

**LAGUNA MADRE WATER DISTRICT  
PORT ISABEL WASTEWATER TREATMENT FACILITY MODIFICATIONS  
BID NO.: WW-16-10-01**

**ADDENDUM NO. 3**

**BID OPENING TIME:** December 13, 2016 @ 2:00 PM (CDT)

LOCATION: Laguna Madre Water District  
105 Port Road  
Port Isabel, TX 78578

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The following additions, deletions, modifications, or clarifications, along with all attachments shall be made to the appropriate sections of the Specifications and Contract Documents and shall become a part of the Contract Documents. **Bidders shall acknowledge receipt of this addendum in the space provided on the Bid Form.**

**CLARIFICATIONS**

- A3-1. Question was asked concerning the carton form beneath the Headworks slab on piles. Void or carton form as shown on Typical Detail F201 is required even though not shown on structural drawings. Carton forms shall be as manufactured by SureVoid Products Inc., or equal. Retainer board shall be as recommended by the manufacturer.
- A3-2. Question emailed concerning the flow pattern through the basins during the various sequencing phases of the work and the requirement for bypass pumping and hauling of sludge.

The hauling of sludge to other District plants has been eliminated. LMWD staff will handle the regular wasting of sludge by use of the portable self-priming pump that is provided in Addendum No. 3 Item A3-5. Contractor is still responsible for pumping liquid and removing the settled contents of the basins as specified in Section 01140 Sub-paragraphs 1.10.A.15, 25, and 36.

**Sequencing Phase A.** Basins 2 and 3 are connected by an opening and therefore must be drained at the same time. LMWD staff will lower the basins to approximately an 8-foot depth. Contractor shall be responsible for handling the remainder of the basin contents (Step 15). Liquid shall be pumped into Basin 1. Grit and solids shall be transported to the existing drying beds.

While Basins 2 and 3 are being modified, incoming flow will continue to be discharged into Basin 1 with flow leaving Basin 4 via the existing weir at the northeast end of the basin as it currently operates. When Basin 4 water level is lowered in Step 17, it will be necessary to pump the entire plant flow over the weir. The bypass channel around Basin 4 has been filled and is not available.

**Sequencing Phase B.** After Basins 2 and 3 are placed into service (Step 23) and Basin 1 is taken out of service (Step 25), flow will go into Basins 2 and 3 in parallel and then combine and go into Basin 4. Liquid in Basin 1 may be pumped into the cross channel. Grit and solids shall be transported to the existing drying beds.

**Sequencing Phase C.** When Basin 1 is placed back into service (Step 31) influent will flow in parallel through Basins 1, 2, and 3 and into the cross channel. Contractor shall then pump the entire plant flow from the cross channel into the Secondary Clarifier Distribution Box (Step 35). With the flow diverted, Basin 4 may be taken out of service (Step 36). Liquid may be pumped over the weir at the northeast corner of the basin. Grit and solids shall be transported to the existing drying beds.

After Basin 4 is placed back into service (Step 40), LMWD may take Basin 2 and 3 out of aeration service and convert them to sludge holding. Under this scenario, influent flow will enter Basin 1 and flow through the cross channel into Basin 4 and over the effluent weir.

## VOLUME 1 – CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS

### A3-3. DOCUMENT 00410 - BID FORM

- A. Article 5, Basis of Bid, as previously issued in Addendum No. 1, CHANGE the quantity of Liquid Sludge Hauling from "2,428,000 Gallons" to "0 Gallons."

### A3-4. SECTION 01140 - WORK RESTRICTION

- A. INSERT Sub-sub-paragraph 1.10.A.2.a., as follows:
  - "a. Furnish the portable horizontal self-priming centrifugal pump to the Owner prior to Step 6."
- B. REVISE the first sentence of Sub-paragraph 1.10.A.5 to read as follows:
  - "Modifications on existing RAS lines shall be installed and completed prior to Step 6."

## VOLUME 2 – TECHNICAL SPECIFICATIONS

### A3-5. SECTION 11293 – SLIDE GATES

- A. REPLACE Sub-subparagraph 3.03.B.3. in its entirety with the following:
  - "3. Mounting Type:
    - a. FWT - F Wall Thimble.
    - b. FM - Face Mounted.
    - c. EB - Embedded."
- B. In the Slide Gate Schedule, as previously issued in Addendum No. 2, change the Mounting Types to the following:

"GAT-04.5010	FWT
GAT-04.5020	FWT
GAT-04.5030	FWT

GAT-04.5040	FWT
GAT-05.5110	FM
GAT-05.5210	FM
GAT-05.5310	FM
GAT-05.5410	FM"

C. In the Slide Gate Schedule, change the Frame Types to the following:

"GAT-05.5110	SC
GAT-05.5410	SC"

A3-6. SECTION 11312E - HORIZONTAL SCREW CENTRIFUGAL PUMPS

A. REVISE Sub-paragraph 2.01.A to read as follows:

- "A. The following or equal:
1. Hayward Gordon, XCS4-B
  2. Hidrostal
  3. Wemco Pumps"

A3-7. SECTION 11312F - HORIZONTAL SELF-PRIMING CENTRIFUGAL PUMP

A. ADD the attached section in its entirety.

A3-8. SECTION 11371 - DIRECT DRIVE HIGH-SPEED TURBO BLOWER SYSTEM

A. REVISE Sub-subparagraph 3.04.C.1 to read as follows:

"1. Programmer Assistance: During this phase, the services of the representative shall be provided for one 8-hour day."

B. REVISE Sub-subparagraph 3.04.C.2 to read as follows:

"2. Start-Up and Training: During this phase, the services of the representative shall be provided for three 8-hour days."

C. DELETE Sub-subparagraph 3.04.C.3 in its entirety

D. REVISE Sub-subparagraph 3.04.C.4 to read as follows:

"3. Post Operational Performance Test: During this phase, the services of the representative shall be provided for one 8-hour day."

**VOLUME 3 – TECHNICAL SPECIFICATIONS**

A3-9. SECTION 16232 - SINGLE DIESEL FUELED ENGINE GENERATORS ABOVE 200 KW

A. ADD the following at the end of Sub-subparagraph 1.12.B.5:

"6. After startup and demonstration, provide a full tank of fuel for final acceptance."

A3-10. SECTION 16282 - 600 VOLT POWER FACTOR CORRECTION CAPACITORS

- A. ADD the following after Sub-paragraph 1.04.A.:
  - "B. Capacitor bank shall contain a reactor to prevent harmonic resonance in the system.
  - C. Capacitor bank shall be provided with solid state LSI circuit breaker as means of disconnect."

**VOLUME 4 – DRAWINGS**

A3-11. DRAWING NO. 02-C-01

- A. REPLACE Drawing 02-C-01 with the attached Drawing 02-C-01.

A3-12. DRAWING NO. 05-S-01A

- A. ADD Key Note 1 as follows:
  - "Fill the approximate 2'x2' opening in the wall between Basin 2 and 3 with concrete and reinforcing similar to Section 3 on Drawing 05S01."
- B. B. ADD Key Note 1 Callout in the Location Plan A in Basin 2 approximately a quarter of the way from the bottom of the plan.

A3-13. DRAWING NO. 05-S-01

- A. In Section A, REMOVE the Key Note 2 callout and the word "Weir" at the top of the walls of Basins 1, 2, and 3.
- B. In Key Note 3, CHANGE the elevation from "27.41" to "27.66."

A3-14. DRAWING NO. 10-S-01

- A. REPLACE Drawing 10-S-01 with the attached Drawing 10-S-01.

A3-15. DRAWING NO. 16-S-01

- A. In Section C, CHANGE the material beneath the slab from "CLSM" to "Compacted Fill Material."

A3-16. DRAWING NO. 00-E-03

- A. REPLACE Drawing 00-E-03 with the attached Drawing 00-E-03.

A3-17. DRAWING NO. 00-E-21

- A. REPLACE Drawing 00-E-21 with the attached Drawing 00-E-21.

A3-18. DRAWING NO. 14-E-02

A. REPLACE Drawing 14-E-02 with the attached Drawing 14-E-02.

A3-19. DRAWING NO. 14-E-03

A. REPLACE Drawing 14-E-03 with the attached Drawing 14-E-03.

This Addendum No. 3, pages 1 through 5, shall become part of the Contract and all provisions of the Contract shall apply thereto.

The time provided for completion of the Contract is not changed.

Bidders shall acknowledge receipt of all Addenda by number in the space provided in the Proposal.

CAROLLO ENGINEERS, INC.

 Digitally signed by Leonard  
Allen Jr.  
Contact Info: Carollo  
Engineers, Inc.  
Date: 2016.12.07  
12:58:36-06'00'



END OF ADDENDUM NO. 3

ATTACHMENTS:

SPEC SECTION 11312F  
DRAWING NO. 02-C-01  
DRAWING NO. 10-S-01  
DRAWING NO. 00-E-03  
DRAWING NO. 00-E-21  
DRAWING NO. 14-E-02  
DRAWING NO. 14-E-03

**SECTION ADDED IN ITS ENTIRETY**

**SECTION 11312F<sup>AD3</sup>**

**HORIZONTAL SELF-PRIMING CENTRIFUGAL PUMP**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Section includes:
  - 1. Requirements for provision of pump systems including self-priming motor driven pumps are included.
  
- B. Tag numbers: As specified in Pump Schedule.
  
- C. Related sections:
  - 1. Section 01330 - Submittal Procedures.
  - 2. Section 01600 - Product Requirements.
  - 3. Section 01756 - Commissioning.
  - 4. Section 01782 - Operation and Maintenance Data.
  - 5. Section 01783 - Warranties and Bonds.
  - 6. Section 05190 - Mechanical Anchoring and Fastening to Concrete and Masonry.
  - 7. Section 09960 - High-Performance Coatings.
  - 8. Section 15050 - Common Work Results for Mechanical Equipment.
  - 9. Section 15958 - Mechanical Equipment Testing.

**1.02 REFERENCES**

- A. American Bearing Manufacturers Association (ABMA):
  - 1. 9 - Load Ratings and Fatigue Life for Ball Bearings.
  - 2. 11 - Load Ratings and Fatigue Life for Roller Bearings.
  
- B. American Society of Mechanical Engineers (ASME):
  - 1. B16.1 - Gray Iron Pipe Flanges and Flanged Fittings, Class 25, 125, and 250.
  - 2. B16.5 - Pipe Flanges and Flanged Fittings: NPS 1/2 through 24.
  
- C. ASTM International (ASTM):
  - 1. A48 - Standard Specification for Gray Iron Castings.
  - 2. A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished.
  - 3. A276 - Standard Specification for Stainless Steel Bars and Shapes.
  - 4. A283 - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates.
  - 5. A322 - Standard Specification for Steel Bars, Alloy, Standard Grades.
  - 6. A532 - Standard Specification for Abrasion-Resistant Cast Irons.
  - 7. A536 - Standard Specification for Ductile Iron Castings.
  - 8. A582 - Standard Specification for Free-Machining Stainless Steel Bars.
  - 9. A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
  - 10. B505 - Standard Specification for Copper Alloy Continuous Castings.

11. E10 - Standard Test Method for Brinell Hardness of Metallic Materials.
12. F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws and Studs.
13. F594 - Standard Specification for Stainless Steel Nuts.

D. Hydraulic Institute (HI):

1. 1.1-1.2 - Rotodynamic (Centrifugal) Pumps for Nomenclature and Definitions.
2. 1.3 - Rotodynamic (Centrifugal) Pumps for Design and Application.
3. 9.1-9.5 - Pumps - General Guidelines for Types, Definitions, Application, and Sound Measurement and Decontamination.

### 1.03 DEFINITIONS

- A. Pump head (total dynamic head, TDH), flow capacity, pump efficiency, net positive suction head available (NPSHa), and net positive suction head required (NPSHr): As defined in HI 1.1-1.2, 1.3, and 9.1-9.5 and as modified in this Section.
- B. Flow, head, efficiency, and driver horsepower specified in this Section are minimums unless stated otherwise.

### 1.04 SYSTEM DESCRIPTION

- A. Centrifugal self-priming, pump with components: Pump, driver, bearings, seals or packing, couplings, base plates, guards, portable support frame, necessary valves, gauges, taps, lifting eyes, stands and other items as required for a complete and operational system.
- B. Provide pumps, drivers, couplings, and other components capable of intermittent or continuous operation while pumping specified fluid; loss of prime and possible siphoning of liquid from the pump casing shall be considered in design of the self-priming features.
- C. Design requirements:
  1. Pump performance characteristics:
    - a. As specified in the Pump Schedule.
    - b. Performance tolerances shall be the same as the test tolerances specified in Section 15958.
  2. Engine characteristics: As specified in the Pump Schedule.
- D. Product requirements as specified in Section 01600 and Section 15050.

### 1.05 SUBMITTALS

- A. Submit as specified in Section 01330.
- B. Product data: As specified in Section 15050.
- C. Shop drawings: As specified in Section 15050.
- D. Calculations: As specified in Section 15050.
  1. Torsional analysis: Submit as specified in Section 15050 when scheduled.
- E. Vendor operation and maintenance manuals: As specified in Section 01782.

- F. Commissioning submittals:
  - 1. Provide Manufacturer's Certificate of Source Testing as specified in Section 01756.
  - 2. Provide Manufacturer's Certificate of Installation and Functionality Compliance as specified in Section 01756.

## **1.06 WARRANTY**

- A. As specified in Section 01783.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Pumps: One of the following or equal:
  - 1. Gorman-Rupp Company, model as scheduled.
  - 2. Barnes Pumps, similar to scheduled model.

### **2.02 MATERIALS**

- A. General: Materials in the Pump Schedule shall be the type and grade as specified in this Section.
- B. Cast iron: ASTM A48, Class 30 minimum.
- C. Hi-chrome cast iron: ASTM A532, Class III, Type A at 450 Brinell hardness.
- D. Ductile iron: ASTM A536, Grade as scheduled.
- E. Bronze or leaded tin bronze: ASTM B505, Alloy C92700.
- F. Type 304 stainless steel: ASTM A276, Type 304 stainless steel.
- G. Type 316 stainless steel: ASTM A276, Type 316 stainless steel or ASTM A666, Type 316 stainless steel.
- H. Type 416 stainless steel: ASTM A582, Type 416 stainless steel.
- I. Steel: ASTM A108, Grade as scheduled.
- J. Hot-wrought alloy steel: ASTM A322, Grade 4140, UNS Alloy G41400.
- K. Structural steel: ASTM A283, Grade D.
- L. Neoprene: Polychloroprene rubber.

### **2.03 GENERAL PUMP CONSTRUCTION**

- A. Type: Industrial (heavy) duty, self-priming sewage type pumps meeting performance and design requirements and features as specified in this Section.

- B. Fasteners: Provide Type 316 stainless steel fasteners per ASTM F593 and ASTM F594.

## **2.04 PUMP CASINGS**

- A. Type: 1 or 2 piece with integrally cast suction and discharge nozzles.
- B. Material: As scheduled.
- C. Construction: Of sufficient strength, weight, and thickness to provide accurate alignment, prevent excessive deflection, and support drive engine.
- D. Suction and discharge piping connections: Threaded meeting required design working pressure.
- E. Discharge: Centered on the casing top.
- F. Suction: Centered on casing, horizontally oriented.
- G. Suction case cover:
  - 1. Provide removable suction cover plate to allow access to clear the pump of blockages and to remove/replace the impeller, shaft seal, and wear plate through the cover.
  - 2. Design internal suction check valve that can be removed through the cover plate. Check valve plate shall be constructed of neoprene.
- H. Design working pressure: Minimum 1.10 times maximum shutoff total dynamic head with maximum installable impeller diameter at maximum operating speed plus maximum suction static head.
- I. Hydrostatic test: 5-minute hydrostatic test minimum 1.5 times design working pressure.
- J. Vent and taps:
  - 1. Provide castings with both 3/4-inch threaded low point and initial priming fill vent on casing. Install pipe nipples with threaded gate valves in drain and priming vent.
  - 2. Provide 1/2-inch threaded tap with valve and pressure gauge on the suction and discharge flanges.

## **2.05 IMPELLERS**

- A. Type: As scheduled.
- B. Material: As scheduled.
- C. Maximum number of vanes: As scheduled.
- D. Design with smooth water passages to prevent clogging by stringy or fibrous materials. Passages shall be capable of passing solids with sphere size as scheduled.

- E. Design impeller and volute for automatic unattended self-priming and repriming with a dry suction leg and without reliance on a suction check valve to maintain prime.
- F. Design impeller with integral pump out vanes on the back shroud.
- G. Method of securing to shafts: Keyed and secured by bronze nut locked in place, but readily removable without use of special tools.
- H. Adjustment of axial clearance: Through jacking screws and lock nuts placed between frame and outboard bearing housing or by shims held in place by frame housing.
- I. Rotation: Clockwise looking from top, unless otherwise indicated on the Drawings.
- J. Balance: As specified in Section 15050 to meet vibration criteria as specified in Section 15958.
- K. Impeller wear plate:
  1. Material: As scheduled. Provide minimum Brinell Hardness Number of 350 and test Brinell Hardness Number per ASTM E10.
  2. Design replaceable wear plate and means to externally adjust impeller clearance to the wear plate; seals to move with rotating assembly to maintain pressure on seals.

## **2.06 SHAFT**

- A. Material: As scheduled, hard faced or with removable sleeve. Provide minimum Brinell Hardness Number of 350 and test Brinell Hardness Number per ASTM E10.
- B. Strength: Able to withstand minimum 1.5 times maximum operating torque and other loads.
- C. Resonant frequency: As specified in Sections 15050 and 15958.
- D. Deflection: Maximum 0.002 inches under operating conditions.
- E. Impeller attachment: Taper fitted at impeller with key and bolt for securing impeller.
- F. Pump shaft seal:
  1. Double floating, self-aligning.
  2. Tungsten-titanium carbide rotating and stationary seal faces.
  3. Viton elastomers or Silicon Carbide.
  4. Stainless steel cage and spring.
  5. Oil or grease lubricated. When grease lubricated, provide spring-loaded grease cup. When oil lubricated, provide reservoir from bearing lubrication system.
  6. Stuffing box shall be integral to the suction casing.
- G. Pump shaft sleeve:
  1. Material: As scheduled, with minimum Brinell Hardness Number of 550 when tested in accordance with ASTM E10.
  2. Renewable, key locked in stuffing box, gland area, and bearings.
  3. Able to protect shaft from pumped liquid and wear.

## **2.07 BEARING**

- A. Bearing type: Anti-friction in accordance with ABMA standards; self-aligning spherical roller type radial bearings; angular contact ball type, or tapered roller for thrust bearings.
- B. Bearing lubrication:
  - 1. Provide oil lubrication:
    - a. Separate oil reservoir type system, separate from seal lubrication.
    - b. Oil filter pipe.
    - c. External level indicator gauge.
  - 2. Size sufficiently to safely absorb heat energy normally generated in bearing under maximum ambient temperature of 60 degrees Celsius.
- C. Bearing life: Minimum L10 life of 100,000 hours at rated design point or 24,000 hours in accordance with ABMA 9 or 11 at bearing design load imposed by pump shutoff with maximum sized impeller at rated speed, whichever provides longest bearing life in intended service.

## **2.08 COUPLINGS**

- A. Type: As scheduled, and as specified in Section 15050.
- B. Flexible coupling life: Infinite at up to 0.3-degree misalignment angle total or per disk for disk type at maximum operating loads.
- C. Design coupling to withstand a minimum of 1.5 times the maximum operating torque and other imposed loads.

## **2.09 SUPPORTS, PEDESTALS, AND BASEPLATES**

- A. Materials: Same as pump casing or ASTM A283 steel, hot-dip galvanized after fabrication and coated as specified in Section 09960.
- B. Pump and driver support strength: Able to withstand minimum 1.5 times maximum imposed operating loads or imposed seismic loads, whichever is greater.
- C. Configuration: Allow easy access to stuffing boxes, bearing frames, and couplings.
- D. Anchor bolts: As specified in Section 05190.

## **2.10 EQUIPMENT GUARDS**

- A. Provide equipment safety guards as specified in Section 15050.

## **2.11 DRIVERS**

- A. Horsepower:
  - 1. As scheduled.
- B. Other drivers: As scheduled and as specified in sections listed in the Schedule.

## 2.12 SPARE PARTS AND SPECIAL TOOLS

- A. Spare parts: Deliver the following as specified in Section 01600:
  - 1. Mechanical seal: 1 complete seal set for each type supplied.
  - 2. Pump bearings: 1 set of radial and 1 set of thrust bearings for each pump size supplied.
- B. Special tools: For each type or size of pump specified, provide 1 set of all special tools required for complete assembly or disassembly of all pump system components.

## PART 3 EXECUTION

### 3.01 COMMISSIONING

- A. As specified in Section 01756 and this Section.
- B. Manufacturer services:
  - 1. Provide certificates:
    - a. Manufacturer's Certificate of Source Testing.
- C. Source testing: As specified in Pump Schedule.
- D. Functional testing: As specified in Pump Schedule.

### 3.02 INSTALLATION

- A. Contractor is to furnish the pump to the owner. The Owner will be responsible for connecting the pump to piping. The Owner will also be responsible for fuel and operations.

### 3.03 PUMP SCHEDULE

<b><u>General Characteristics:</u></b>	
Service	Return Activated Sludge
Quantity	1
First Named Manufacturer's Model Number	82D1-1B20 FT4-X
Maximum Noise, dBA at 3 Feet	100
Torsional Analysis	Not Required
Minimum Pumped Fluid Degrees Fahrenheit	50
Normal Pumped Fluid Degrees Fahrenheit	70
Maximum Pumped Fluid Degrees Fahrenheit	85
<b><u>Pump Characteristics:</u></b>	
Impeller Type	Per Manufacturer
Impeller, Maximum Number Vanes	Per Manufacturer
Pass Minimum Sphere Size, inches	0.62"

Shaft Seal Type	Single Mechanical
Coupling Type	Spacer
Speed Control	Fixed
Maximum Pump revolutions per minute	3600
<b><u>Rated Design Point (at maximum Revolutions per Minute):</u></b>	
Flow, gallons per minute	170
Head, feet	20
<b><u>Required Condition 2 (at maximum Revolutions per Minute):</u></b>	
Flow, gallons per minute	100
Head Range, feet	70
<b><u>Required Condition 3 (at maximum Revolutions per Minute):</u></b>	
Flow, gallons per minute	50
Head Range, feet	85
<b><u>Other Conditions:</u></b>	
Shut Off Head, feet	90
Minimum NPSHa at Every Specified Flow, feet	40
Minimum Suction Static Head, feet	0
Maximum Suction Static Head, feet	10
<b><u>Pump Materials:</u></b>	
Pump Casing	Cast Iron
Impeller	Aluminum 356-T6
Impeller Wear Plate	Carbon Steel ASTM A36
Shaft	Steel, Gr 1141, H-W Steel, or Stainless Steel
Shaft Sleeve	304 Stainless
Stuffing Box	Cast Iron
<b><u>Driver Characteristics:</u></b>	
Driver Type	Diesel Engine
Drive Arrangement	Horizontal, Coupled
Minimum Driver Horsepower	4
Maximum Driver Speed, revolutions per minute	3600
<b><u>Source Testing:</u></b>	
Test Witnessing	Not Witnessed
Performance Test Level	None
Vibration Test Level	None
Noise Test Level	None

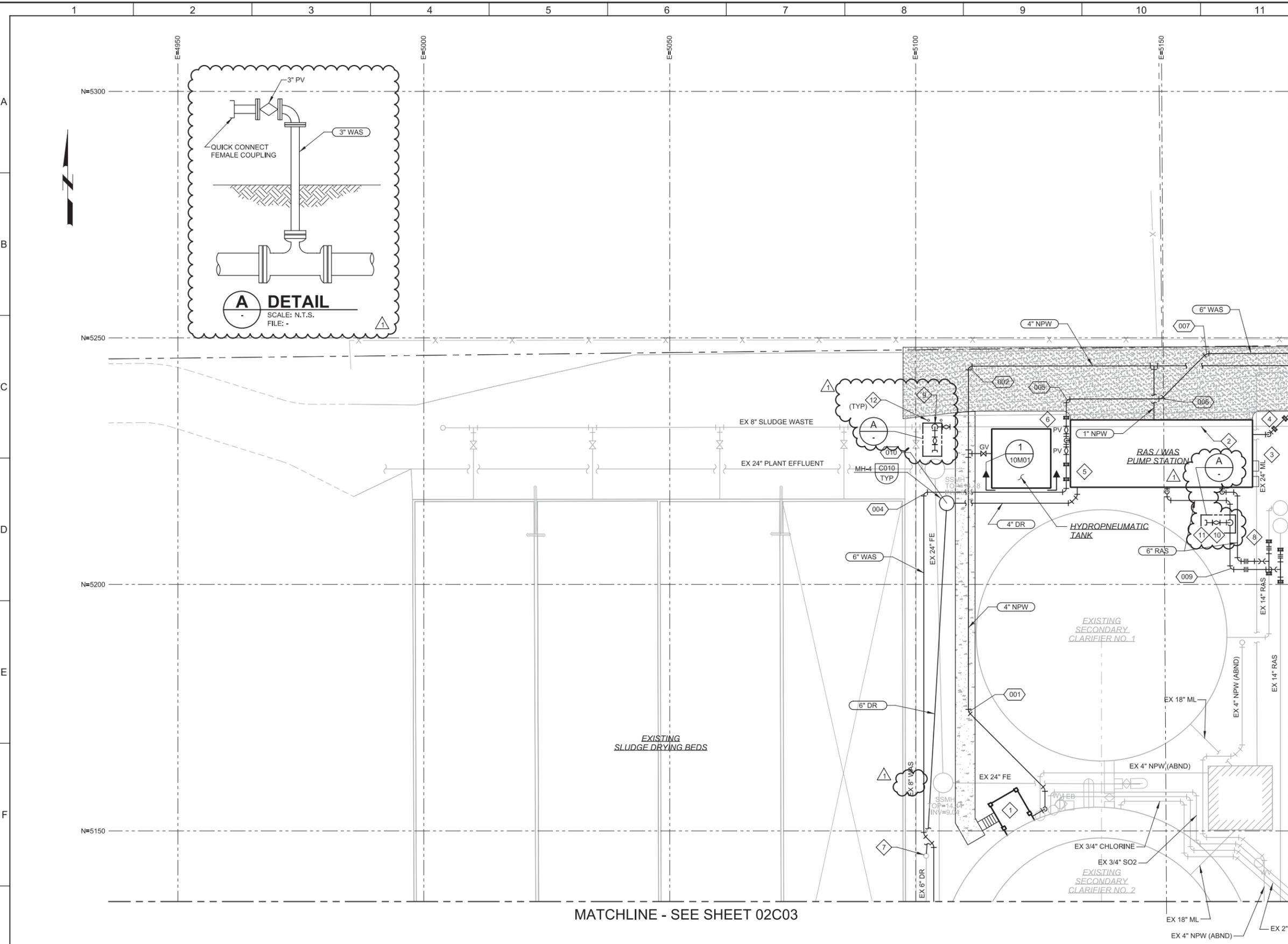
<b><u>Functional Testing:</u></b>	
Performance Test Level	None
Vibration Test Level	None
Noise Test Level	None

END OF SECTION

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<sup>AD3</sup> Addendum No. 3

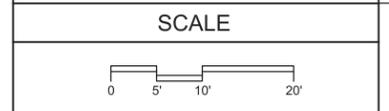
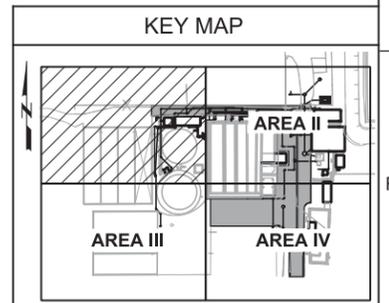
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- GENERAL NOTES**
- REFER TO DRAWING 02C05 FOR YARD PIPING HORIZONTAL CONTROLS. NOT ALL PIPE FITTINGS ARE TAGGED ON THE PIPE TABLE.
  - FIELD VERIFY THE LOCATION OF THE EXISTING PIPES AND DUCTBANKS PRIOR TO THE START OF ANY EXCAVATION.
- KEY NOTES = #**
- SEE DWG 10M01 FOR PIPING AT THE PLANT WATER PUMP STATION
  - REMOVE EXISTING 8" WAS LINE DURING EXCAVATION AND BACKFILL FOR THE RAS/WAS PUMP STATION. REINSTALL AND ENCASE THE 8" WAS LINE BENEATH THE CONCRETE SLAB PER DETAIL P040/TYP. EXTEND ENCASEMENT 5' BEYOND SLAB
  - PROTECT IN PLACE THE EXISTING 24" ML LINE DURING THE EXCAVATION AND BACKFILL FOR THE RAS/WAS PUMP STATION. ENCASE PER DETAIL P040/TYP FOR 18'
  - TWO SLEEVE COUPLINGS AT 6' O.C.
  - TWO SLEEVE COUPLINGS AT 5' O.C.
  - SINGLE SLEEVE COUPLING
  - CONNECT NEW 6" DR TO EXISTING
  - SEE SECTION 01140 FOR SEQUENCING OF THE 14" RAS PIPE MODIFICATIONS.
  - CONNECT 3" WAS TRANSFER PIPE WITH PLUG VALVE AND QUICK CONNECT FEMALE COUPLING TO EXISTING 8" WAS LINE WITH A TEE AND PLUG VALVE.
  - 3" WAS PIPE, PLUG VALVE, AND QUICK CONNECT FEMALE COUPLING FOR WAS TRANSFER PUMP.
  - FURNISH 200' OF 3" 100% POLYESTER SINGLE JACKET WITH EPDM TUBE RATED FOR 150 PSI WITH MALE QUICK CONNECT COUPLINGS.
  - GUARD POST PER TYPICAL DETAIL C160 (TYPICAL OF 2).

MATCHLINE - SEE SHEET 02C02

MATCHLINE - SEE SHEET 02C03



REV	DATE	LHA	BY	DESCRIPTION
1	12-06-16	LHA		ADDENDUM NO. 3

DESIGNED	LHA
DRAWN	LGD
CHECKED	AE
DATE	OCTOBER 2016

Digitally signed by Leonard Allen  
 Leonard H. Allen, Jr.  
 Licensed Professional Engineer  
 State of Texas  
 No. 111050  
 Date: 2016.12.07



LAGUNA MADRE WATER DISTRICT  
 PORT ISABEL WW TREATMENT FACILITY MODIFICATIONS  
 YARD PIPING - AREA I

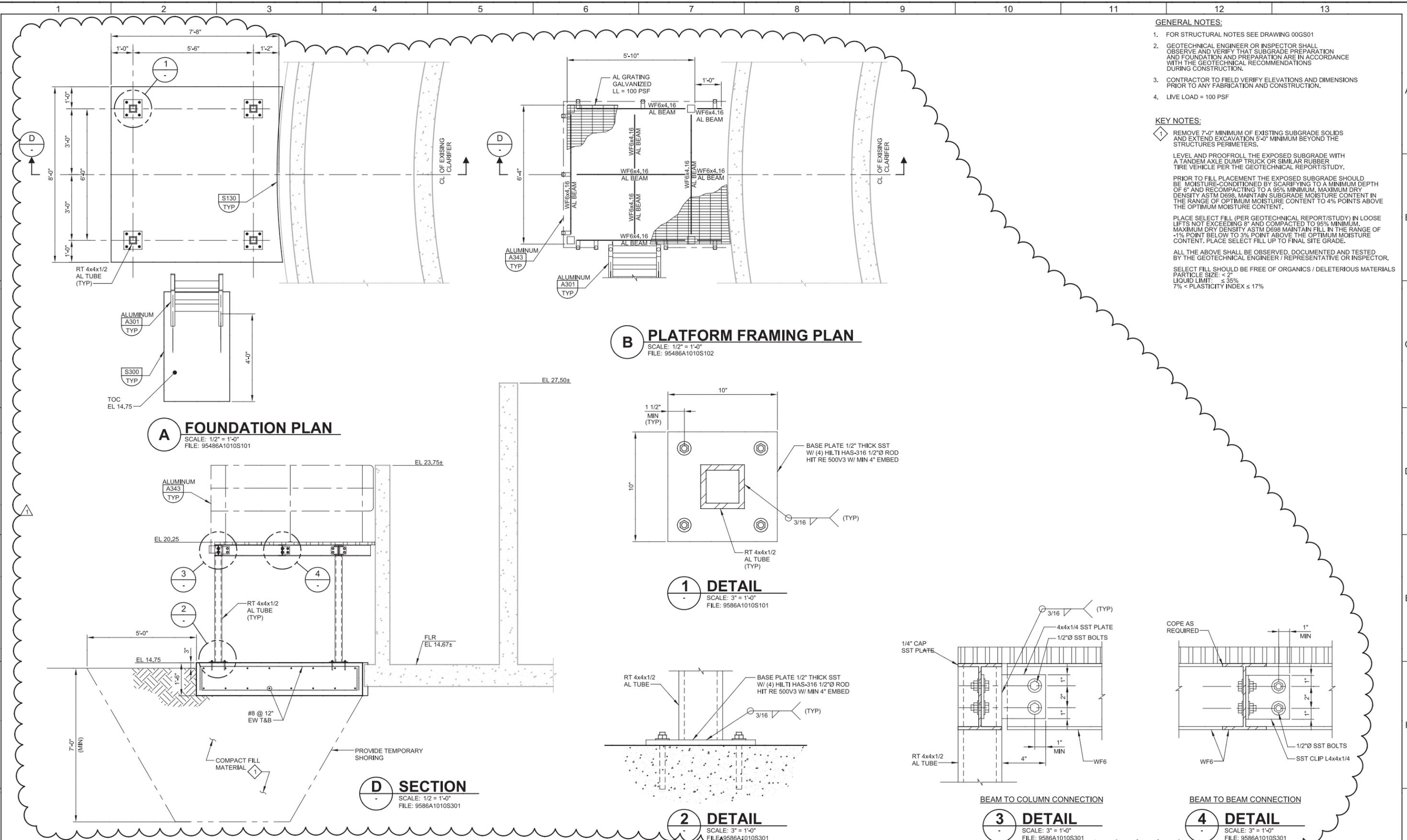
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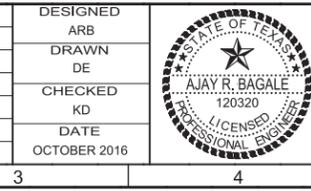
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LAST SAVED BY: deminiquez



- GENERAL NOTES:**
- FOR STRUCTURAL NOTES SEE DRAWING 00GS01
  - GEOTECHNICAL ENGINEER OR INSPECTOR SHALL OBSERVE AND VERIFY THAT SUBGRADE PREPARATION AND FOUNDATION AND PREPARATION ARE IN ACCORDANCE WITH THE GEOTECHNICAL RECOMMENDATIONS DURING CONSTRUCTION.
  - CONTRACTOR TO FIELD VERIFY ELEVATIONS AND DIMENSIONS PRIOR TO ANY FABRICATION AND CONSTRUCTION.
  - LIVE LOAD = 100 PSF
- KEY NOTES:**
- 1 REMOVE 7'-0" MINIMUM OF EXISTING SUBGRADE SOLIDS AND EXTEND EXCAVATION 5'-0" MINIMUM BEYOND THE STRUCTURES PERIMETERS.
- LEVEL AND PROFFROLL THE EXPOSED SUBGRADE WITH A TANDUM AXLE DUMP TRUCK OR SIMILAR RUBBER TIRE VEHICLE PER THE GEOTECHNICAL REPORT/STUDY.
- PRIOR TO FILL PLACEMENT THE EXPOSED SUBGRADE SHOULD BE MOISTURE-CONDITIONED BY SCARIFYING TO A MINIMUM DEPTH OF 6" AND RECOMPACTING TO A 95% MINIMUM, MAXIMUM DRY DENSITY ASTM D698. MAINTAIN SUBGRADE MOISTURE CONTENT IN THE RANGE OF OPTIMUM MOISTURE CONTENT TO 4% POINTS ABOVE THE OPTIMUM MOISTURE CONTENT.
- PLACE SELECT FILL (PER GEOTECHNICAL REPORT/STUDY) IN LOOSE LIFTS NOT EXCEEDING 8" AND COMPACTED TO 95% MINIMUM, MAXIMUM DRY DENSITY ASTM D698 MAINTAIN FILL IN THE RANGE OF -1% POINT BELOW TO 3% POINT ABOVE THE OPTIMUM MOISTURE CONTENT. PLACE SELECT FILL UP TO FINAL SITE GRADE.
- ALL THE ABOVE SHALL BE OBSERVED, DOCUMENTED AND TESTED BY THE GEOTECHNICAL ENGINEER / REPRESENTATIVE OR INSPECTOR.
- SELECT FILL SHOULD BE FREE OF ORGANICS / DELETERIOUS MATERIALS  
 PARTICLE SIZE: < 2"  
 LIQUID LIMIT: ≤ 35%  
 7% < PLASTICITY INDEX ≤ 17%

DESIGNED	ARB
DRAWN	DE
CHECKED	KD
DATE	OCTOBER 2016

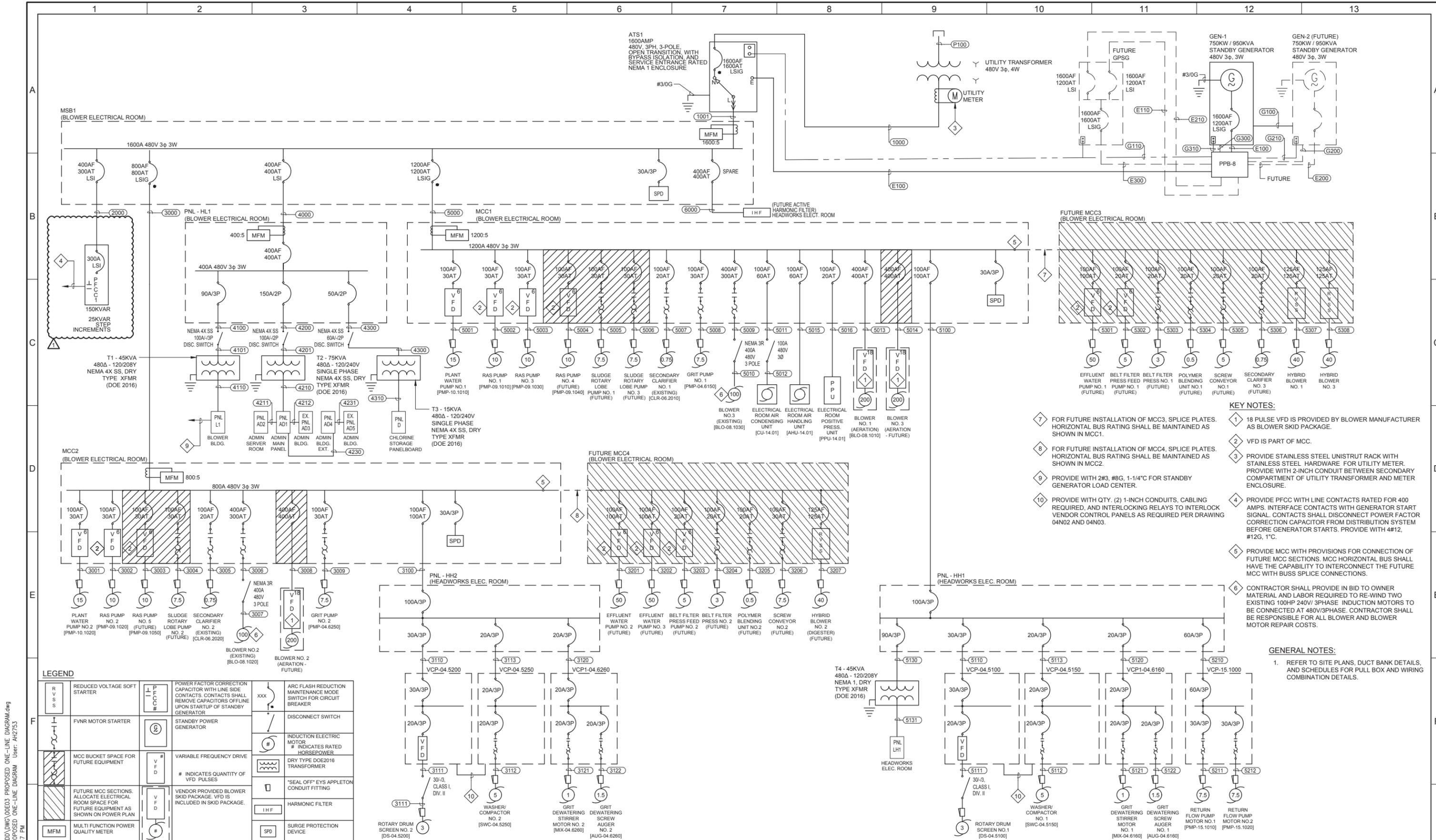


Digitally signed by Ajay Bagale  
 Contact: 9586A1010S101  
 Date: 2016.10.11 11:35:46 -0500



LAGUNA MADRE WATER DISTRICT  
 PORT ISABEL WW TREATMENT FACILITY MODIFICATIONS  
 STRUCTURAL  
 PLANT WATER PUMP STATION  
 PLANS, SECTIONS AND DETAILS

VERIFY SCALES	JOB NO.
BAR IS ONE INCH ON ORIGINAL DRAWING	9586A.10
0 1"	DRAWING NO.
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	10S01
	SHEET NO.
	46 OF 181



**LEGEND**

	REDUCED VOLTAGE SOFT STARTER		POWER FACTOR CORRECTION CAPACITOR WITH LINE SIDE CONTACTS. CONTACTS SHALL REMOVE CAPACITORS OFFLINE UPON STARTUP OF STANDBY GENERATOR		ARC FLASH REDUCTION MAINTENANCE MODE SWITCH FOR CIRCUIT BREAKER
	FVNR MOTOR STARTER		STANDBY POWER GENERATOR		DISCONNECT SWITCH
	MCC BUCKET SPACE FOR FUTURE EQUIPMENT		VARIABLE FREQUENCY DRIVE		INDUCTION ELECTRIC MOTOR # INDICATES RATED HORSEPOWER
	FUTURE MCC SECTIONS. ALLOCATE ELECTRICAL ROOM SPACE FOR FUTURE EQUIPMENT AS SHOWN ON POWER PLAN		# INDICATES QUANTITY OF VFD PULSES		DRY TYPE DOE2016 TRANSFORMER
	MULTI FUNCTION POWER QUALITY METER		VENDOR PROVIDED BLOWER SKID PACKAGE. VFD IS INCLUDED IN SKID PACKAGE.		"SEAL OFF" EYS APPLETON CONDUIT FITTING
			HARMONIC FILTER		SURGE PROTECTION DEVICE

- KEY NOTES:**
- 7 FOR FUTURE INSTALLATION OF MCC3, SPLICE PLATES. HORIZONTAL BUS RATING SHALL BE MAINTAINED AS SHOWN IN MCC1.
  - 8 FOR FUTURE INSTALLATION OF MCC4, SPLICE PLATES. HORIZONTAL BUS RATING SHALL BE MAINTAINED AS SHOWN IN MCC2.
  - 9 PROVIDE WITH 2#3, #8G, 1-1/4" FOR STANDBY GENERATOR LOAD CENTER.
  - 10 PROVIDE WITH QTY. (2) 1-INCH CONDUITS, CABLING REQUIRED, AND INTERLOCKING RELAYS TO INTERLOCK VENDOR CONTROL PANELS AS REQUIRED PER DRAWING 04N02 AND 04N03.
  - 1 18 PULSE VFD IS PROVIDED BY BLOWER MANUFACTURER AS BLOWER SKID PACKAGE.
  - 2 VFD IS PART OF MCC.
  - 3 PROVIDE STAINLESS STEEL UNISTRUT RACK WITH STAINLESS STEEL HARDWARE. PROVIDE WITH 2-INCH CONDUIT BETWEEN SECONDARY COMPARTMENT OF UTILITY TRANSFORMER AND METER ENCLOSURE.
  - 4 PROVIDE PFCC WITH LINE CONTACTS RATED FOR 400 AMPS. INTERFACE CONTACTS WITH GENERATOR START SIGNAL. CONTACTS SHALL DISCONNECT POWER FACTOR CORRECTION CAPACITOR FROM DISTRIBUTION SYSTEM BEFORE GENERATOR STARTS. PROVIDE WITH 4#12, #12G, 1" C.
  - 5 PROVIDE MCC WITH PROVISIONS FOR CONNECTION OF FUTURE MCC SECTIONS. MCC HORIZONTAL BUS SHALL HAVE THE CAPABILITY TO INTERCONNECT THE FUTURE MCC WITH BUSS SPLICE CONNECTIONS.
  - 6 CONTRACTOR SHALL PROVIDE IN BID TO OWNER MATERIAL AND LABOR REQUIRED TO RE-WIND TWO EXISTING 100HP 240V/3PHASE INDUCTION MOTORS TO BE CONNECTED AT 480V/3PHASE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BLOWER AND BLOWER MOTOR REPAIR COSTS.

- GENERAL NOTES:**
- 1. REFER TO SITE PLANS, DUCT BANK DETAILS, AND SCHEDULES FOR PULL BOX AND WIRING COMBINATION DETAILS.

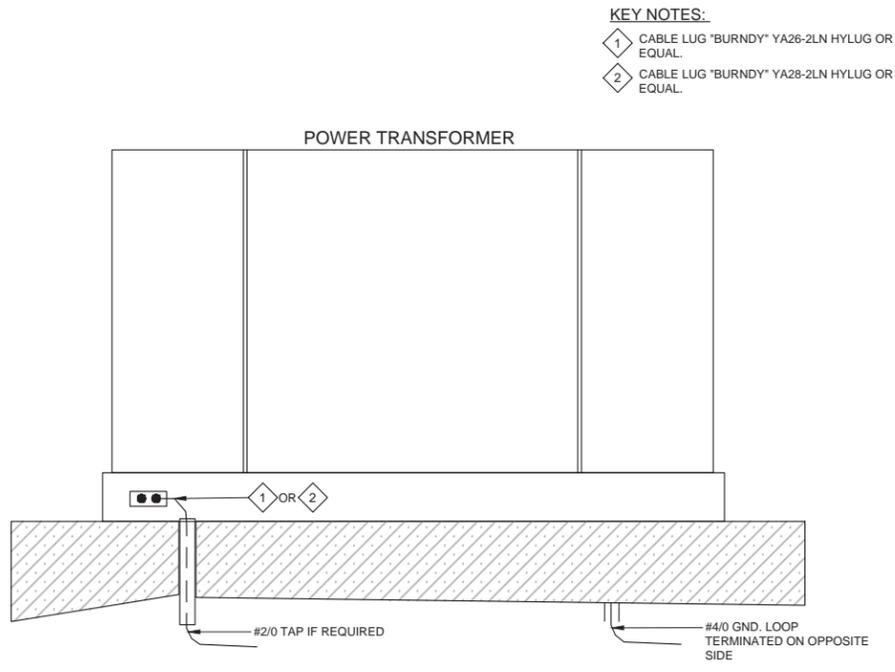
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DESIGNED	G.B.		
DRAWN	J.M.		
CHECKED	G.B./T.E./J.G.B.		
DATE	OCTOBER 2016		
ADDENDUM No. 3			
REV	DATE	BY	DESCRIPTION
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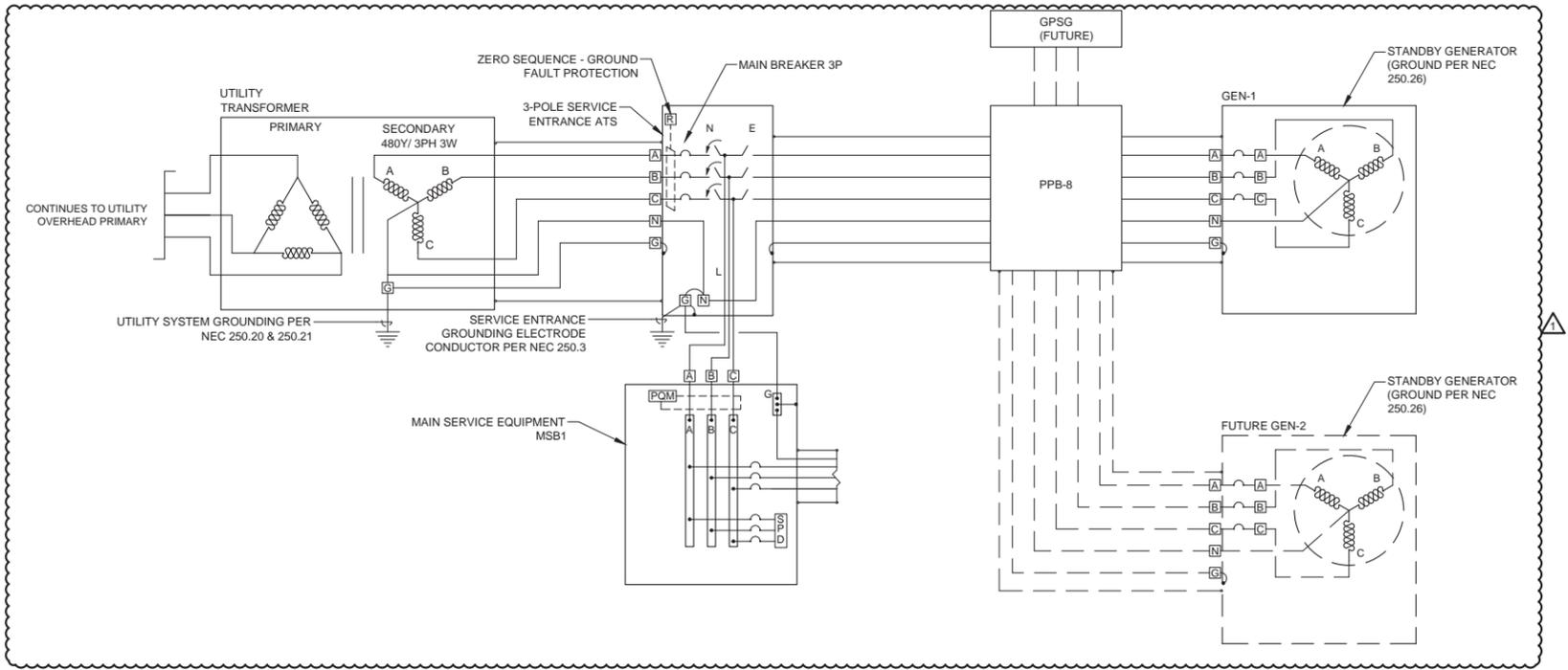


LAGUNA MADRE WATER DISTRICT  
 PORT ISABEL WW TREATMENT FACILITY MODIFICATIONS  
 ELECTRICAL  
 PROPOSED ONE-LINE DIAGRAM

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0 1"	SHEET NO. 76 OF 180
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	



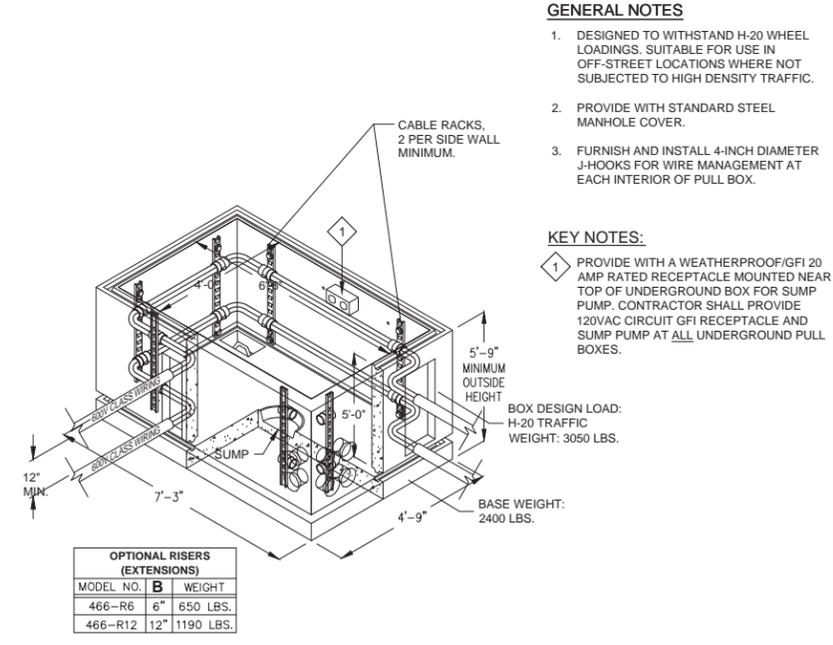
**A** TYPICAL TRANSFORMER GROUNDING DETAIL  
SCALE: N.T.S.



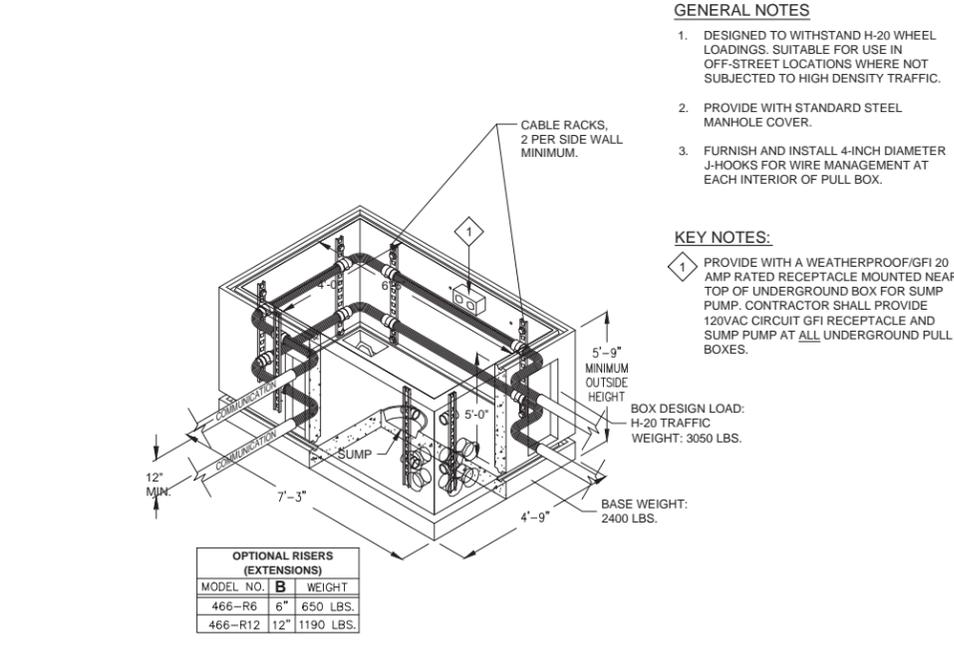
**B** ELECTRICAL GROUNDING SYSTEM FOR 3-POLE ATS TYPICAL DETAIL  
SCALE: N.T.S.

**GENERAL NOTES**

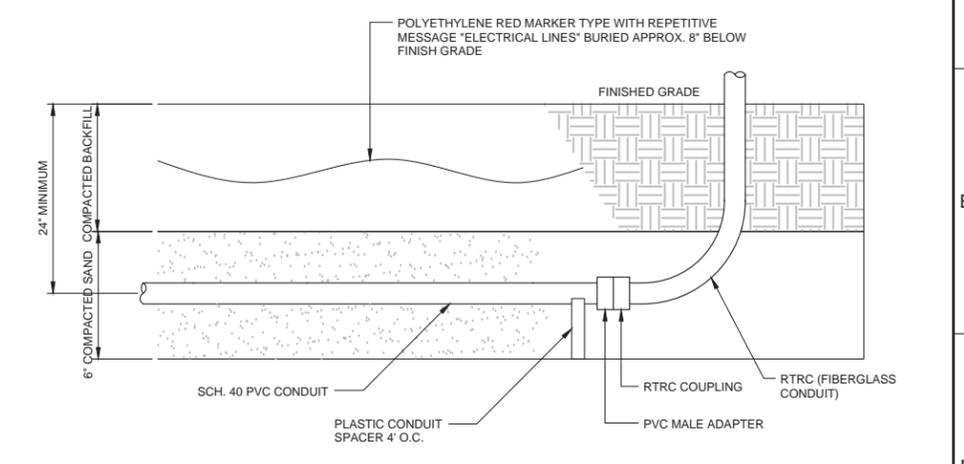
1. ADJUST GROUND FAULT PROTECTION SETTING PER POWER STUDY RECOMMENDATIONS.
2. PROVIDE GROUNDING SCHEME PER GENERATOR SUPPLIER'S RECOMMENDATIONS.



**C** ELECTRICAL POWER CABLING PULL BOX (PPB)  
SCALE: N.T.S.



**D** ELECTRICAL COMMUNICATION CABLING PULL BOX (IPB)  
SCALE: N.T.S.



**E** TYPICAL UNDERGROUND CONDUIT RUN  
SCALE: N.T.S.

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REV	DATE	BY	DESCRIPTION
1	12/05/16	G.B.	ADDENDUM No. 3

DESIGNED G.B.  
 DRAWN J.M.  
 CHECKED G.B./T.E.D.  
 DATE OCTOBER 2016

5000 WEST MILITARY, SUITE 100  
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 Halff Associates firm registration number is F-312

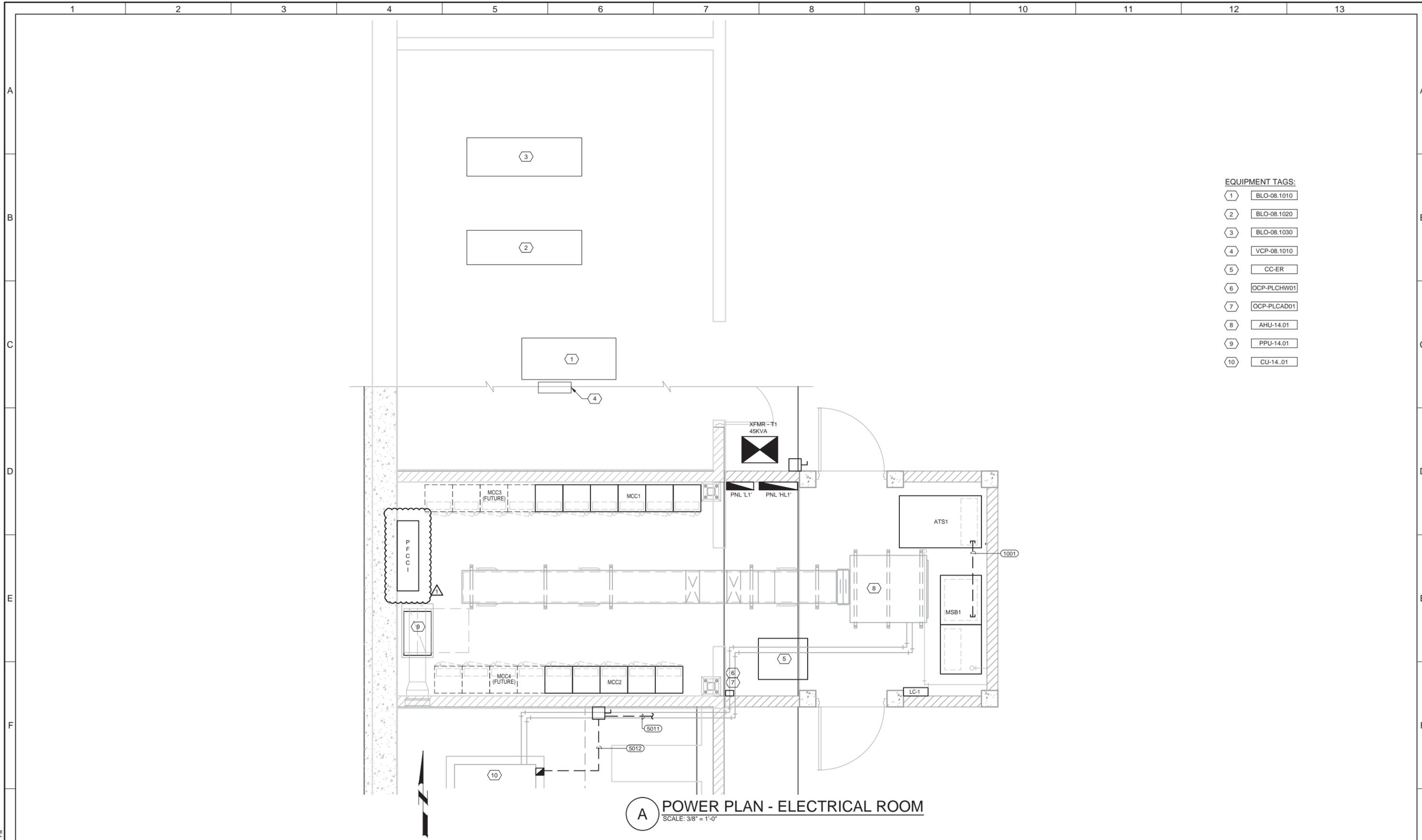
LAGUNA MADRE WATER DISTRICT  
 PORT ISABEL WW TREATMENT FACILITY MODIFICATIONS  
 ELECTRICAL  
 DETAILS X

VERIFY SCALES  
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JOB NO. 9586A.10  
 DRAWING NO. 00E21  
 SHEET NO. 94 OF 180

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**EQUIPMENT TAGS:**

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2	BLO-08.1020
3	BLO-08.1030
4	VCP-08.1010
5	CC-ER
6	OCP-PLCHW01
7	OCP-PLCAD01
8	AHU-14.01
9	PPU-14.01
10	CU-14.01

**A POWER PLAN - ELECTRICAL ROOM**  
 SCALE: 3/8" = 1'-0"

REV	DATE	BY	DESCRIPTION

DESIGNED G.B.  
 DRAWN J.M.  
 CHECKED G.B./T.E.D.  
 DATE OCTOBER 2016

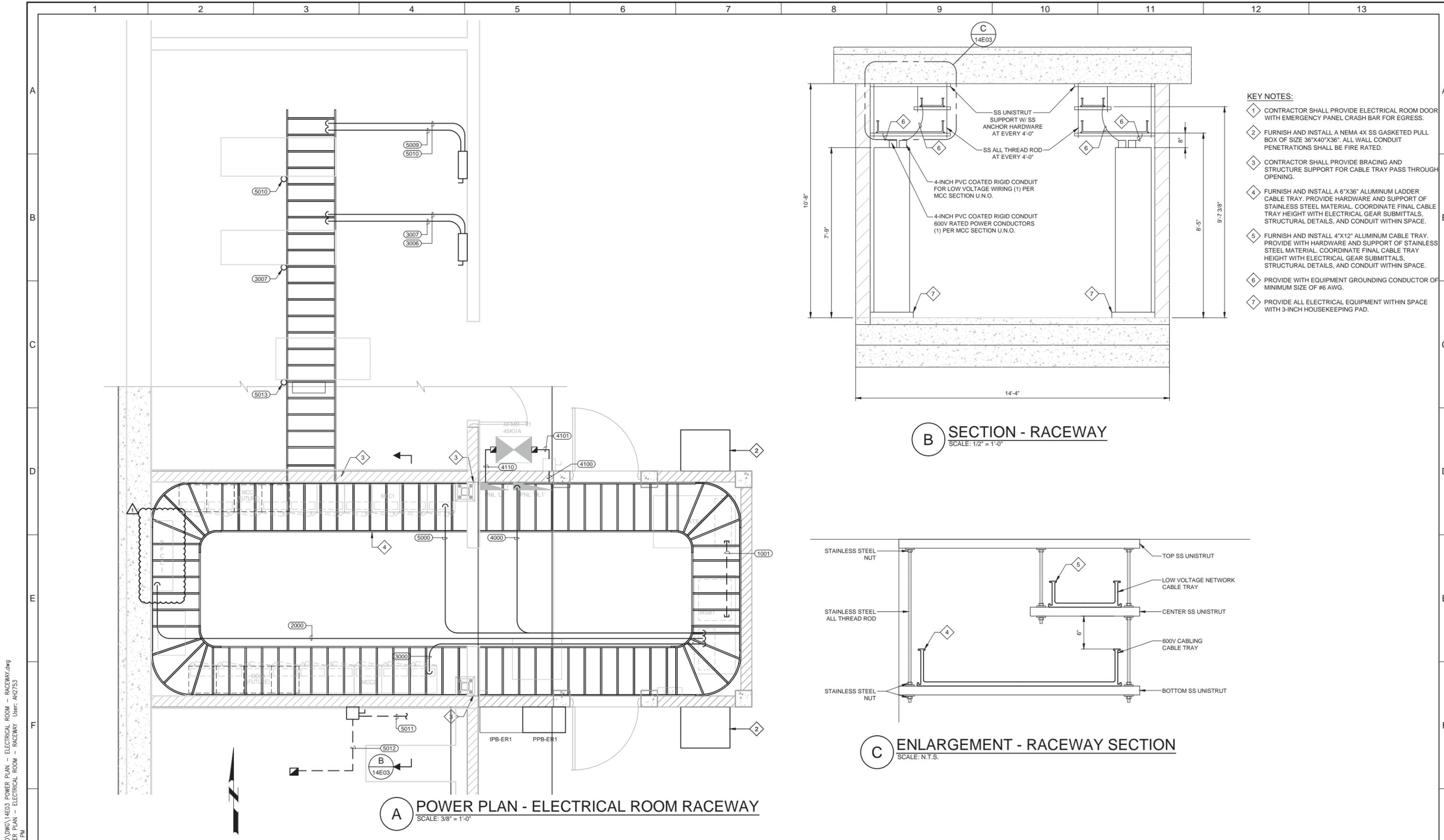


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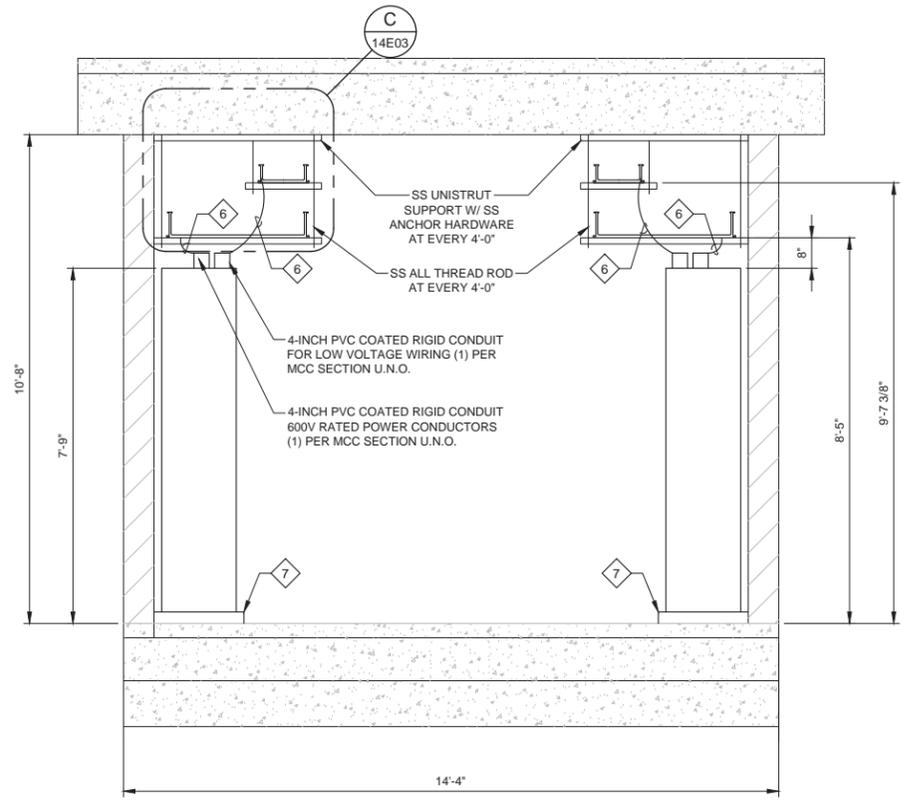


LAGUNA MADRE WATER DISTRICT  
 PORT ISABEL WW TREATMENT FACILITY MODIFICATIONS  
 ELECTRICAL  
**POWER PLAN - ELECTRICAL ROOM**

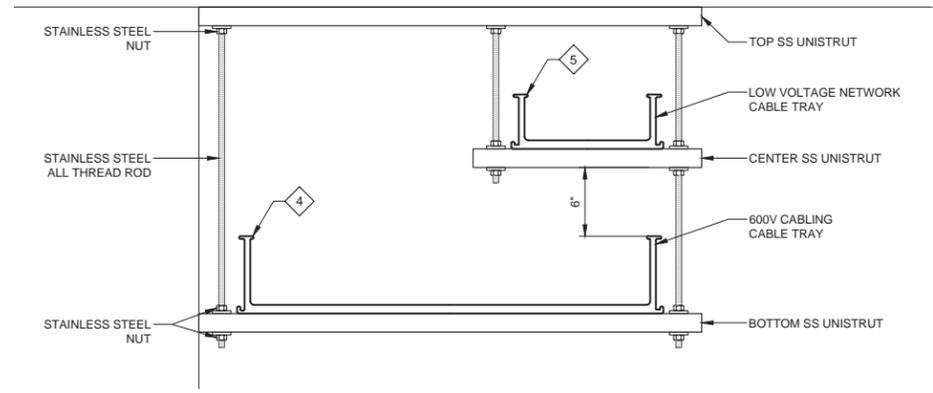
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**A POWER PLAN - ELECTRICAL ROOM RACEWAY**  
SCALE: 3/8" = 1'-0"



**B SECTION - RACEWAY**  
SCALE: 1/2" = 1'-0"



**C ENLARGEMENT - RACEWAY SECTION**  
SCALE: N.T.S.

- KEY NOTES:**
- 1 CONTRACTOR SHALL PROVIDE ELECTRICAL ROOM DOOR WITH EMERGENCY PANEL CRASH BAR FOR EGRESS.
  - 2 FURNISH AND INSTALL A NEMA 4X SS GASKETED PULL BOX OF SIZE 36"X40"X36". ALL WALL CONDUIT PENETRATIONS SHALL BE FIRE RATED.
  - 3 CONTRACTOR SHALL PROVIDE BRACING AND STRUCTURE SUPPORT FOR CABLE TRAY PASS THROUGH OPENING.
  - 4 FURNISH AND INSTALL A 6"X36" ALUMINUM LADDER CABLE TRAY. PROVIDE HARDWARE AND SUPPORT OF STAINLESS STEEL MATERIAL. COORDINATE FINAL CABLE TRAY HEIGHT WITH ELECTRICAL GEAR SUBMITTALS, STRUCTURAL DETAILS, AND CONDUIT WITHIN SPACE.
  - 5 FURNISH AND INSTALL 4"X12" ALUMINUM CABLE TRAY. PROVIDE WITH HARDWARE AND SUPPORT OF STAINLESS STEEL MATERIAL. COORDINATE FINAL CABLE TRAY HEIGHT WITH ELECTRICAL GEAR SUBMITTALS, STRUCTURAL DETAILS, AND CONDUIT WITHIN SPACE.
  - 6 PROVIDE WITH EQUIPMENT GROUNDING CONDUCTOR OF MINIMUM SIZE OF #6 AWG.
  - 7 PROVIDE ALL ELECTRICAL EQUIPMENT WITHIN SPACE WITH 3-INCH HOUSEKEEPING PAD.

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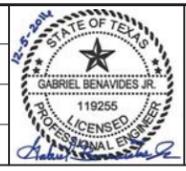
REV	DATE	BY	DESCRIPTION
1	12/05/16	G.B.	ADDENDUM No. 3

DESIGNED  
G.B.

DRAWN  
J.M.

CHECKED  
G.B./T.E.D.

DATE  
OCTOBER 2016



**HALFF**

5000 WEST MILITARY, SUITE 100  
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Halff Associates firm registration number is F-312



LAGUNA MADRE WATER DISTRICT  
PORT ISABEL WW TREATMENT FACILITY MODIFICATIONS  
ELECTRICAL  
POWER PLAN - ELECTRICAL ROOM - RACEWAY

VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	JOB NO. 9586A.10
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DRAWING NO. 14E03
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