment and Incidentals to Furnish and Install the Following:

Bid Item	Description	Est. Qty.	Unit	Unit Price	Extended Amount
1	Mobilization, Bonds, and Insurance	1	LS	$	$
2	Pump Station Building Piping and Valves (Ductile)[1]	1	LS	$	$
3	Pump Station Pumps [2]	1	LS	$	$
4	Pump Station Electrical & Control [3]	1	LS	$	$
5	Yard Piping (SDR9 Poly) and Valves [4]	1	LS	$	$
6	15,000-Gallon Fiberglass GST	1	LS	$	$
7	Pressure Tank Recoat	1	LS	$	$
8	Disinfection Improvements [5]	1	LS	$	$
	TOTAL BASE BID (Items 1-8)				**$**

ADDITIVE ALTERNATE BID SCHEDULE

For all Labor, Materials, Equipment and Incidentals to Furnish and Install the Following:

Bid Item	Description	Est. Qty.	Unit	Unit Price	Extended Amount
A1	5,000 - Gallon Fiberglass GST	1	LS	$	$
A2	10,000 - Gallon Fiberglass GST	1	LS	$	$
A3	15,000 - Gallon Welded Steel GST	1	LS	$	$
A4	10,000 - Gallon Welded Steel GST	1	LS	$	$
A5	5,000 - Gallon Welded Steel GST	1	LS	$	$
A6	Yard Piping (DR18 PVC) and Valves	1	LS	$	$
A7	Yard Piping (DR25 PVC) and Valves	1	LS	$	$
A8	Pump Station Buildling Piping and Valves (Schedule 80 PVC)	1	LS	$	$
A9	Pump Station Buildling Piping and Valves (Galvanized Steel)	1	LS	$	$

DEDUCTIBLE ALTERNATE BID SCHEDULE

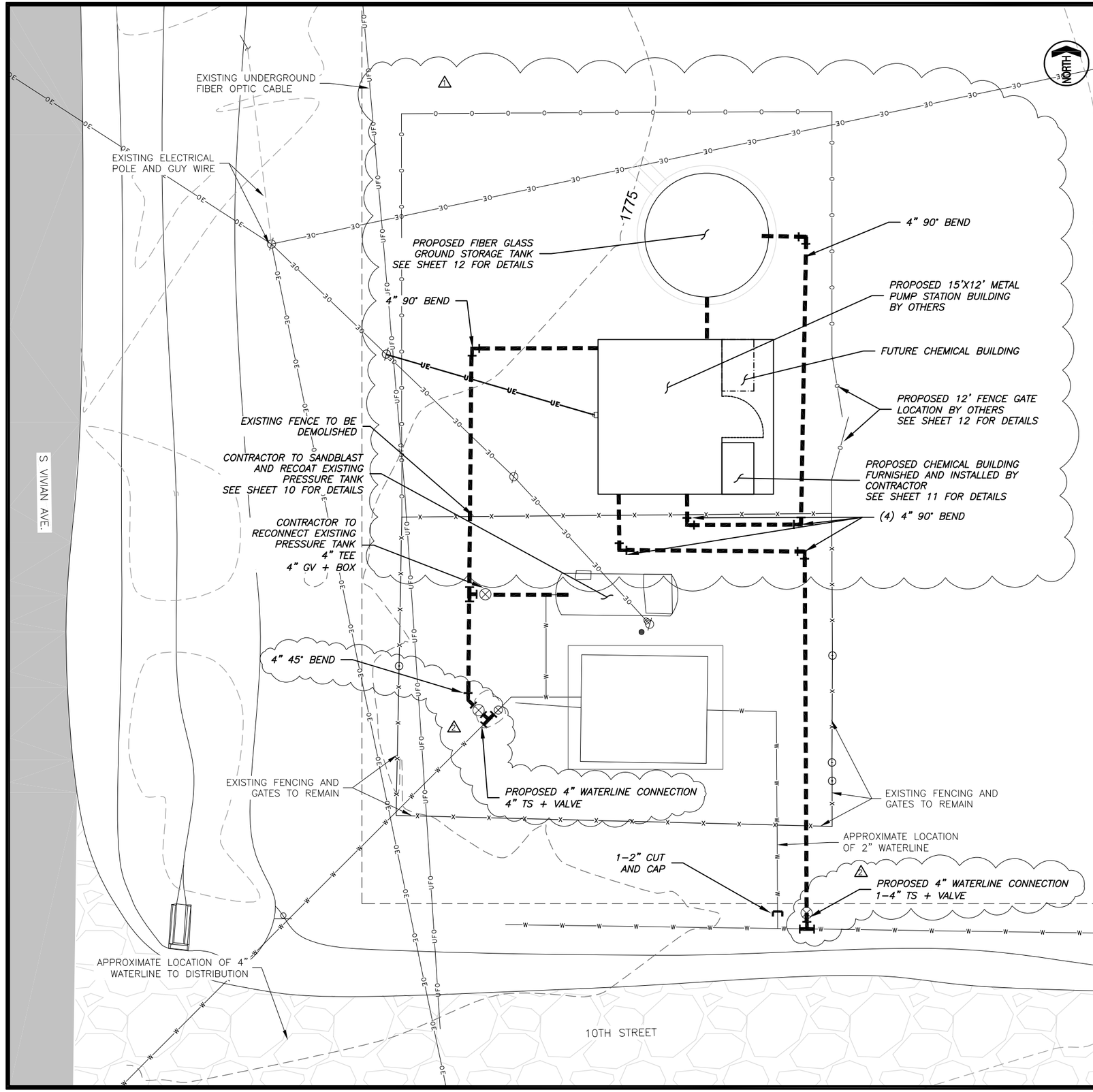
For all Labor, Materials, Equipment and Incidentals to Furnish and Install the Following:

Bid Item	Description	Est. Qty.	Unit	Unit Price	Extended Amount
D1	15,000-Gallon Fiberglass GST	1	LS	$	$
D2	Pressure Tank Recoat	1	LS	$	$
D3	Pump Station Building Piping and Valves (Ductile)[6]	1	LS	$	$

TOTAL PROPOSED NUMBER OF DAYS FOR COMPLETION:	

NOTES:

1 - Includes all water and air piping, pipe stands, valves and fittings inside the building, including the combination back presure - solenoid flow control valve and temporary piping and valves.
2 - Includes provision of two (2) Grundfos 15951 LC 80GPM @ 260' pumps or approved equal and installation.
3 - Includes all buildling electrical, VFDs, controls and integration of pump-air compressor- pressure tank communication along with CLA-VAL-ground storage tank communication.
4 - This includes all water and air piping, fitting and valves outside of the building and tie ins to the existing waterline.
5 - Includes the chemical buildling, pump, tubing, valves, calibration cylinder and chemical connections.
6 - If D3 is selected by the water system, either A8 or A9 will also be selected.



NOTE:

1) ALL UNDERGROUND WATER LINE AND FITTINGS SHALL BE SDR9 POLY.
2) POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THE PROJECT.
3) CONTRACTOR SHALL TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER.
4) CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL, OR BETTER, CONDITION ANY DAMAGES DONE TO EXISTING BUILDINGS, UTILITIES, FENCES, PAVEMENT, CURBS OR DRIVEWAYS.
5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL NECESSARY UTILITY COMPANIES FOR PROVIDING TEMPORARY UTILITY SERVICES DURING CONSTRUCTION.
6) CONTRACTOR SHALL MAKE EVERY EFFORT TO LIMIT DISTURBANCE TO AREAS NOT SHOWN ON THE PLANS.
7) CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT, PLACEMENT OR LIMITS OF DIMENSIONS OR GRADES NECESSARY FOR CONSTRUCTION OF THIS PROJECT.
8) CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF SURPLUS AND UNACCEPTABLE/ OBJECTIONABLE MATERIAL OFF-SITE AT HIS OWN EXPENSE.
9) ALL EXCAVATION ON THIS PROJECT IS UNCLASSIFIED.
10) CONTRACTOR SHALL PROVIDE ALL TEMPORARY FENCING TO SECURE SITE FROM LIVESTOCK AND TEMPORARY GATES REQUIRED FOR ACCESS TO SITE DURING CONSTRUCTION.
11) CONTRACTOR SHALL INSTALL ALL ELECTRIC FACILITIES AND EQUIPMENT FOR ALL ELECTRICAL COMPONENTS SHOWN AND SPECIFIED.
12) SEE ELECTRICAL PLANS FOR ELECTRICAL COMPONENTS.
13) CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TEST A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AT THE CONTRACT'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

STATE OF TEXAS
JAMES A. PHILLIPS
105116
LICENSED PROFESSIONAL ENGINEER
08/21/24

ISSUED FOR REVIEW

JACOB MARTIN
TBPE FIRM # 2448 | TBAE FIRM # BR 2261 | TBPELS FIRM # 10194493

TRI-TRY WATER SYSTEM IMPROVEMENTS
ASPERMONT, TEXAS

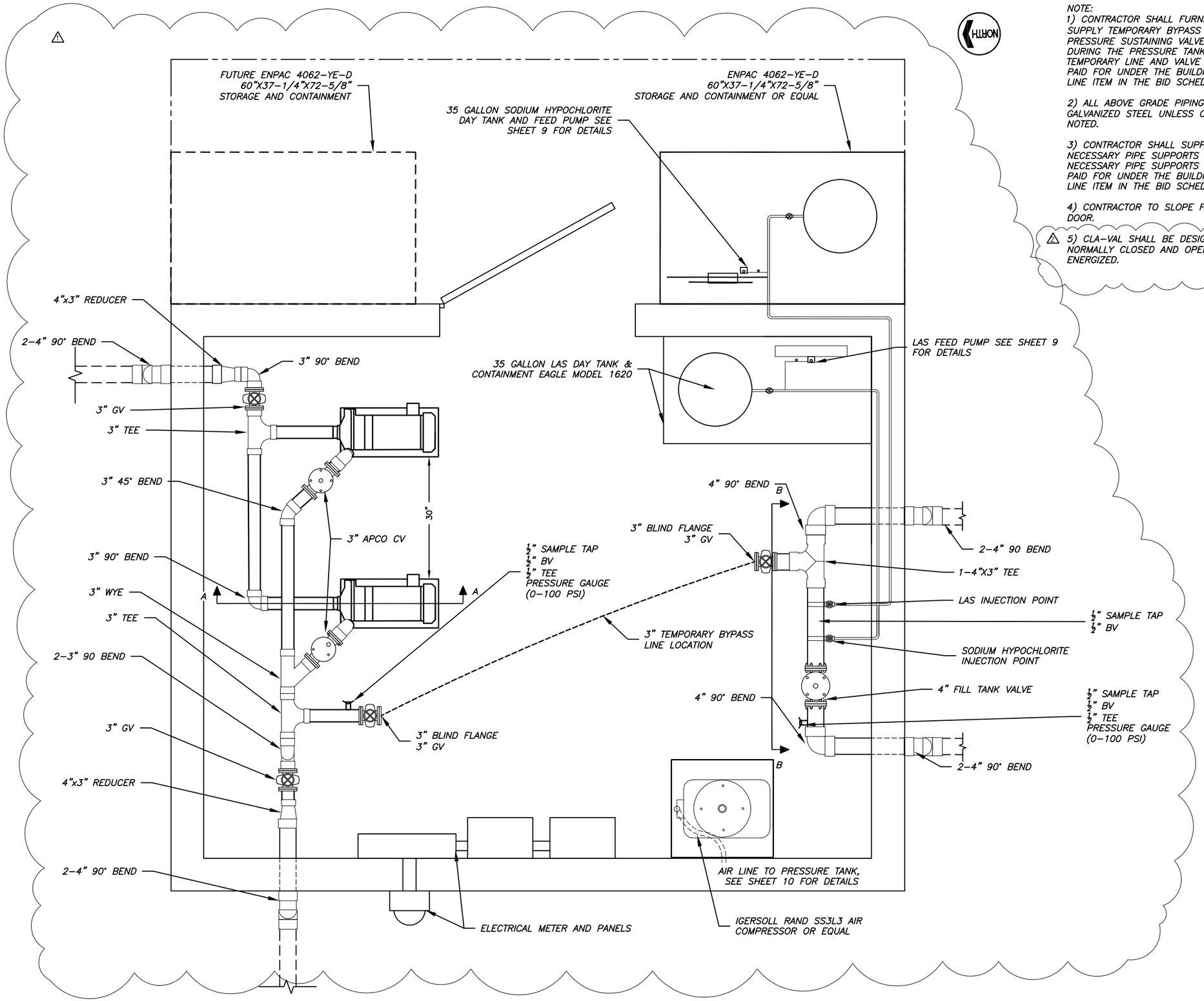
PROPOSED SITE PLAN

NO.	REVISION	DATE
1	BUILDING MODIFICATION	10/01/2024
2	ADDENDUM #1	02/05/2025

BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

PROJECT # 22170 | SCALE 1" = 10'

SEQ. 5 | SHEET 5 / 18



NOTE:
1) CONTRACTOR SHALL FURNISH AND SUPPLY TEMPORARY BYPASS LINE AND 2" PRESSURE SUSTAINING VALVE TO BE USED DURING THE PRESSURE TANK RECOAT. THIS TEMPORARY LINE AND VALVE SHALL BE PAID FOR UNDER THE BUILDING PIPING LINE ITEM IN THE BID SCHEDULE.

2) ALL ABOVE GRADE PIPING SHALL BE GALVANIZED STEEL UNLESS OTHERWISE NOTED.

3) CONTRACTOR SHALL SUPPLY ALL NECESSARY PIPE SUPPORTS FOR PROJECT. NECESSARY PIPE SUPPORTS SHALL BE PAID FOR UNDER THE BUILDING PIPING LINE ITEM IN THE BID SCHEDULE.

4) CONTRACTOR TO SLOPE FLOOR TO DOOR.

2 5) CLA-VAL SHALL BE DESIGNED TO BE NORMALLY CLOSED AND OPEN WHEN ENERGIZED.

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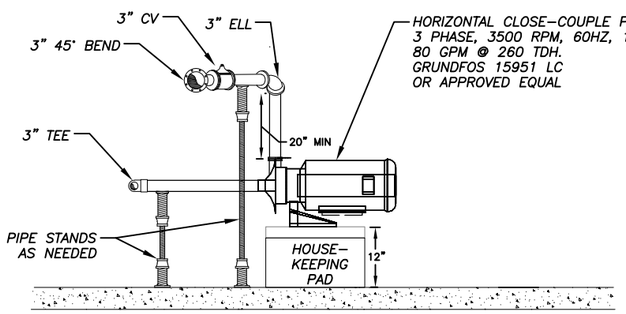
ASPERMONT, TEXAS
TRI-TRY WATER SYSTEM IMPROVEMENTS

BUILDING LAYOUT

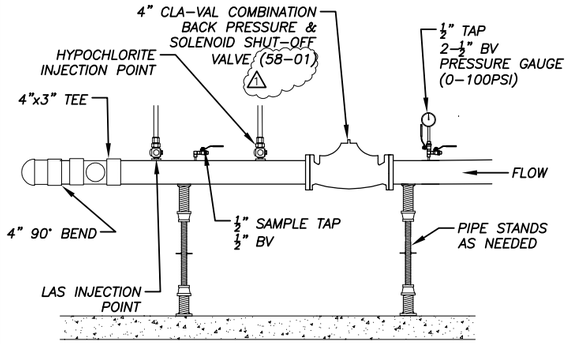
NO.	REVISION	DATE
1	BUILDING MODIFICATION	10/01/2024
2	ADDENDUM #1	02/05/2025

PROJECT # 22170 | SCALE 1/2" = 1' | BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

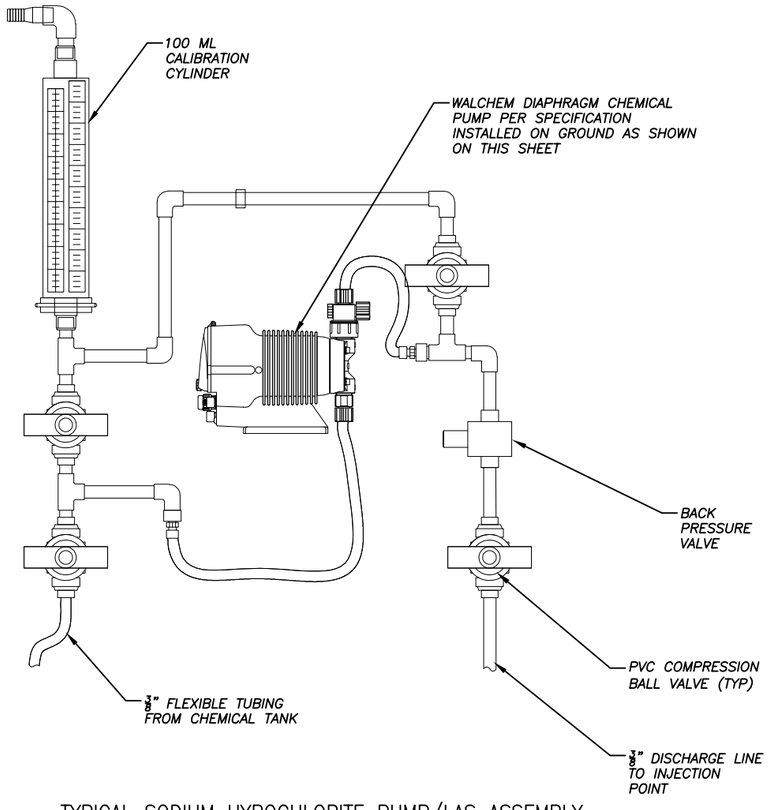
SEQ. 6 / 18 | SHEET 6



A–A
(SEE SHEET 6)
NTS



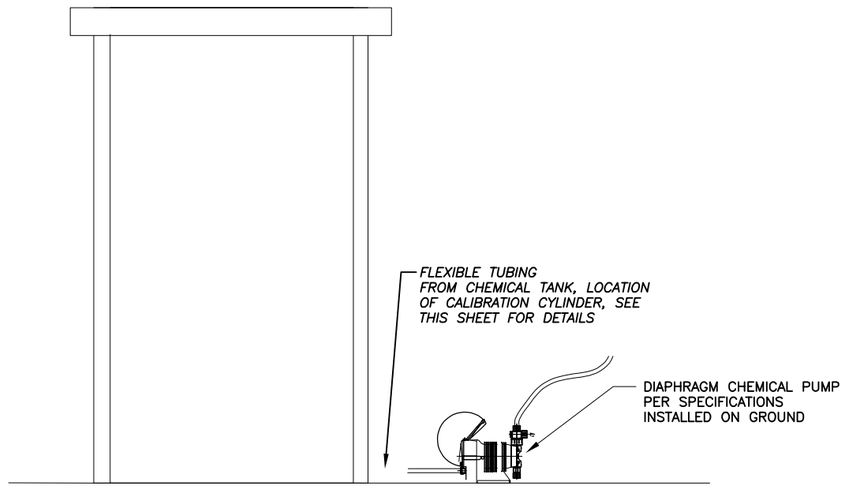
B–B
(SEE SHEET 6)
NTS



TYPICAL SODIUM HYPOCHLORITE PUMP/LAS ASSEMBLY
NTS

NOTE:

1. ALL PIPING, FITTINGS & VALVES SHALL BE GALVANIZED STEEL UNLESS SHOWN OR SPECIFIED OTHERWISE.
2. CHEMICAL ASSEMBLIES SHALL BE CONSTRUCTED ADJACENT TO CHEMICAL STORAGE CONTAINERS.
3. CONTRACTOR SHALL VERIFY WITH CUSTOMER LOCATION AND CONFIGURATION OF CHEMICAL ASSEMBLIES.
4. STAINLESS STEEL COMPONENTS SHALL BE UTILIZED IN THE 4" CLA-VAL COMBINATION BACK PRESSURE & SOLENOID SHUT-OFF VALVE SPECIFICALLY THE PILOTS TUBING AND FITTINGS. (1)



TYPICAL CHEMICAL ASSEMBLY CONFIGURATION
NTS

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ASPERMONT, TEXAS
TRI-TRY WATER SYSTEM IMPROVEMENTS

PUMPING SECTIONS

NO.	REVISION	DATE
1	ADDENDUM #1	02/05/2025

BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

PROJECT # 22170 | SCALE NTS

SEQ. 9 / 18 | SHEET 9

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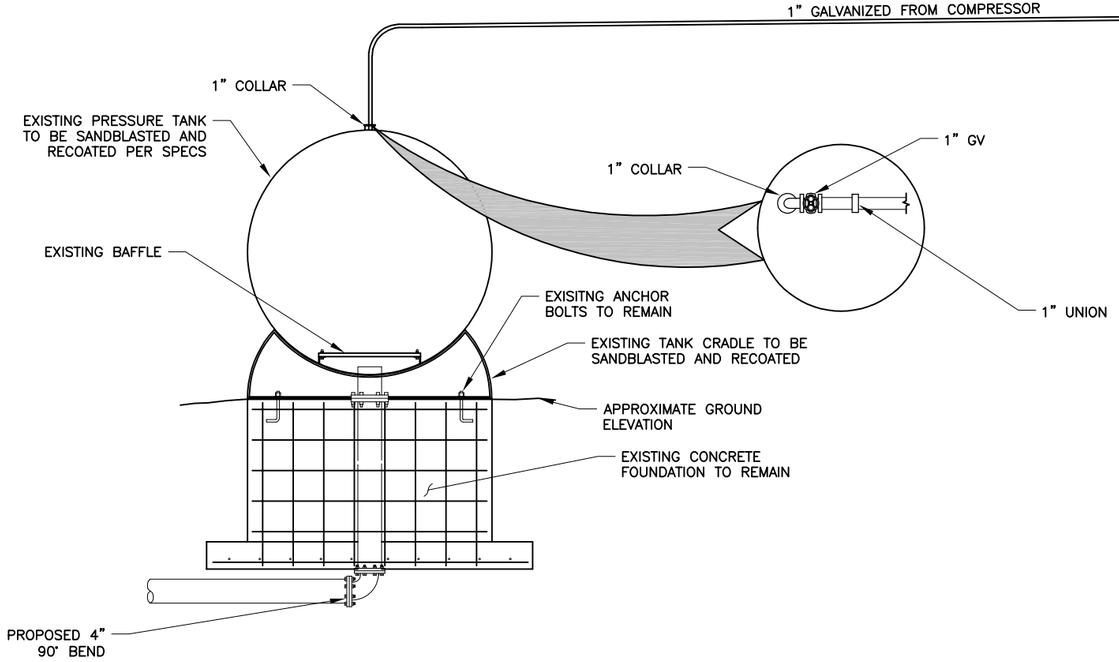
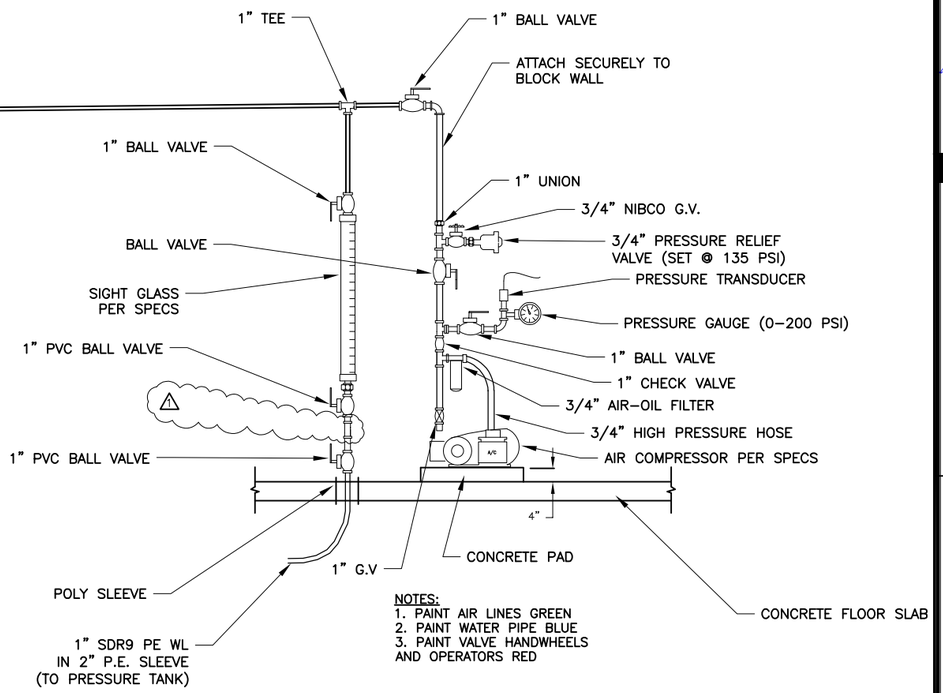


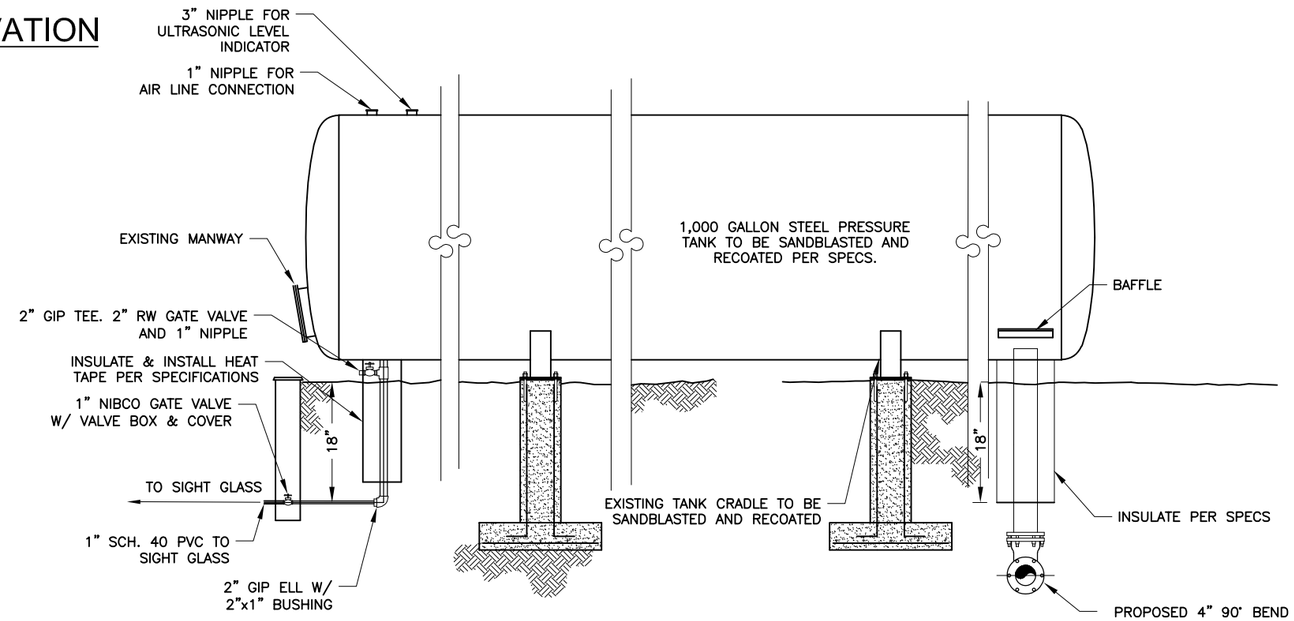
PRESSURE TANK END ELEVATION

N.T.S.



PROBELESS CONTROLLER & AIR PIPING

N.T.S.



PRESSURE TANK SIDE ELEVATION

N.T.S.

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08/21/24

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TBAE FIRM # BR 2261
TBPE FIRM # 2448

ASPERMONT, TEXAS
TRI-TRY WATER SYSTEM IMPROVEMENTS

PRESSURE TANK DETAILS

NO.	REVISION	DATE
1	ADDENDUM #1	02/05/2025

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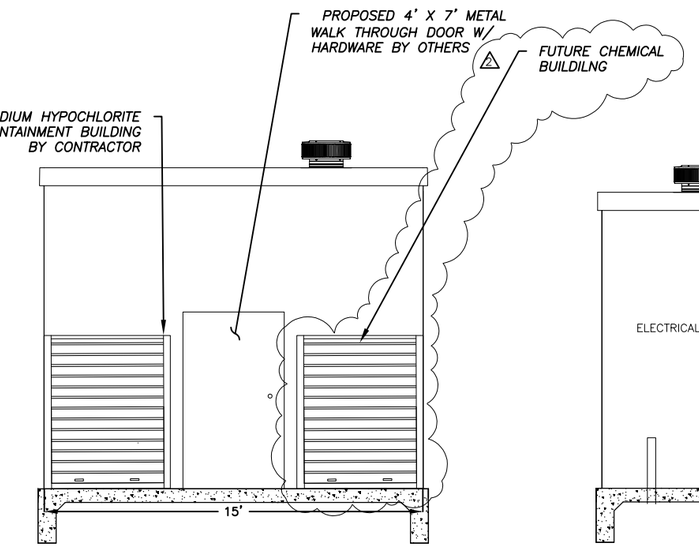
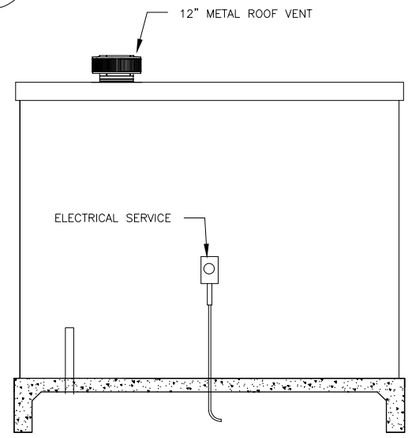
PROJECT # 22170 SCALE NTS

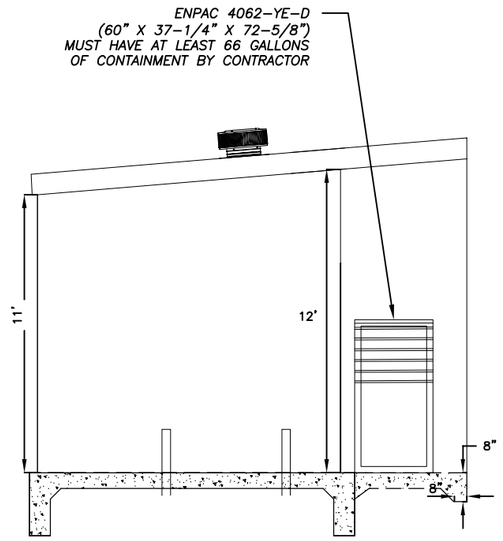
SEQ. 10/18 SHEET 10



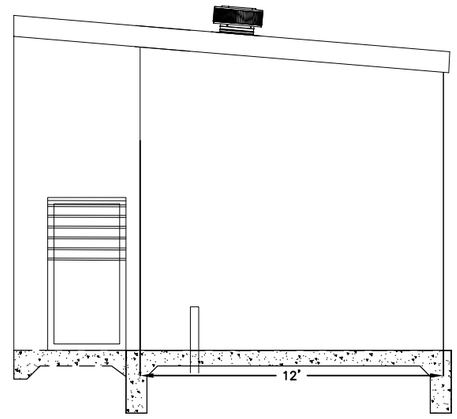
EXISTING BUILDING
EAST ELEVATION VIEW
N.T.S



EXISTING BUILDING
WEST ELEVATION VIEW
N.T.S



EXISTING BUILDING
SOUTH ELEVATION VIEW
N.T.S



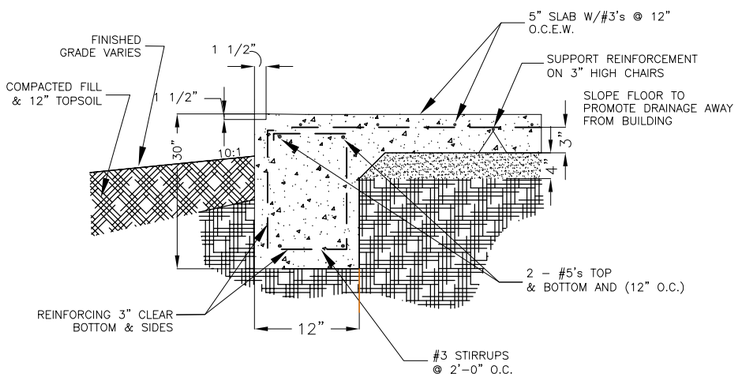
EXISTING BUILDING
NORTH ELEVATION VIEW
N.T.S

NOTE:
1) 15'X12' STORAGE BUILDING, BUILDING FOUNDATION, CONCRETE BUILDING PAD, DOORS, BUILDING INSULATION AND FURNISHINGS SHALL BE INSTALLED BY OTHERS
2) CONTRACTOR WILL BE RESPONSIBLE FOR ALL ELECTRICAL APPURTENANCES AND FACILITIES AS SHOWN IN THIS PLAN SET.

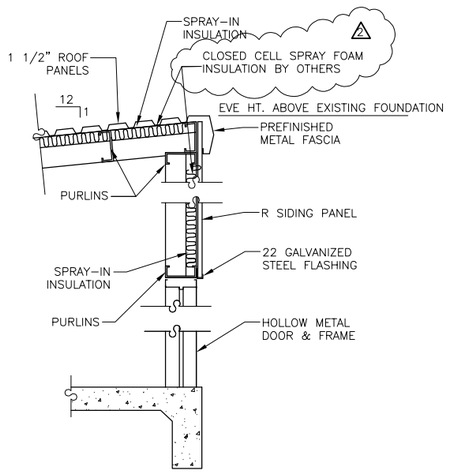
NOTES:

GENERAL

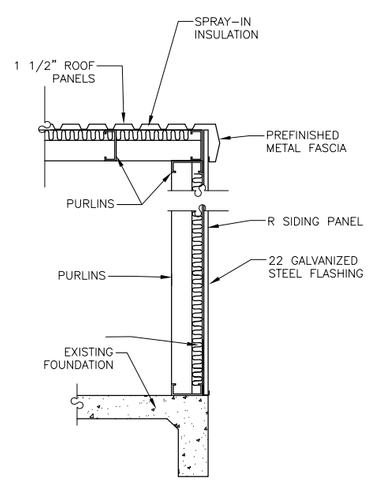
1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES



TYPICAL EXTERIOR GRADE BEAM
NTS



PROPOSED EAST FACE SECTION
N.T.S.



PROPOSED SOUTH FACE SECTION
N.T.S.

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ISSUED FOR REVIEW

JACOB MARTIN
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TBPELS FIRM # 10194493
TBPE FIRM # 2448

ASPERMONT, TEXAS
TRI-TRY WATER SYSTEM IMPROVEMENTS

BUILDING ELEVATIONS

NO.	REVISION	DATE
1	BUILDING MODIFICATION	10/01/2024
2	ADDENDUM #1	02/05/2025

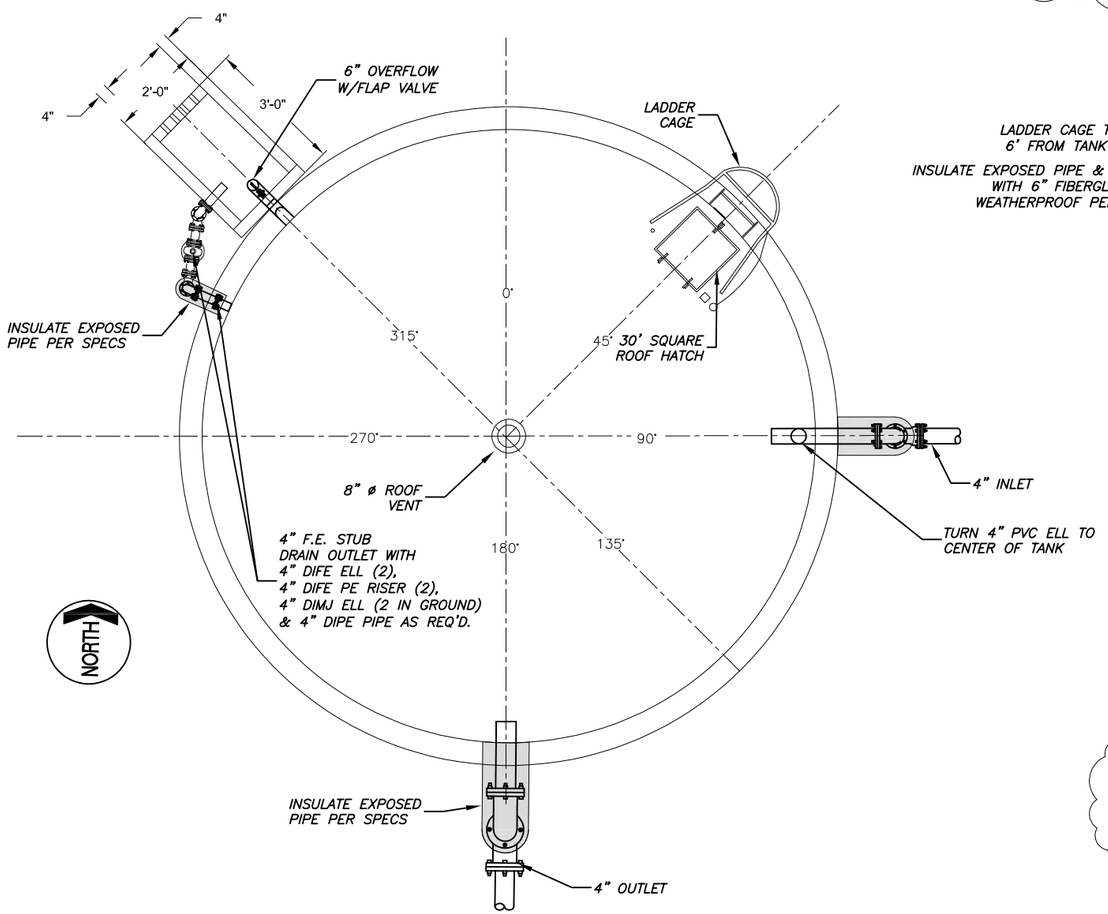
BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

PROJECT # 22170 SCALE NTS

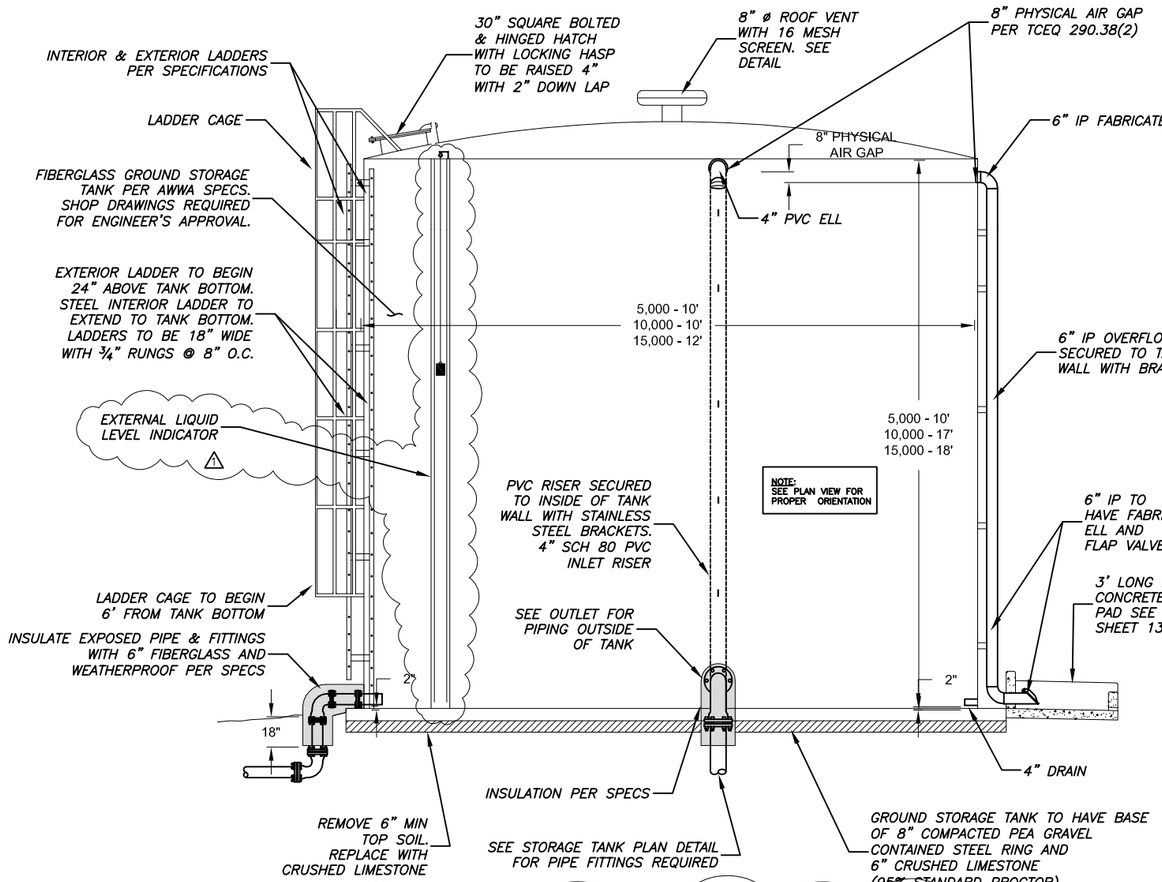
SEQ. 11 / 18

SHEET 11

NOTE:
1) FLOAT CONTROLS SHALL BE CONFIGURED TO OWNER SET POINTS.



15,000 GALLON GROUND STORAGE TANK PLAN
NTS



2 (PROPOSED 15,000 GALLON GROUND STORAGE TANK ELEVATION
NTS

2 NOTE:
BASE BID – 15,000 GALLON FIBERGLASS TANK
ADDITIVE ALTERNATIVE 1 – 5,000 GALLON FIBERGLASS TANK
ADDITIVE ALTERNATIVE 2 – 10,000 GALLON FIBERGLASS TANK
ADDITIVE ALTERNATIVE 3 – 15,000 GALLON STEEL TANK
ADDITIVE ALTERNATIVE 4 – 10,000 GALLON STEEL TANK
ADDITIVE ALTERNATIVE 5 – 5,000 GALLON STEEL TANK

STATE OF TEXAS
JAMES A. PHILLIPS
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LICENSED PROFESSIONAL ENGINEER
08/21/24

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ASPERMONT, TEXAS
TRI–TRY WATER SYSTEM IMPROVEMENTS

STORAGE TANK PLAN AND ELEVATION

NO.	REVISION	DATE
1	TWDB COMMENTS	09/26/2024
2	ADDENDUM #1	02/05/2025

PROJECT # 22170 | SCALE NTS
BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

SEQ. 12 | SHEET 12 / 18

Plotted by: joshua baker Plot Date: 2/5/2025 4:23 PM
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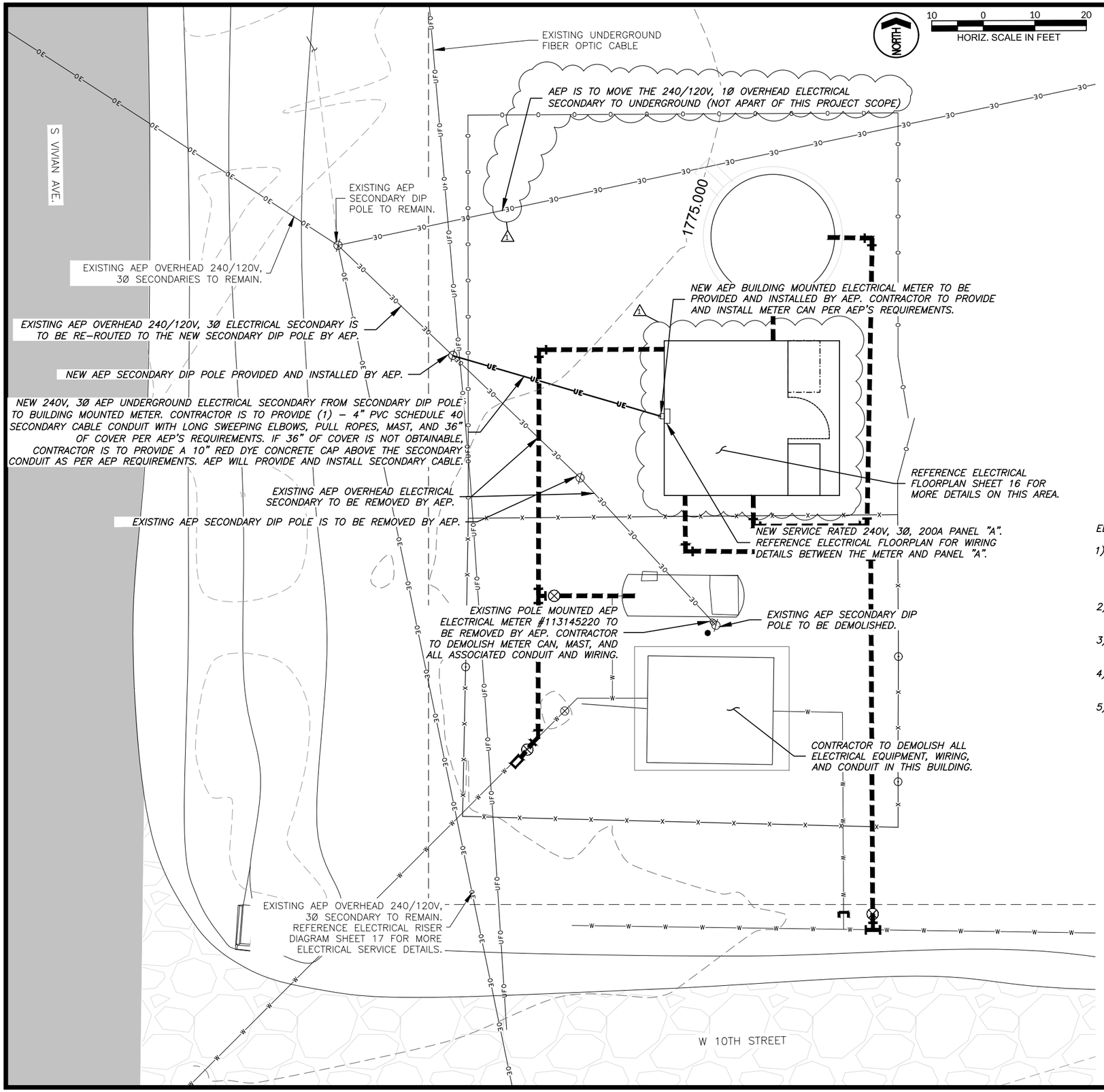
X:\WS_Tri_Try_WSC\22170-TWDB – DWSRF Pump Station Improvements – Tri Try WSC\Drafting_Plans_C_Civil\12. Storage Tank Plan and Elevation.dwg



GENERAL ELECTRICAL NOTES:

1. NFPA 70 – NATIONAL ELECTRIC CODE: MOST RECENT EDITION ADOPTED BY AUTHORITY HAVING JURISDICTION, INCLUDING ALL APPLICABLE AMENDMENTS AND SUPPLEMENTS.
2. ALL CIRCUITS SHALL BE A MINIMUM SIZE OF 12 GAUGE AND A MINIMUM 3/4" CONDUIT.
3. ALL CIRCUITS SHALL CONTAIN A GROUND WIRE.
4. EACH CIRCUIT SHALL CONTAIN ITS OWN NEUTRAL WIRE. NO NEUTRAL SHARING SHALL BE ALLOWED.
5. ALL CONDUCTORS SHALL BE COPPER UNLESS OTHERWISE SHOWN ON PLAN. USE THHW, THW, THWN, OR XHHW.
6. ALL NEW INTERIOR CIRCUITS SHALL BE RAN IN IMT CONDUIT EXPOSED. HOLD CIRCUITS TIGHT TO CEILINGS AND WALLS. DO NOT SUPPORT OFF PIPING OR DUCTWORK. CONDUIT SHALL BE RAN PARALLEL TO BUILDING ELEMENTS AND SHALL BE WELL SUPPORTED.
7. CLEAR, READABLE PANEL DIRECTORIES ARE REQUIRED FOR ALL NEW PANELS & EXISTING PANELS THAT ARE MODIFIED UNDER THIS PROJECT.
8. LABEL ALL NEW PANELS, TRANSFORMERS, & DISCONNECT SWITCHES WITH ENGRAVED PLASTIC SIGNS, RED BACKGROUND WITH WHITE LETTERS. USE MINIMUM SIZE OF 4"X2". SCREW OR RIVIT TO PANEL. SIGN NEEDS TO GIVE PANEL NAME, AMPERAGE, VOLTAGE, & PHASE.
9. COORDINATE THE LOCATIONS OF ALL ELECTRICAL EQUIPMENT, DEVICES, FIXED EQUIPMENT, ETC. WITH WITH OWNER PRIOR TO ROUGH-IN-WORK. DO NOT SCALE ELECTRICAL DRAWINGS.
10. ELECTRICAL DESIGN PROVIDES A NUMBER OF BRANCH CIRCUITS, PHASES, AMPACITY AND OVERCURRENT PROTECTION CONFORMING TO MANUFACTURE'S SPECIFICATIONS AVAILABLE AT TIME OF DESIGN. IF REQUIREMENTS OF EQUIPMENT ACTUALLY PROVIDED UNDER CONTRACT FOR CONSTRUCTION ARE DIFFERENT, CONTRACTOR SHALL MAKE ALL CHANGES REQUIRED WITHOUT INCREASE IN THE CONTRACT AMOUNT. SUCH CHANGES MAY INCLUDE, BUT ARE NOT LIMITED TO: SIZE OF WIRES, SIZE OF CONDUIT, NUMBER, TYPE AND SIZE OF CIRCUIT BREAKERS, FUSE PROTECTION AND ADDITIONAL DISCONNECT SWITCHES.
11. JUNCTION/PULL BOXES LOCATED AT CEILING SHALL BE INSTALLED FACING DOWN AND SHALL BE ACCESSIBLE AFTER INSTALLATION. COORDINATE WITH OTHER TRADES AND STRUCTURE.
12. EXISTING UTILITIES. ELECTRICAL EQUIPMENT AND UNDERGROUND OR CONCEALED ITEMS ARE SHOWN FOR REFERENCE ONLY. ADDITIONAL ITEMS NOT SHOWN MAY BE PRESENT AND LOCATIONS MAY DIFFER FROM THAT SHOWN. CONTRACTOR SHALL PERFORM WORK AS TO AVOID DAMAGE TO EXISTING ITEMS, SHALL NOTIFY OWNER AND ENGINEER AT ONCE OF ALL DAMAGE AND SHALL REPAIR DAMAGE TO ORIGINAL CONDITION TO THE SATISFACTION OF OWNER AND ENGINEER AT NO CHANGE IN CONTRACT AMOUNT.
13. ELECTRICAL CONTRACTOR SHALL VERIFY EQUIPMENT AND CONDUCTOR SIZE PRIOR TO ORDERING AND INSTALLATION OF ANY EQUIPMENT OR CONDUCTORS. REPORT ALL DISCREPANCIES TO THE ENGINEER.
14. CONTRACTOR SHALL PROVIDE SUITABLE MATERIALS AND CONSTRUCTION METHODS TO PREVENT DAMAGE TO CONDUIT SWEEPS RESULTING FROM INSTALLATION OF LARGE CONDUCTORS.
15. PROVIDE GRAY SWITCHES AND OUTLETS WITH STAINLESS STEEL COVERS IN METAL ELECTRICAL BOXES.
16. ALL OUTLETS TO BE RATED AT A MINIMUM OF 20 AMPS
17. THE CONTRACTOR WILL LABEL THE SERVICE DISCONNECT WITH FOLLOWING " THE MAXIMUM AVAILABLE FAULT CURRENT IS_____ AMPS. CALCULATED_____, 2025" NOTE: CALCULATED"#" AND DATE TO BE SUPPLIED BY JACOB MARTIN. THE LABEL MUST "BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED AS STATED IN THE NEC PARAGRAPH 110.24
18. CONTRACTOR WILL REMOVE ALL CABLE SPLICERS AND TWIST ON WIRE CONNECTORS. THEY ARE TO BE REPLACED WITH CIRCUIT CABLES CONNECTED TO BREAKERS OR FUSES FOR OVERCURRENT PROTECTION AS REQUIRED BY THE NEC.

ELECTRICAL SITE PLAN NOTES:

1) *ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR CONTACTING AND COORDINATING WITH AEP AND ANY ELECTRICAL COSTS BY THE UTILITY. CONTACT PERSON FOR AEP IS ATHAN HIMMELSTEIN, PHONE NUMBER: (325)-269-9018, EMAIL: ADHIMMELSTEIN@AEP.COM*
2) *CONTRACTOR TO ENSURE THAT THERE IS A MINIMUM OF 3' OF CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT PER NEC CODE.*
3) *EXISTING ELECTRICAL EQUIPMENT IS FOR REFERENCE ONLY. ELECTRICAL CONTRACTOR TO VERIFY LOCATION.*
4) *ALL EXISTING UTILITIES ARE TO BE LOCATED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.*
5) *CONTRACTOR IS TO COORDINATE THE DEMOLITION OF THE EXISTING BUILDING AND ELECTRICAL SERVICE AFTER THE NEW PUMPS HAVE BEEN INSTALLED AND ARE OPERATIONAL. CONTRACTOR IS TO ENSURE THAT THE EXISTING SYSTEM IS NOT ALTERED UNTIL THE NEW SYSTEM IS IN PLACE AND READY TO PUMP WATER.*

LEGEND

A, A-EM	NEW 1X4 LIGHT FIXTURE
$	LIGHT SWITCH
J	JUNCTION BOX
	DUPLEX OUTLET
	QUAD OUTLET
PANEL C-5,7 BREAKER # HOMERUN	
NOTE: X DENOTES FIXTURES SCHEDULE DESIGNATION	
	EXISTING POWER POLE
	NEW POWER POLE
UE	EXISTING UNDERGROUND ELECTRICAL SERVICE
OE	EXISTING OVERHEAD ELECTRICAL SERVICE
UE	NEW UNDERGROUND ELECTRICAL SERVICE

STATE OF TEXAS
EDWARD R WELLS
66579
LICENSED PROFESSIONAL ENGINEER
08.21.24

ISSUED FOR BID

JACOB MARTIN
TBPELS FIRM # 10194493
TBAE FIRM # BR 2261
TBPE FIRM # 2448

ASPERMONT, TEXAS
TRI-TRY WATER SYSTEM IMPROVEMENTS
ELECTRICAL SITE PLAN

NO.	REVISION	DATE
1	BUILDING MODIFICATIONS	10/01/2024
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PROJECT # 22170
SCALE 1" = 10'
BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

SEQ. 15 / 18
SHEET 15

NORTH

NEW GFI CONVENIENCE RECEPTACLE FOR FUTURE CHEMICAL PUMP. WEATHERPROOF LOCKABLE COVER IS TO BE PROVIDED AND INSTALLED WITH THE RECEPTACLE.

A-17

A-18

NEW 240V, 3Ø, 15 HP PUMP 2.

A

NEW 240V, 3Ø, 15 HP PUMP 1.

A-12

NEW CONTROL PANEL. CONTRACTOR TO VERIFY POWER REQUIREMENTS, MOUNTING, AND LOCATION OF PANEL WITH OWNER.

A-11

J

A-8

A-EM

A-2,4,6

A-1,3,5

A-7,9

A-10

NEW CONVENIENCE RECEPTACLES FOR CHEMICAL PUMPS. CONTRACTOR TO VERIFY LOCATION OF PUMPS.

NEW ELECTRONIC TANK FILL VALVE. CONTRACTOR TO VERIFY POWER REQUIREMENTS AND MOUNTING.

(3) – #4 AWG PHASE CONDUCTORS, (1) – #4 AWG NEUTRAL CONDUCTOR, (1) – #8 AWG GROUND IN 1–1/4" CONDUIT FROM VFDS TO PUMPS. CONTRACTOR TO VERIFY BREAKER SIZE WITH VFD MANUFACTURER AND ADJUST BREAKER SIZE, WIRING, AND CONDUIT AS NECESSARY PER NEC CODE. CONTRACTOR TO VERIFY CONDUIT ROUTE (FULL ROUTE NOT SHOWN FOR GRAPHICAL PURPOSES).

NEW 240V, 1Ø, 3 HP AIR COMPRESSOR. CONTRACTOR TO VERIFY POWER REQUIREMENTS AND MOUNTING.

NEW SERVICE RATED 240V, 3Ø, 200A PANEL "A".

(3) – 3/0 PHASE CONDUCTORS, (1) – 3/0 NEUTRAL CONDUCTOR IN 2" CONDUIT FROM METER TO PANEL "A".

NEW AEP BUILDING MOUNTED ELECTRICAL METER TO BE PROVIDED AND INSTALLED BY AEP. CONTRACTOR TO PROVIDE AND INSTALL METER CAN PER AEP'S REQUIREMENTS.

(3) – #4 AWG PHASE CONDUCTORS, (1) – #4 AWG NEUTRAL CONDUCTOR, (1) – #8 AWG GROUND IN 1–1/4" CONDUIT FROM PANEL "A" TO VFDS. CONTRACTOR TO VERIFY BREAKER SIZE WITH VFD MANUFACTURER AND ADJUST BREAKER SIZE, WIRING, AND CONDUIT AS NECESSARY PER NEC CODE.

NEW 240V, 3Ø, 15 HP VFD WITH NO ENCLOSURE. VFD TO HAVE SAFETY COVER AND INTERFACE CARDS TO COMMUNICATE WITH CONTROLS. VFD TO BE WALL MOUNTED. CONTRACTOR TO VERIFY CONDUIT ENTRANCE INTO VFD.

NEW 240V, 3Ø AEP UNDERGROUND ELECTRICAL SECONDARY FROM SECONDARY DIP POLE TO BUILDING MOUNTED METER. REFERENCE ELECTRICAL SITE PLAN SHEET 15 FOR FULL ROUTE AND MORE DETAILS ON THE ELECTRICAL SECONDARY.

ELECTRICAL FLOORPLAN NOTES:

1) *ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR CONTACTING AND COORDINATING WITH AEP AND ANY ELECTRICAL COSTS BY THE UTILITY. CONTACT PERSON FOR AEP IS ATHAN HIMMELSTEIN, PHONE NUMBER:(325)–269–9018,EMAIL: ADHIMMELSTEIN@AEP.COM*
2) *CONTRACTOR TO ENSURE THAT THERE IS A MINIMUM OF 3' OF CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT PER NEC CODE.*
3) *EXISTING ELECTRICAL EQUIPMENT IS FOR REFERENCE ONLY. ELECTRICAL CONTRACTOR TO VERIFY LOCATION.*
4) *ALL EXISTING UTILITIES ARE TO BE LOCATED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.*
5) *CONTRACTOR TO VERIFY THAT ALL ELECTRICAL EQUIPMENT (PANEL "A", AND (2) 15 HP VFDS) WILL FIT IN THE SPACE SHOWN ON THE PLANS. IF ELECTRICAL EQUIPMENT CANNOT FIT, THE CONTRACTOR IS TO CONTACT THE ENGINEER ASAP.*
6) *CONTRACTOR IS TO COORDINATE THE DEMOLITION OF THE EXISTING BUILDING AND ELECTRICAL SERVICE AFTER THE NEW PUMPS HAVE BEEN INSTALLED AND ARE OPERATIONAL. CONTRACTOR IS TO ENSURE THAT THE EXISTING SYSTEM IS NOT ALTERED UNTIL THE NEW SYSTEM IS IN PLACE AND READY TO PUMP WATER.*

STATE OF TEXAS
EDWARD R WELLS
66579
LICENSED PROFESSIONAL ENGINEER
08.21.24

ISSUED FOR BID

JACOB MARTIN
TBPELS FIRM # 10194493
TBAE FIRM # BR 2261
TBPE FIRM # 2448

ASPERMONT, TEXAS

TRI-TRY WATER SYSTEM IMPROVEMENTS

ELECTRICAL FLOORPLAN

NO.	REVISION	DATE
1	BUILDING MODIFICATIONS	10/01/2024
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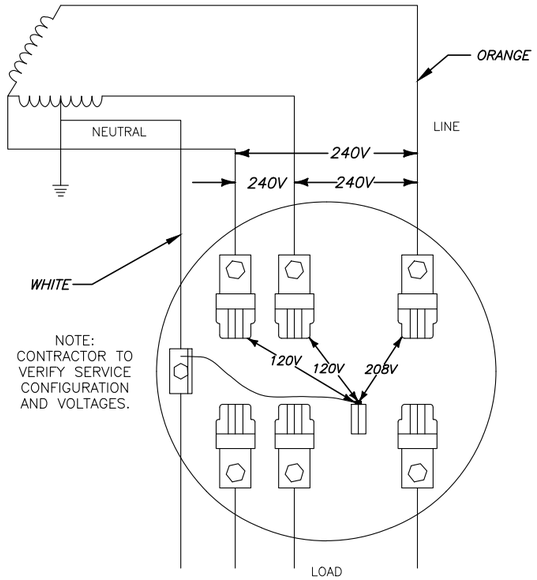
PROJECT # 22170 | SCALE 1/2" = 1' | BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

SEQ. 16 | SHEET 16 / 18



ON A 4 WIRE DELTA CONNECTION, THE PHASE HAVING THE HIGHEST VOLTAGE TO GROUND (HIGH LEG OR WILD LEG) MUST BE CONNECTED TO THE RIGHT HAND TERMINALS OF THE METER SOCKET. IN OTHER LOCATIONS, SUCH AS SERVICE ENCLOSURES, DISCONNECTS, ETC., THE "HIGH LEG" IS CONNECTED TO THE CENTER TERMINAL.

EXISTING AEP ELECTRICAL SERVICE

NTS

CIRCUIT SIZE SCHEDULE
20A – #12 PHASE CONDUCTORS #12 GROUND IN 3/4" CONDUIT
30A – #10 PHASE CONDUCTORS #10 GROUND IN 3/4" CONDUIT
40A – #8 PHASE CONDUCTORS #10 GROUND IN 3/4" CONDUIT

Tri-Try WSC
New Panel "A" Schedule

Main Breaker Rating: 200 AMPS
M.L.O. Bus Rating: 200 AMPS
Sym. Inter. Cap.: > 21k AMPS

3 Phase 4 Wire
240/120 VAC

Surface Mount.: X
Flush Mount.: ____

NEMA 1: X
NEMA 3R: ____

Conductor Color Code
Phase 1 ---------- BLACK
Phase 2 ---------- RED (High Leg)
Phase 3 ---------- BLUE
Neutral ---------- WHITE or GRAY
Ground ---------- GREEN

Note: High-Leg Identification: Orange & Label
"Caution _____ Phase Has ____ Volt to Ground"
Note: Contractor to provide and install SPD (Surge Protection Device)

			Load
Phase 1 Load:	139
Phase 2 Load:	140
Phase 3 Load:	123

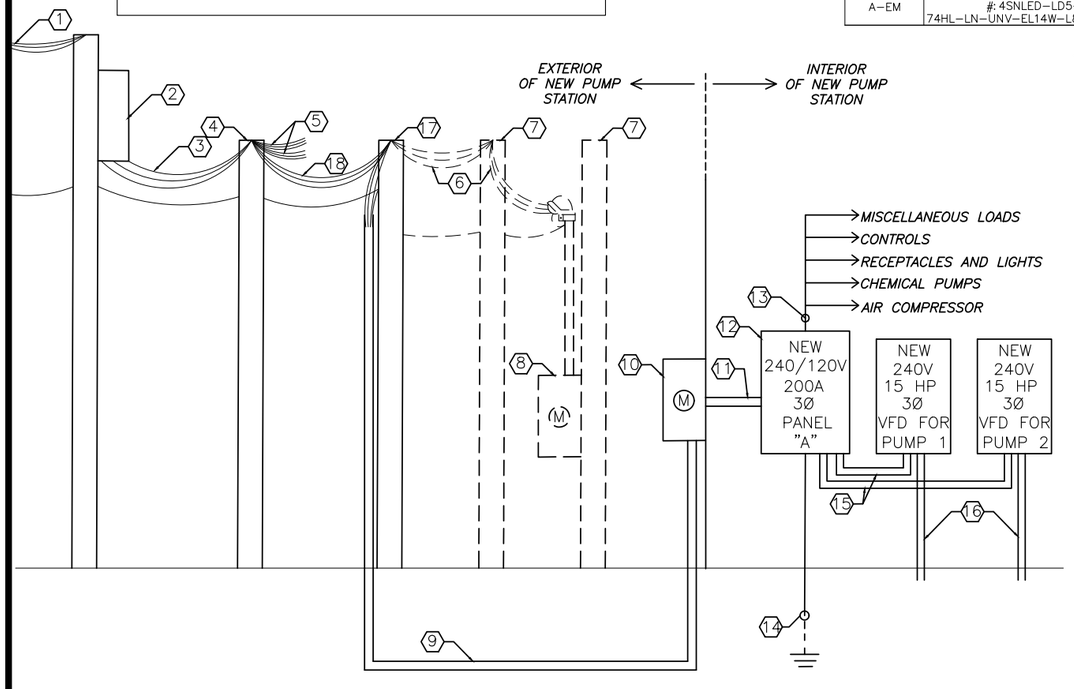
POLE	SERVICE	W	LOAD PHASE 1	LOAD PHASE 2	LOAD PHASE 3	BREAKER POLES	POLE	1	2	3	POLE	SERVICE	W	LOAD PHASE 1	LOAD PHASE 2	LOAD PHASE 3	BREAKER POLES	POLE
1	15 HP VFD for Pump 1 (Note 1)	22133	53			70 / 3	1	X			2	15 HP VFD for Pump 2 (Note 1)	22133	53			70 / 3	2
3	"			53			3		X		4	"			53			4
5	"				53		5			X	6	"				53		6
7	3 HP Air compressor (Note 2)	4080	17			25 / 2	7	X			8	Interior Lighting	124	1			20 / 1	8
9	"			17			9		X		10	Electronic Fill Valve	180		2		20 / 1	10
11	Control Panel	600			5	20 / 1	11			X	12	Convenience Receptacles	540			5	20 / 1	12
13	Heat Tape (Note 3)	180	2			20 / 1	13	X			14	Heat Tape (Note 3)	180	2			20 / 1	14
15	Heat Tape (Note 3)	180		2		20 / 1	15		X		16	Heat Tape (Note 3)	180		2		20 / 1	16
17	Convenience Receptacles for Chemical Pumps	540			5	20 / 1	17			X	18	Convenience Receptacles	360			3	20 / 1	18
19	Future Mini-Split AC/Heat Unit (Note 4)	2880	12			20 / 2	19	X			20							20
21	"			12			21		X		22							22
23							23			X	24							24
25							25	X			26	SPD						26
27							27		X		28	SPD						28
29							29			X	30	SPD						30

Notes:

1. Contractor is to verify breaker size with VFD manufacturer and adjust breaker size, conduit, and wiring as required per NEC code.
2. Contractor is to verify breaker size with air compressor manufacturer and adjust breaker size, conduit, and wiring as required per NEC code.
3. Contractor is to install the breaker only for this load. No wiring or conduit is to be installed for this load.
4. Breaker is shown for reference only. No breaker, conduit, and wiring is to be installed for this load as part of this contract.

LIGHTING FIXTURE SCHEDULE

FIXTURE MARK	MANUFACTURER & CATALOG NUMBER	TYPE	LAMPS BULBS	VOLTAGE	SUPPORT	NOTES
A	COOPER MODEL #: 4SNLED–LD5–74HL–LN–UNV–L840–CD1–U	1'X4'	LED	UNV	CEILING MOUNT (BEAMS)	LIGHT TO BE CEILING MOUNTED ON BEAMS.
A–EM	COOPER MODEL #:4SNLED–LD5–74HL–LN–UNV–EL14W–L840–CD1–U	1'X4' (EM)	LED	UNV	CEILING MOUNT (BEAMS)	LIGHT TO BE CEILING MOUNTED ON BEAMS. LIGHT TO HAVE EMERGENCY POWER PACK.



ELECTRICAL RISER DIAGRAM

NTS

ELECTRICAL RISER DIAGRAM NOTES BY REFERENCE (#)

(1) EXISTING AEP 3Ø OVERHEAD ELECTRICAL PRIMARY TO REMAIN.

(2) EXISTING AEP PRIMARY INLINE POLE WITH (2) TRANSFORMER BANK FOR EXISTING 240/120V, 3Ø ELECTRICAL SERVICE TO REMAIN.

(3) EXISTING AEP OVERHEAD 240/120V, 3Ø ELECTRICAL SECONDARY TO REMAIN.

(4) EXISTING AEP SECONDARY DIP POLE TO REMAIN.

(5) EXISTING AEP OVERHEAD 240/120V, 3Ø ELECTRICAL SECONDARIES SERVING OTHER CUSTOMERS TO REMAIN.

(6) EXISTING AEP OVERHEAD 240/120V, 3Ø ELECTRICAL SECONDARY TO BE REMOVED BY AEP.

(7) EXISTING AEP SECONDARY DIP POLES TO BE DEMOLISHED.

(8) EXISTING POLE MOUNTED AEP ELECTRICAL METER #113145220 TO BE REMOVED BY AEP. CONTRACTOR TO DEMOLISH METER CAN, MAST, AND ASSOCIATED WIRING AND CONDUIT.

(9) NEW 240V, 3Ø AEP UNDERGROUND ELECTRICAL SECONDARY FROM DIP POLE TO BUILDING MOUNTED ELECTRICAL METER. CONTRACTOR IS TO PROVIDE (1) – 4" PVC SCHEDULE 40 SECONDARY CABLE CONDUIT WITH LONG SWEEPING ELBOWS, PULL ROPES, MAST, AND 36" OF COVER PER AEP'S REQUIREMENTS. IF 36" OF COVER IS NOT OBTAINABLE, CONTRACTOR IS TO PROVIDE A 10" RED DYE CONCRETE CAP ABOVE THE SECONDARY CONDUIT AS PER AEP REQUIREMENTS. AEP TO PROVIDE AND INSTALL SECONDARY CABLE.

(10) NEW AEP BUILDING MOUNTED ELECTRICAL METER TO BE PROVIDED AND INSTALLED BY AEP. CONTRACTOR TO PROVIDE AND INSTALL METER CAN PER AEP'S REQUIREMENTS.

(11) (3) – 3/0 PHASE CONDUCTORS, (1) – 3/0 NEUTRAL CONDUCTOR IN 2" CONDUIT FROM METER TO PANEL "A".

(12) BOND NEUTRAL TO GROUND IN THIS PANEL.

(13) REFERENCE CIRCUIT SIZING SCHEDULE FOR WIRE AND CONDUIT SIZES FOR THESE LOADS.

(14) (1) – #4 AWG GROUND IN 1/2" PVC CONDUIT. CADWELD TO ⅝" x 10'–0" COPPER CLAD STEEL GROUND ROD.

(15) (3) – #4 AWG PHASE CONDUCTORS, (1) – #4 AWG NEUTRAL CONDUCTOR, (1) – #8 AWG GROUND IN 1–1/4" CONDUIT FROM PANEL "A" TO VFDS. CONTRACTOR TO VERIFY BREAKER SIZE WITH VFD MANUFACTURER AND ADJUST BREAKER SIZE, WIRING, AND CONDUIT AS NECESSARY PER NEC CODE.

(16) (3) – #4 AWG PHASE CONDUCTORS, (1) – #4 AWG NEUTRAL CONDUCTOR, (1) – #8 AWG GROUND IN 1–1/4" CONDUIT FROM VFDS TO PUMPS. CONTRACTOR TO VERIFY BREAKER SIZE WITH VFD MANUFACTURER AND ADJUST BREAKER SIZE, WIRING, AND CONDUIT AS NECESSARY PER NEC CODE. CONTRACTOR TO VERIFY CONDUIT ROUTE TO PUMPS.

(17) NEW AEP SECONDARY DIP POLE PROVIDED AND INSTALLED BY AEP.

(18) EXISTING AEP OVERHEAD 240/120V, 3Ø ELECTRICAL SECONDARY IS TO BE RE–ROUTED TO THE NEW DIP POLE BY AEP.

STATE OF TEXAS · EDWARD R WELLS · 66579 · LICENSED PROFESSIONAL ENGINEER
08.21.24

ISSUED FOR BID

JACOB MARTIN
TBPELS FIRM # 10194493
TBAE FIRM # BR 2261
TBPE FIRM # 2448

ASPERMONT, TEXAS
TRI-TRY WATER SYSTEM IMPROVEMENTS

ELECTRICAL RISER DIAGRAM AND SCHEDULES

NO.	REVISION	DATE
1	BUILDING MODIFICATIONS	10/01/2024
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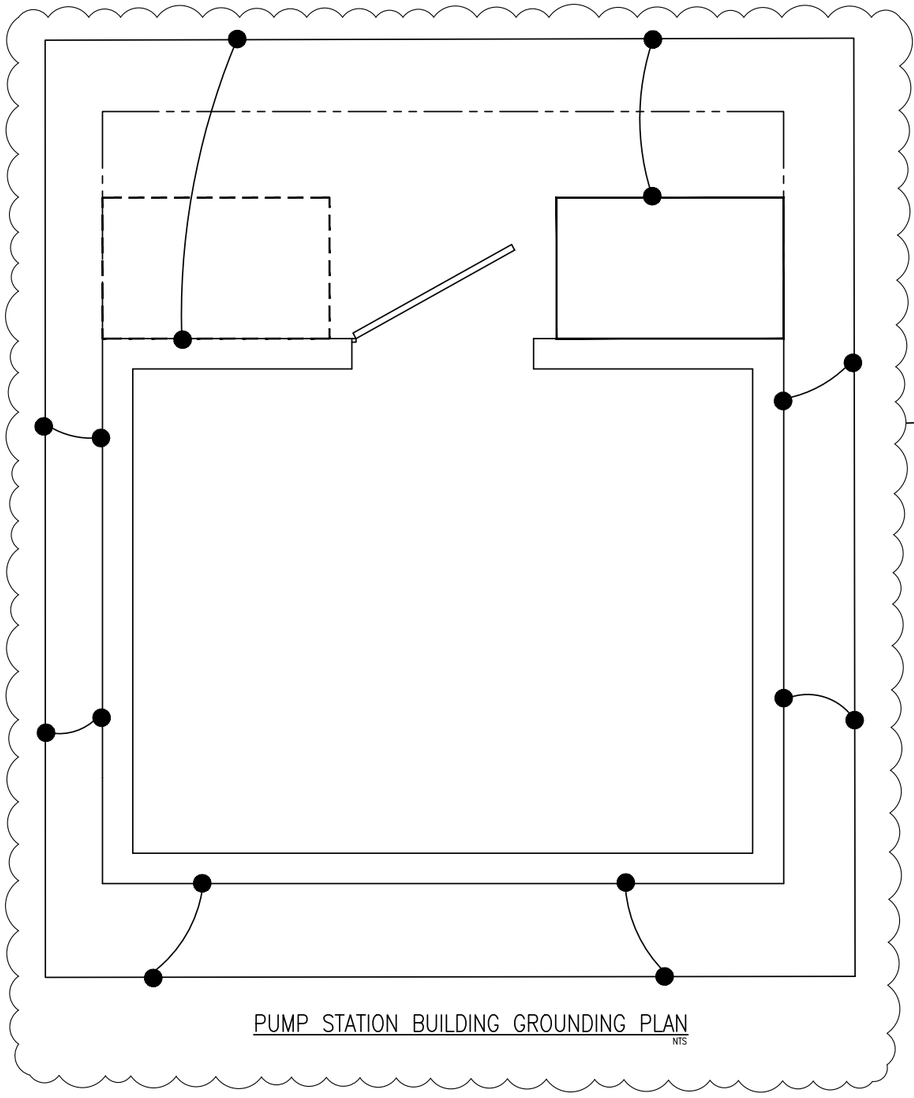
BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

PROJECT # 22170 | SCALE NTS | SEQ. | SHEET 17 / 18 | 17

Plot Date: 10/1/2024 5:15 PM
Plotted by: cole carpenter
Save Time: 10/1/2024 5:10 PM
Saved By: ccarpenter
x:\ws_tri_try_wsc\22170-twdb – dwsrf pump station improvements – tri try wsc\Drafting_Plans_C_Civil\17. Electrical Riser Diagram and Panel Schedule.dwg



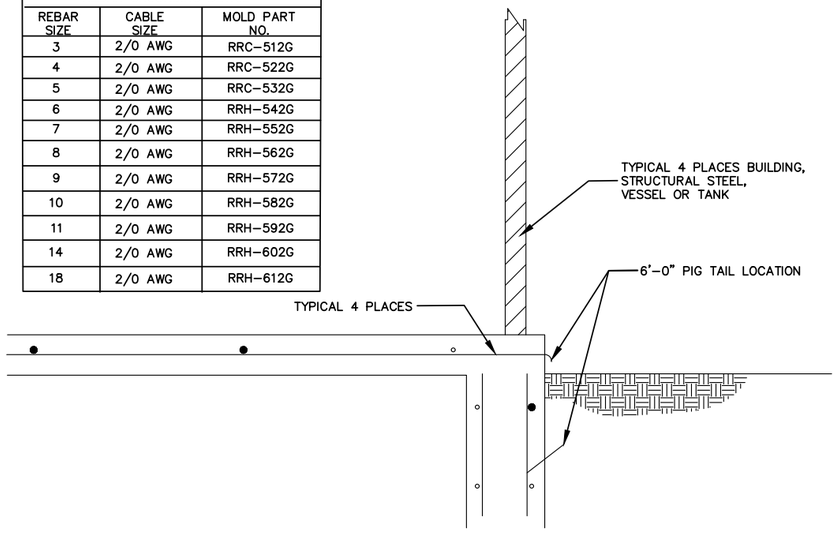
PUMP STATION BUILDING GROUNDING PLAN
NTS

L E G E N D

- GROUND WELL
- GROUND CONNECTION
- 4/0 MCM BARE COPPER GROUNDING CONDUCTOR
- 2/0 MCM BARE COPPER GROUNDING CONDUCTOR

MATERIAL		
ITEM	QUANTITY	DESCRIPTION
1	AS REQ'D	WIRE, 2/0 BARE STRANDED, COPPER, RATED FOR DIRECT BURIAL
2	AS REQ'D	CABLE TO CABLE GROUND, CADWELD PTC-2G2G
3	AS REQ'D	CABLE TO REBAR, SEE REBAR GROUNDED DETAIL FOR PART # THIS SHEET
4	AS REQ'D	GROUNDING CONNECTOR, CADWELD GTC-182G
5	AS REQ'D	GROUND ROD, COPPER, 3/4" X 10'-0" LONG
6	AS REQ'D	GROUND ENHANCEMENT MATERIAL

REBAR GROUNDING DETAIL		
REBAR SIZE	CABLE SIZE	MOLD PART NO.
3	2/0 AWG	RRC-512G
4	2/0 AWG	RRC-522G
5	2/0 AWG	RRC-532G
6	2/0 AWG	RRH-542G
7	2/0 AWG	RRH-552G
8	2/0 AWG	RRH-562G
9	2/0 AWG	RRH-572G
10	2/0 AWG	RRH-582G
11	2/0 AWG	RRH-592G
14	2/0 AWG	RRH-602G
18	2/0 AWG	RRH-612G



GROUND LOOP DETAIL
NTS

STATE OF TEXAS
EDWARD R WELLS
66579
LICENSED PROFESSIONAL ENGINEER
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TBPELS FIRM # 10194493

ASPERMONT, TEXAS

TRI-TRY WATER SYSTEM IMPROVEMENTS

ELECTRICAL DETAILS

NO.	REVISION	DATE
1	BUILDING MODIFICATIONS	10/01/2024
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PROJECT # 22170
SCALE NTS
BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

SEQ. 18/18
SHEET 18

SECTION 01 03 01 - MEASUREMENT AND PAYMENT

PART 1 PAYMENT ITEMS

1.1 LUMP SUM PAYMENT ITEMS

A. Payment items for the work of this contract for which contract lump sum payments will be made are listed in the BIDDING SCHEDULE and described below. All costs for items of work, which are not specifically mentioned to be included in a particular lump sum or unit price payment item, shall be included in the listed lump sum item most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

1.2 REFERENCE STANDARDS

1.3 MOBILIZATION, BONDS AND INSURANCE

A. PAYMENT
The mobilization item shall be measured and paid for according to the lump sum in the proposal. Payment shall constitute full reimbursement for all mobilization, bonding and insurance.

B. Unit of measure: LUMP SUM

1.4 PUMP STATION BUILDING PIPING AND VALVES

A. PAYMENT
Pump Station building piping and valves shall be measured and paid for according to the lump sum in the proposal. Payment shall constiture full reimbursement for furnishing and installing all piping and valves inside the building, including the combination back pressure and solenoid flow control valve, temporary bypass line and valving, pressure gauges, sample valves, air lines, air vavles, sight glass, pipe stands and incidentals as specified and shown on the plans.

B. Unit of measure: LUMP SUM

1.5 PUMP STATION PUMPS

A. PAYMENT
Pump station pumps shall be measured and paid for according to the lump sum in the proposal. Payment shall constitute full reimbursement for furnishing and installing Grundfos closed coupled pumps and house keeping pad as specified in the plans (or approved equal) and incidentals as specified and shown on the plans.

B. Unit of measurement: LUMP SUM

1.6 PUMP STATION ELECTRICAL AND CONTROL

A. PAYMENT
Pump station electrical and control shall be measured and paid for according to the lump sum in the proposal. Payment shall constitute full reimbursement for furnishing and installing the building electrical, air compressor unit, pump controls including the integration of pump and pressure tank communication, CLA-VAL and storage tank communication, Variable frequency drives for pumps, and incidentals as specified and shown on the plans.

B. Unit of measure: LUMP SUM

1.7 PUMP STATION YARD PIPING AND VALVES

A. PAYMENT

Pump station yard piping and valves shall be measured and paid for according to the lump sum in the proposal. Payment shall constitute full reimbursement for furnishing and installing all piping and valves, metal tape, insulation and waterline and tank connections outside of the building and incedentals as specified and shown on the plans.

B. Unit of measure: LUMP SUM

1.8 PUMP STATION GROUND STORAGE TANK

A. PAYMENT

Pump station ground storage tanks shall be measured and paid for according to the lump sum in the proposal. Payment shall constitute full reimbursement for furnishing and installing fiberglass ground storage tank, foundation and incidentals as specified and shown on the plans.

B. Unit of measure: LUMP SUM

1.9 PRESSURE TANK RECOAT

A. PAYMENT

Pressure tank recoat shall be measured and paid for according to the lump sum in the proposal. Payment shall constitute full reimbursement for furnishing all necessary equipment and performing a pressure tank recoat on the exisiting pressure tank as specified and shown on the plans.

B. Unit of measure: LUMP SUM

1.10 DISINFECTION IMPROVEMENTS

A. PAYMENT

Disinfection Improvements shall be measured and paid for according to the lump sum in the proposal. Payment shall constitute full reimbursement for furnishing and installing the external chemical building, the internal and external chemical containment devices, the required electrical power improvements to external building, the chemical injection equipment (LAS and NaOCl) and incidentals as specified and shown on the plans. Startup chemicals are to be provided by OWNER.

B. UNIT OF MEASURE: LUMP SUM

PART 2 NOT USED

PART 3 NOT USED

-- END OF SECTION --

SECTION 13 07 01 - WELDED STEEL WATER STORAGE RESERVOIRS

PART 1 GENERAL

1.1 DESCRIPTION

The work to be performed under this item shall comprise the furnishing of all supervision, labor, materials, tools, equipment and incidentals necessary for welding of accessories for an existing steel tank including all painting, accessories, and sterilization as described herein and on the Plans.

REFERENCE STANDARDS

AWWA C652 - Disinfection of Water-Storage Facilities; 2019.
AWWA D100 - Welded Carbon Steel Tanks for Water Storage; 2021.

1.2 DESIGN

The design of all structures shall be made by the CONTRACTOR in strict conformance with the maximum stresses and loads as set out in AWWA D100
Shop drawings bearing the seal of a Texas Registered Engineer shall be furnished to the ENGINEER for approval prior to fabrication of the tank or construction of the foundation. The CONTRACTOR shall assume the entire responsibility for the structural soundness of the completed structure as evidenced by the one-year warranty furnished by the CONTRACTOR to the OWNER.

PART 2 PRODUCTS

2.1 MATERIALS

A. Reservoir: The reservoir shall be of all welded construction and all steel shall have a working tensile strength of 15,000 psi and the welded joint efficiency shall be 85%. If not butt welded, all joints shall be sealed welded. Roofs shall be steel, self-supporting and the support system shall be welded and the entire structural materials and procedures shall be subject to AWWA D100.
Steel for the reservoir shall be compliant with American Iron & Steel requirements (AIS). These requirements are detailed in the TWDB-1106 document included in the contracts.

B. Overflow Piping, Drain, Inlet and Outlet Fittings: Overflow piping, drain, inlet and outlet fittings shall be as shown on the Plans, and in accordance with AWWA Specifications and subject to the approval of the ENGINEER. The overflow flap valve shall have no gap over 1/16 inch per TCEQ 290.43(c)(3).

C. Paint: paint shall be as specified in Division 09.

2.2 ACCESSORIES

A. Each welded steel tank shall have the following accessories:
   1. Vent: Vents covered with a screen of #16 mesh fiberglass wire shall be provided as shown on the Plans. The vent shall be adequate to handle pressure differential caused when withdrawing water at the maximum rate of __0.75__ MGD.
   2. Manholes: 30" circular, bolted, water tight manways shall be furnished at the locations shown on the drawings.
   3. Hatch: The hatch shall have a 4" raised lip, a 2" turn-down ring, two hinges, and a padlock hasp as shown on the Plans. This hatch shall have a minimum dimension of 30 inches as detailed on the Plans.
   4. Ladders and Safety Climbs: An outside ladder, with lockable cage, landing and catwalk will be provided for the water storage tank. All ladders shall meet all current State and Federal safety regulations for water tank ladders, including the safety requirements set out in the Williams-Steiger Safety Act of 1970, and subsequent revisions.

PART 3 EXECUTION

3.1 CONSTRUCTION

A. Reservoirs: All welding and construction procedures are to be in accordance with AWWA D100. Allowable roof load and structural details are to be in accordance with AWWA D100. All shop fabrication performed under this contract for the steel tank shall conform rigidly with the provisions of AWWA D100, Section 9. All welding shall conform with the minimum requirements of AWWA D100, Section 8, including submission of the test reports set forth in Paragraph 8.22. The CONTRACTOR shall provide the ENGINEER a statement certifying all welders employed on the project have been properly qualified, listing the name of each welder. After completion of the welding, shell of the tank shall be free of unsightly warps or wrinkles and the tank surface shall be uniformly contoured. Any wrinkles or untrue surfaces shall be removed and replaced as may be determined by the ENGINEER.

3.2 INSPECTION AND TESTING

A. Field Inspections: All work shall be field inspected by the OWNER or his authorized representative. All work shall be performed in accordance with these Specifications and to the approval of the ENGINEER.

B. Welding Tests: Field inspection of the joints shall be made by radiographic methods as described in Appendix "A" of AWWA D100. Cost of the radiographic testing of the welded joints shall be included in the CONTRACTOR's bid and shall include making the radiographic tests and having the results analyzed by a commercial laboratory acceptable to the OWNER. The CONTRACTOR shall provide the ENGINEER with films which were taken and data sheets of pertinent information showing the results of such examinations. Shop welded joints shall also be inspected by radiographic methods as specified herein.
AWWA specifications for welding shall be strictly adhered to, and it is called to the CONTRACTOR's attention that undercut of the metal being welded, blowouts or other imperfections of the welded structure will not be acceptable. Any defective welded joints shall be properly corrected as provided in AWWA D100, at the CONTRACTOR's expense.

3.3 STERILIZATION AND TESTING

A. Upon completion of construction and prior to placing the reservoir in service, the CONTRACTOR shall clean and fill the reservoir to test for leaks. Any leakage observed shall be located and corrected by the CONTRACTOR until the reservoir is watertight.

B. Disinfection shall be performed by the CONTRACTOR in accordance with AWWA C652. The CONTRACTOR shall furnish all materials, labor, etc. for disinfection and testing.

-- END OF SECTION --

SECTION 33 01 03 - DUCTILE IRON PIPE

PART 1 GENERAL

1.1 WORK INCLUDED

The work included in this section of the Specifications shall consist of furnishing, installing, and testing:

A. Mechanical joint, push-on and flanged ductile iron pipe in sizes 4-inch through 48-inch.
B. Mechanical joint and flanged ductile iron and cast iron fittings in sizes 4-inch through 60-inch.
C. Gaskets and fasteners for above pipe and fittings.
D. Restrained pipe and fittings,4-inch thru 64-inch.
E. Protective coatings, linings and encasements for above pipe and fittings.
F. Hydrostatic testing, cleaning, and disinfecting of installed pipe and fittings.

1.2 REFERENCE STANDARDS

ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2014.
AWWA C104/A21.4 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water; 2013.
AWWA C110/A21.10 - Ductile-Iron and Gray-Iron Fittings; 2021.
AWWA C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings; 2012.
AWWA C116/A21.16 - Protective Fusion-Bonded Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings; Latest Edition.
AWWA C150/A21.50 - Thickness Design of Ductile-Iron Pipe; 2014.
AWWA C151/A21.51 - Ductile-Iron Pipe, Centrifugally Cast; 2009.
AWWA C153/A21.53 - Ductile-Iron Compact Fittings; 2011.
AWWA M41 - Ductile-Iron Pipe and Fittings; 2009.
NSF 61 - Drinking Water System Components - Health Effects; 2014 (Errata 2015).

1.3 QUALITY ASSURANCE

A. All surfaces and materials in contact with water, or in contact with a chemical being added to water that is being treated for potable use, shall conform to NSF 61 and be certified by an organization accredited by ANSI, or shall meet the TCEQ requirements for contact with potable water.

1.4 DELIVERY, STORAGE AND HANDLING

Comply with the requirements of the Contract Documents, Specifications and the manufacturer's recommendations.

1.5 SUBMITTALS

Submit the following information in accordance with the requirements of the Contract Documents:

A. Submit the following for all pipe systems:
   1. Pipe material
   2. Fittings
   3. Appurtenances
   4. Adaptors
   5. Pipe layout schedule/drawings including pipeline stationing and elevations with pressure classes, design and surge pressure ratings.
   6. All materials, coatings, and linings furnished.
   7. Thrust restraint design.
      The pipe layout drawings and data shall clearly indicate where pipe requiring special provisions are provided.

B. Certificate of Compliance with all applicable and appropriate reference standards certifying that all pipe, fittings, and specials, and other products and materials furnished, comply with the applicable provision of the Specification. Pipe systems submitted without the certificate of compliance may be returned without review.
C. Certification of Adequacy of Design: The Certificate of Adequacy of Design shall show the necessary provisions required in the design of the pipe to comply with applicable sections of this Specification. The Certificate of Adequacy of Design shall be sealed by a Texas Registered Engineer.

PART 2 PRODUCTS

2.1 GENERAL

Ductile iron pipe shall be made of good quality ductile iron, tough, resilient, even-grained, and soft enough to satisfactorily permit drilling and cutting. All pipe shall be sound and free of cracks. Ductile iron pipe shall have a minimum tensile strength of 60,000 psi, a yield strength of 42,000 psi, and shall have a minimum working pressure rating of 150 psi, thickness Class 50. Ductile iron pipe shall be manufactured to the requirements of AWWA C150/A21.50 and AWWA C151/A21.51 standards. The raw material for ductile iron shall have an average minimum content consisting of 90% recycled iron and steel.

The ductile iron pipe joint shall be rubber gasketed, push-on joint, similar to that known as Bell-Tite, Tite-On, Fastite, Tyton Joint by US Pipe or equal, as may be approved by the ENGINEER; mechanical joint or flanged as called for on the Plans. The rubber gasket push-on joints and mechanical joints specified on the Plans shall be manufactured to the requirements of AWWA C151/A21.51 and AWWA C111/A21.11.

2.2 PUSH ON AND MECHANICAL JOINT PIPE AND FITTINGS

A. Thickness Class: As required for working pressures and test pressures shown on the Plans for each pipe system.
B. Laying Length: 18 or 20 feet.
C. Gaskets: Neoprene, vulcanized styrene butadiene rubber (SBR) or equivalent material.

2.3 FLANGED PIPE AND FITTINGS

A. All exposed ductile iron pipe shall have ductile iron flanged fittings unless otherwise noted. CONTRACTOR shall coordinate ductile iron flanges with connecting flanges of pump and valves. Thrust collars shall be provided where required for connection to restrained or harnessed flanged coupling adapters (FCA) and flexible couplings.
B. Flanges: Thread pipe, tighten flanges, and face in shop equipped with machinery designed for such work. Hand or field work is not acceptable.
C. Gaskets:
    1. Full face rubber 1/16-inch-thick factory cut unless otherwise specified. For ductile iron pipe and fittings between pump and steel discharge header gaskets shall be Toruseal by American or equal as approved by ENGINEER.
    2. For air systems only, full-face Buna-N gaskets, 1/16-inch thick factory cut. Gaskets shall be suitable for temperatures of 200 F with lubrication oil present.
D. Bolts and Nuts:
    1. Type: Hex heads and nuts.
    2. Material: Low carbon steel conforming to ASTM A307 Grade B except for submerged and buried locations.
    3. Submerged bolts and nuts shall be 316 stainless steel.
    4. Bolts and nuts in buried locations or in manholes shall be 304 stainless steel.
E. Thickness Class: As noted on Plans. Use Class 150 if not shown on Plans.

2.4 FITTINGS

A. Fittings shall be ductile iron castings, all conforming to AWWA C110/A21.10 or AWWA C153/A21.53. Flanged ends shall be made of ductile iron, and shall have comparable pressure rating to pipe.
B. Coatings shall be as specified for ductile iron pipe.
C. All buried fittings shall be wrapped with a polyethylene wrapping.
D. All fasteners, bolts, and hardware that are buried or in manholes shall be 304 stainless steel. Buried MJ fitting bolts may be Corten.

2.5 PROTECTIVE COATINGS, LININGS, AND ENCASEMENT

A. Inside of Pipe:
   1. Unless otherwise shown, all ductile iron shall be provided with a cement-mortar lining in accordance with AWWA C104/A21.4. A bituminous seal coat shall be applied over the mortar lining in accordance with AWWA C104/A21.4.
   2. Inside of Pipe: Where specifically shown or specified, epoxy lining shall be provided. Epoxy lining shall be high solids, high build fusion bonded epoxy per AWWA C116/A21.16 suitable for use in potable water, minimum 16 mils dft.
B. Outside of Pipe:
   1. For exposed piping including piping in vaults provide one shop coat of primer and field paint with one coat of primer and one finish coat in accordance with Section 09 03 01, COATING & PAINTING FOR WATER TREATMENT PLANTS.
   2. For buried piping, provide bituminous coating.
C. Provide V-Bio Enhance Polyethylene Encasement for all buried piping and fittings except for concrete encased pipe and fittings and pipes in tunnels or bores.

2.6 INSULATED CONNECTIONS

The pipe vendor shall furnish dilectric insulation gaskets and/or bushings at all places where steel pipe or valves connect to ductile and cast iron pipe and fittings. Where flanges are to be insulated, furnish and install a complete flange isolation kit including a flange gasket, isolating sleeve for each bolt, and two isolating washers for each bolt. Flange isolation kits shall be Saint Ferrer Model #105-EK2 by Westermann, or approved equal.

2.7 RESTRAINED PIPE AND FITTING JOINTS

Restrained pipe and fitting joints shall utilize push on type joint fittings with ductile iron components as fabricated by U.S. Pipe - TR FLEX or approved equivalent. Field cut pipe shall be provided with U.S. Pipe - TR FLEX gripper ring US Pipe HDSS or approved equivalent sized for working pressures shown on plans (150 psi minimum) for sizes through 36-inch. At CONTRACTOR's option, restrained buried fittings and pipes with working pressures at or below 100 psi may utilize mechanical joints with EBAA iron Megalug type joint restraint with Corten bolts. Pipe and fittings that are concrete encased do not require mechanical restraint.

PART 3 EXECUTION

3.1 INSTALLATION

A. General:
   1. Use the types of pipe and joints specified and shown on the Plans.
   2. Follow the manufacturer's installation instructions.
   3. Wrap all buried piping and fittings with polyethylene.
   4. Pipe shall be installed on constant grade between control depths as shown on the Plans, with minimum depth of cover maintained.
   5. Utilize [Class III] embedment if not shown on Plans.
   6. Provide a restrained push-on joint or MJ joint 10 feet outside of structures. Alternatively, provide a restrained coupling 10 feet outside of structures.

B. Flexible Couplings and Flanged Coupling Adaptors:
   1. Install in accordance with the Plans, specifications for couplings and adaptors, and approved shop drawings.
   2. Use of additional couplings and adaptors to be approved by OWNER prior to installation.
   3. All flexible couplings and flanged coupling adaptors shall be restrained.

C. Joining of Push-on Piping:
   1. Preparation of pipe ends: Remove from bell and spigot ends all lumps, blisters, excess coal-tar coating, oil and grease, then wire brush and wipe clean and dry before laying pipe.
   2. Installation of ring gasket:
      a. Wipe gasket seat in socket with clean dry cloth.
      b. Place gasket with large end entering first.
      c. Spring gasket into seat in bell so that groove fits overhead in seat.
      d. Apply thin film of food grade lubricant to inside surface of gasket.
   3. Setting spigot:
      a. Apply food grade lubricant to engaging surface of spigot if necessary.
      b. Align spigot with bell and start into bell so that it contacts gasket.
      c. Pipe 6 inches and smaller may be driven with a bar lever on end of pipe.
      d. For larger pipe, use only approved ratchet-type jacking tool to pull pipe "home."

D. Joining of Mechanical Joint Pipe:
   1. Remove all mud and foreign matter from pipe ends, gaskets and fittings before installation.
   2. Wash pipe ends, gaskets and fittings with soapy water before installation.
   3. Mechanical joints must be suitably restrained to prevent movement.

E. Joining of Flanged Pipe:
   1. Setting gasket:
      a. If non-graphited gaskets are used, apply graphite and water solution to gasket before placing on flange.
      b. Wire-brush flange and clean inside of pipe before placing gasket.
   2. Tightening bolts:
      a. After initial alignment, place flange bolts with all heads in same direction.
      b. Tighten flange bolts, each in turn, at uniform rate around joint until all are tightened to the manufacturer's recommended torque.
   3. All flanged coupling adaptors must be restrained.

F. Restrained Joints

   Install restrained joints in strict accordance to manufacturer's recommendations. Pressure utilized shall be working pressures shown and/or specified, plus an additional 100 psig for surge for potable water and service water piping, and high service pump discharge piping. Use test pressure times 1.5 for all other pipelines.

-- END OF SECTION --