**ADDENDUM No. ___1___**

Date _____May 5_____, _2016_

City of Austin

Project Name __ Davis Water Treatment Plant Power Distribution Upgrade _____

C.I.P. No. ____2015.006_____ IFB No.: __CLMC585_____

This Addendum forms a part of the Contract and corrects or modifies original Bid Documents, dated___April 4___, _2016_. Acknowledge receipt of this addendum in space provided on bid form. Failure to do so may subject bidder to disqualification.

A. Project Manual Revisions:

1. Replace pages 2 and 5 of the Project Manual table of contents with the attached revised pages 2 and 5 of the Project Manual table of contents.
2. The bid opening date has been extended to May 19, 2016. Replace page 1 of specification section 00020 with the attached revised page 1 of specification section 00020.
3. Replace pages 1 and 2 of specification section 00300L with the attached revised pages 1 and 2 of specification section 00300L.
4. Replace page 11 of specification section 00400 with the attached revised page 11 of specification section 00400.
5. Replace Bid Document 00820 in its entirety with the attached revised 00820 Bid Document.
6. Replace page 5 of specification section 01010 with the attached revised page 5 of specification section 01010.
7. Replace Bid Document 01020 in its entirety with the attached revised 01020 Bid Document.
8. Remove Bid Document 01030 in its entirety from the Project Manual.
9. Replace page 3 of specification section 01380 with the attached revised page 3 of specification section 01380.
10. Add attached specification section 13851, Fire Alarm System, to the Project Manual.
11. Replace page 17 of specification section 16150 with the attached revised page 17 of specification section 16150.
12. Replace page 3 of specification section 16182 with the attached revised page 3 of specification section 16182.

B. Drawing Revisions:

1. Replace drawing G-E-005 with the attached revised drawing.

2. Replace drawing G-E-013 with the attached revised drawing.
3. Replace drawing S-E-026 with the attached revised drawing.
4. Replace drawing S-E-085 with the attached revised drawing.
5. Replace drawing S-E-089 with the attached revised drawing.
6. Replace drawing S-E-096 with the attached revised drawing.
7. Replace drawing S-E-101 with the attached revised drawing.
8. Replace drawing S-E-103 with the attached revised drawing.
9. Replace drawing S-E-114 with the attached revised drawing.
10. Replace drawing SUB1-A-020 with the attached revised drawing.
11. Replace drawing SUB1-E-033 with the attached revised drawing.
12. Replace drawing SUB1-E-034 with the attached revised drawing.
13. Replace drawing SUB1-E-036 with the attached revised drawing.
14. Replace drawing SUB1-E-037 with the attached revised drawing.
15. Replace drawing SUB1-E-040 with the attached revised drawing.
16. Replace drawing SUB1-E-044 with the attached revised drawing.
17. Replace drawing SUB1-E-060 with the attached revised drawing.
18. Replace drawing TD-E-009 with the attached revised drawing.
19. Replace drawing RW-C-212 with the attached revised drawing.
20. Replace drawing RW-C-230 with the attached revised drawing.
21. The Owner has recently replaced the 5KV feeders serving the High Service Pump Station due to a recent feeder cable failure. Therefore, the Owner has elected NOT to replace the entirety of the 5KV feeder cables serving the High Service Pump Station. Rather, the Owner would prefer that a portion of the existing 5KV cables serving the High Service Pump Station remain and only a portion of the existing cables is to be demolished and replaced with new 5KV cables. Specifically, the CONTRACTOR shall demolish the existing 5KV cables from the 5KV switchgear located in the existing substation area to specific manholes, as identified in the attached drawings, and the CONTACTOR shall furnish and installed new 5KV cables from the proposed 5KV switchgears "Y-SWGR-01A" and "Y-SWGR-01B" to specific manholes as identified in the attached drawings and the CONTRACTOR shall splice the proposed 5KV cables with the respective existing 5KV cables within specific manholes as identified in the attached drawings to serve the High Service Pump Station. The below listing identifies the drawings affected by this change. For each of the below identified drawings, replace each below identified drawing with the corresponding attached revised drawing:

    a. G-E-009
    b. G-E-012
    c. SEQ-E-003
    d. SEQ-E-054
    e. SEQ-E-055
    f. SEQ-E-057
    g. SEQ-E-058
    h. SEQ-E-059
    i. SEQ-E-060
    j. SEQ-E-061
    k. SEQ-E-062

l. SEQ-E-063
m. S-E-035
n. S-E-039
o. S-E-052
p. S-E-053
q. S-E-060
r. S-E-061
s. S-E-062
t. S-E-063
u. S-E-064
v. S-E-070
w. S-E-074
x. S-E-090
y. S-E-091
z. S-E-110
aa. S-E-111
bb. S-E-112
cc. S-E-113
dd. SUB0-E-006
ee. SUB0-E-011
ff. SUB0-E-012
gg. HSPS-E-008
hh. HSPS-E-010

This addendum consists of 85 page(s)/sheet(s).

Approved by OWNER

Approved by ENGINEER/ARCHITECT

**END**

| Document Number | | Title |
|---|---|---|
| **SUPPLEMENTARY CONDITIONS** | | |
| 00810 | 01/15/16 | Supplemental General Conditions |
| 00819 | 06/10/05 | Security Requirements |
| | 09/16/14 | Sp-1070 – Facility Security Procedure For Contractors |
| 00820 | 01/15/16 | Modifications To Bidding Requirements and Contract Forms |
| 00830 | 02/04/15 | Wage Rates and Payroll Reporting |
| 00830BC | 03/18/16 | Wage Rates Building Construction Trades |
| 00830HH | 01/11/16 | Wage Rates Highway Heavy |
| **ADDENDA** | | |
| 00900 | 01/15/16 | Addendum |
| **SPECIFICATIONS** | | |
| **DIVISION 1 – GENERAL REQUIREMENTS** | | |
| 01010 | 09/08/14 | Summary of Work |
| 01020 | 03/07/14 | Allowances |
| 01025 | 09/08/14 | Measurement and Payment |
| 01050 | 10/19/15 | Grades, Lines, and Levels |
| 01095 | 07/21/13 | Reference Standards and Definitions |
| 01096 | 05/06/11 | Storm Water Pollution Prevention Plan (SWPPP) |
| 01200 | 10/28/13 | Project Meetings |
| 01300 | 04/22/13 | Submittals |
| 01310 | 10/28/13 | Progress Schedules |
| 01352 | 04/22/13 | Sustainable Construction Requirements |
| 01353 | 08/09/12 | Construction Equipment Emissions Reduction Plan |
| 01380 | 08/09/12 | Construction Photography & Videos |
| 01500 | 10/28/13 | Temporary Facilities |
| 01505 | 04/22/13 | Construction and Demolition Waste Management |
| 01510 | 02/23/10 | Construction Indoor Air Quality Management Plan |
| 01550 | 08/09/12 | Public Safety and Convenience |
| 01600 | 09/08/14 | Material and Equipment |
| 01670 | 11/05/13 | General Training Requirements |
| 01730 | 09/08/14 | Operation and Maintenance Data |
| 01900 | 03/12/12 | Prohibition of Asbestos Containing Material |
| 01900A | 06/05/06 | Statement of Non-Inclusion of Asbestos Containing Material (E/A Prior To Design) |
| 01900B | 06/05/06 | Statement of Non-Inclusion of Asbestos Containing Material (E/A After Design) |

| Document Number | | Title |
|---|---|---|
| 05210 | 05/29/15 | Steel Joists |
| 05310 | 05/29/15 | Steel Deck |
| **DIVISION 6 – WOOD AND PLASTICS** | | |
| 06100 | 01/25/16 | Rough Carpentry |
| 06522 | 05/29/15 | Fiberglass Reinforced Plastic |
| **DIVISION 7 – THERMAL AND MOISTURE PROTECTION** | | |
| 07132 | 01/25/16 | Waterproofing Membrane |
| 07210 | 01/25/16 | Building Insulation |
| 07220 | 01/25/16 | Roof Insulation |
| 07410 | 01/25/16 | Manufactured Fascia Panels |
| 07411 | 01/25/16 | Manufactured Roof Panels |
| 07412 | 01/25/16 | Manufactured Soffit Panels |
| 07620 | 01/25/16 | Sheet Metal Flashing And Trim |
| 07920 | 01/25/16 | Joint Sealants |
| **DIVISION 8 – DOORS AND WINDOWS** | | |
| 08110 | 01/25/16 | Steel Doors and Frames |
| 08330 | 01/25/16 | Insulated Overhead Coiling Doors |
| 08411 | 01/25/16 | Aluminum Framed Windows |
| 08711 | 01/25/16 | Finish Hardware |
| 08800 | 01/25/16 | Glazing |
| **DIVISION 9 – FINISHES** | | |
| 09900 | 01/25/16 | Painting |
| 09902 | 07/24/13 | Painting and Protective Coatings |
| **DIVISION 10 – SPECIALTIES** | | |
| 10217 | 01/25/16 | Extruded Aluminum Stationary Wall Louvers |
| 10400 | 01/28/16 | Signage |
| 10441 | 01/25/16 | Fire Extinguishers |
| 10705 | 01/25/16 | Exterior Sun Control Devices |
| **DIVISION 11 – EQUIPMENT** | | |
| NOT USED | | |
| **DIVISION 12 – FURNISHINGS** | | |
| NOT USED | | |
| **DIVISION 13 – SPECIAL CONSTRUCTION** | | |
| 13851 | 04/19/16 | Fire Alarm System |
| **DIVISION 14 – CONVEYING SYSTEMS** | | |
| NOT USED | | |
| **DIVISION 15 – MECHANICAL** | | |
| 15010 | 01/25/16 | HVAC General Requirements |
| 15053 | 01/25/16 | Common Work Results for HVAC |
| 15058 | 01/25/16 | Common Motor Requirements for HVAC Equipment |
| 15060 | 01/25/16 | Hangers and Supports for HVAC Piping and Equipment |

# INVITATION FOR BIDS

Section 00020

Following is a summary of information for this Project. Bidder is cautioned to refer to other sections of the Project Manual, Drawings and Addenda (Bid Documents) for further details.

The City of Austin, hereafter called OWNER, is requesting sealed written Bids for furnishing all labor, materials, equipment, supervision, and incidentals, and for performing all Work required for the following Project:

Davis Water Treatment Plant Power Distribution Upgrade

Located at: 3500 West 35th Street, Austin, Texas 78703

CIP ID# 2015.006 IFB# CLMC585

The Work consists of, but not limited to, improvements to the Electrical Power Distribution System, construction of a new Substation No. 1 Building, Instrumentation Control system improvements, and underground process piping relocation and renovation in the Davis WTP.

Bid Documents may be obtained at One Texas Center, 505 Barton Springs Road, Ste. 1045-B, Austin, TX 78704. Copies will be available in CD format at no cost.

At the time Bid Documents are obtained, Bidder must provide a working e-mail address, so that they will receive any addenda or clarification issued by the Owner.

Sealed Bids will be received at the Capital Contracting Office, One Texas Center, 505 Barton Springs Rd., Suite 1045-C, Austin, Texas 78704 and then publicly opened and read aloud in the **SUITE 1045-C, Congress Conference Room**.

**ALL BIDS ARE DUE PRIOR TO (Austin time)** 9:00 A.M. on May 19, 2016 **.**

**ALL COMPLIANCE PLANS ARE DUE PRIOR TO (Austin time)** 1:00 P.M. on May 19, 2016**.**

**BIDS WILL BE OPENED AT (Austin time)** 1:00 P.M. on May 19, 2016 **.**

**ALL BIDS AND COMPLIANCE PLANS NOT RECEIVED PRIOR TO THE DATE AND TIME SET FORTH ABOVE WILL NOT BE ACCEPTED FOR CONSIDERATION.** The time stamp clock in **SUITE 1045-C** is the time of record and is verified with www.time.gov, the official U.S. time.

All CONTRACTORS must be registered to do business with OWNER prior to the Contract Award. All Subcontractors must be registered with the OWNER prior to execution of a contract. Prime Contractors are responsible for ensuring that their Subcontractors are registered as vendors with the City of Austin. Registration can be done through the OWNER's on-line Vendor Registration system. Log onto https://www.ci.austin.tx.us/vss/Advantage and follow the directions.

All City procurements are subject to the City's Minority-Owned and Women-Owned Business Enterprise Procurement Program found at Chapter 2-9-A of the City Code, as amended. The Program provides Minority-Owned and Women-Owned Business Enterprises (MBEs/WBEs) or Disadvantaged Business Enterprises (DBEs) full opportunity to participate in all City contracts. Goals for MBE/WBE or DBE participation are stated for each solicitation. Information on achieving the goals or documenting good faith efforts to achieve the goals are contained in the MBE/WBE Procurement Program Package or DBE Procurement Program Package attached to the solicitation. When goals are established, Bidders are required to complete and return the MBE/WBE or DBE Compliance Plan with their Bid. If a Compliance Plan is not submitted prior to the date and time set forth in the solicitation, the Bid will not be accepted for consideration. (See Section 00820 for MBE/WBE requirements on "no goal" solicitations.)

Performance and payment bonds when required shall be executed on forms furnished by OWNER. Each bond shall be issued in an amount of one hundred percent (100%) of the Contract Amount by

City Manager
Austin, Texas

The undersigned, in compliance with the Invitation for Bids for construction of the following Project: Davis Water Treatment Plant Power Distribution Upgrade

(CIP ID# 2015.006 ) (IFB# CLMC585 ) for the City of Austin, Texas, having examined the Project Manual, Drawings and Addenda, the site of the proposed Work and being familiar with all of the conditions surrounding construction of the proposed Project, having conducted all inquiries, tests and investigations deemed necessary and proper; hereby proposes to furnish all labor, permits, material, machinery, tools, supplies and equipment, and incidentals, and to perform all Work required for construction of the Project in accordance with the Project Manual, Drawings and Addenda within the time indicated for the lump sum price of: **$**_____.

**EXCAVATION SAFETY SYSTEMS UNIT PRICES:** The undersigned Bidder agrees that the Base Bid for the Work includes the following amounts in the Bid for excavation safety systems as specified in Item Number 509S of the Specifications and in case of an authorized adjustment to the scope of Work, the following unit price(s) will be used in adjusting the Contract Amount:

| Quantity | Unit | Item Description | Unit Price | Amount |
|---|---|---|---|---|
| 8,400 | LF | Trench Safety systems | $_____ | $_____ |

**ALLOWANCES**

| | | |
|---|---|---|
| Allowance #1 | SECURITY SYSTEM | $ 150,000.00 |
| Allowance #2 | PIPE LINING OF EXISTING RAW WATER TRANSMISSION LINE | $ 1,300,000.00 |
| **SUBTOTAL ALLOWANCES** | | **$ 1,450,000.00** |

**TOTAL BID**..... = $ _____
(Total Bid includes Allowances and Excavation Safety Systems Unit Prices, if applicable.)

Figures

Notes:

1. For a more detailed explanation of Bid allowances, see Section 01020.

**BID GUARANTY:** A Bid guaranty must be enclosed with this Bid , as required in Section 00020, in the amount of not less than five percent (5%) of the total Bid. Following the Bid opening, submitted Bids may not be withdrawn for a period of **one hundred and twenty (120) Calendar**

**Days**. Award of Contract will occur within this period, unless mutually agreed between the parties. The Bid guaranty may become the property of the OWNER, or the OWNER may pursue any other action allowed by law, if:

- Bidder withdraws a submitted Bid within the period stated above;
- Bidder fails to submit the required post Bid information within the period specified in Section 00020 or 00100, or any mutually agreed extension of that period; or
- Bidder fails to execute the Contract and furnish the prescribed documentation (bonds, insurance, etc.) needed to complete execution of the Contract within ten (10) Calendar Days after notice of award, or any mutually agreed extension of that period.

**GEOTECHNICAL BASELINE ACKNOWLEDGEMENT:** The undersigned bidder certifies that he/she has read and understands the Geotechnical Baseline Report (GBR), the Geotechnical Data Report, and all other geological and geotechnical information and data as provided in the Contract Documents, including all Addenda. ***The Bidder acknowledges and agrees that the GBR represents the contractual statement of the subsurface conditions reasonably anticipated to be encountered during construction. The GBR will be used to evaluate whether subsurface conditions differ materially from those indicated in the GBR.***

**TIME OF COMPLETION:** The undersigned Bidder agrees to commence work on the date specified in the written "Notice to Proceed" to be issued by the OWNER and to **substantially** complete construction of the improvements, as required by the Project Manual, Drawings and Addenda for the Work within **One Thousand Two Hundred and Thirty (1230) Calendar Days**. The Bidder further agrees to reach Final Completion within **60 calendar Days** after Substantial Completion as required by the Project Manual, Drawings and Addenda for the work. The Bidder also agrees to achieve the Beneficial Use Milestones of the Proposed Main Plant Substation No. 1 (SUB1) within Seven Hundred (700) Calendar Days, and West Duct Bank System within Nine Hundred and Thirty (930) Calendar Days as described in Section 01010 and as required by the Project Manual, Drawings and Addenda. The Bidder further agrees that should the Bidder fail to **finally** complete the Work within the number of days indicated in the Bid or as subsequently adjusted, Bidder shall pay the liquidated damages for each consecutive day thereafter as provided below; unless the OWNER elects to pursue any other action allowed by law.

**WAIVER OF ATTORNEY FEES:** In submitting its bid, in consideration for the waiver of its right to attorney's fees by the OWNER, the Bidder knowingly and intentionally agrees to and shall waive the right to attorney's fees under Section 271.153 of the Texas Local Government Code in any administrative proceeding, alternative dispute resolution proceeding, or litigation arising out of or connected to any Contract awarded pursuant to this solicitation process.

**LIQUIDATED DAMAGES:** The Bidder understands and agrees that the timely completion of the described Work is of the essence. The Bidder and OWNER further agree that the OWNER's actual damages for delay caused by failure to timely complete the Project are difficult, if not impossible to measure. However, with respect to the additional administrative and consultant costs to be incurred by OWNER, the reasonable estimate of such damages has been calculated and agreed to by OWNER and Bidder. Therefore, the Bidder and the OWNER agree that for each and every **Calendar** Day the Work or any portion thereof, remains incomplete after the **Final** Completion date as established by the above paragraph, "Time of Completion", payment will be due to the Owner in the amount of **Two Thousand Seven Hundred and Seventy Dollars ($2,770.00)** per **Calendar** Day as liquidated damages, not as a penalty, but for delay damages to the OWNER.

ITEM 4. Extensive demolition of existing underground electrical duct bank systems and Furnishing and installation of extensive proposed and renovated electrical underground medium voltage (5KV class or 15KV class) duct bank and cabling systems and grounding systems within a water treatment plant or wastewater treatment plant (preferably an existing plant) with coordination with underground utility systems of other trades, and, if an existing plant, maintaining plant operation per requirements of owner.

ITEM 5. Furnishing and installing of electrical instrumentation and control systems. Refer to specification section 17100 for additional requirements of acceptable instrument and control system suppliers and installers (ICS) and submit the ICS qualifications package, as identified in specification section 17100, at the time of and along with the submittal of the forms of this attachment E.

ITEM 6. Demolition of existing underground water lines, minimum 48" diameter, and furnishing and installation of new water lines, minimum 48" diameter, in a water plant or wastewater plant (preferably an existing plant) with coordination with underground utility systems of other trades, and, if an existing plant, maintaining plant operation per requirements of owner.

ITEM 7. Furnishing and installing new Direct Current "DC" Power Storage, Charging, "DC" Distribution and Inversion Systems. A single Direct Current "DC" Power Storage, Charging, "DC" Distribution and Inversion Systems Supplier/Contractor/Installer (DCISS) shall furnish all services and equipment required for the 15KV switchgear DC control power system for this project. Refer to specification section 16080 for additional requirements and submit the DCISS qualifications package, as identified in specification section 16080, at the time of and along with the submittal of the forms of this attachment E.

ITEM 8. Furnish and install Fire Alarm System in the proposed Substation No. 1 Building. A single Fire Alarm System Contractor (FASC) shall furnish all services and equipment for a fire alarm system as defined in the drawings and specifications. Refer to specification section 13851 for additional requirements and submit the FACS qualifications package, as identified in specification section 13851, at the time of and along with the submittal of the forms of this attachment E.

The Bidder shall complete and duplicate the following specific Construction Experience Form as required to provide the requested documentation for a minimum of three (3) successfully completed projects for each of the above specific Construction Experience requirements.

## SECTION 00100 – INSTRUCTIONS TO BIDDERS

Add the following provision to article 7. Submission of Bid:

"(P) One copy of a proposed Baseline Schedule identifying all tasks, phases and milestones and indicating their completion dates within the allotted contract time and the correct sequence."

Add the following provision to article 9. Rejection of Bid:

"(12) Failure to submit a proposed Baseline Schedule identifying all tasks, phases and milestones and indicating their completion dates within the allotted contract time and the correct sequence."

Delete (This should be referenced as item or paragraph not "section") 13, Partnering and replace with the following:

Delete Paragraph 13, Partnering, and replace with the following:

"**13. Partnering**

To complete this Work most beneficially for all parties, OWNER desires to form a Partnering Team among OWNER, E/A, CONTRACTOR, and Subcontractor(s). This relationship will draw on the strength of all parties to identify and achieve mutual goals. The objectives are effective and efficient Contract performance, intended to achieve completion within budget, on schedule, and in accordance with the Drawings and Specifications. The partnering relationship will be multilateral in makeup and participation will be totally voluntary. Refer to Section 01100, Special Project Procedures, and/or Section 01200, Project Meetings, for clarification of the intents and responsibilities of the persons and entities entering into the partnering charter."

**END**

responsible for coordinating, scheduling, and sequencing with AE to assure timely construction of the duct bank system and manhole system to interconnect with the AE duct bank system that is to carry the proposed AE service conductors to the Davis WTP. The contractor is responsible for all coordination with AE, including AE metering and AE service cable termination, for the energization of proposed switchgears "SUB1-SWGR-01A" and "SUB1-SWGR-01B" by the AE service feeders.

9. Based on preliminary spot testing as performed by the Owner, it does not appear asbestos material is present in the areas of construction of this project. Nonetheless, when performing any construction activity in the existing buildings or metal shed and the contractor encounters vermiculite material, the contractor shall immediately stop work in this area and immediately notify the owner of the same.

10. All work which may disturb Lead containing coatings is to be conducted in accordance with requirements of 25 TAC, Section 295, Article 9029, 29 CFR 1910.1025, 29 CFR 1926.62 and 40 CFR part 745, subpart E and subpart L. Also, if work to create openings in CMU block walls results in the discovery of any granular fill materials such as vermiculite, stop all work, isolate the work area and notify the owner to evaluate and remediate the disturbed materials before proceeding.

11. Contractor shall be aware that the duct bank system and manhole (as applicable) system interconnecting with the AE Duct Bank system is to contain AE cable and shall be inspected by AE. It is the responsibility of the Contractor to coordinate with AE to assure that the Duct Bank and manhole (as applicable) system that is to contain AE cable meets the requirements of AE and is constructed to the satisfaction of AE at no additional cost to the owner.

12. Contractor shall be responsible for coordinating with Austin Energy (AE) throughout the course of the project to assure compliance with the project requirements, schedule, and the contractor's construction sequencing. The Contractor is not responsible for AE fees for the electrical service to the proposed Substation No. 1 or AE fees for demolition of the existing Austin Energy service feeders to the plant's existing substation. However, Contractor is responsible for all other AE fees as identified in these contract documents.

13. Contractor is responsible for coordinating, scheduling, and staging of interconnection with Austin Energy of the proposed Austin Energy (AE) service feeders and demolition of the existing AE service feeders so as to assure continued service of full load operation of the plant and smooth, non-interrupted transition of service from the existing AE service feeders to the proposed AE service feeders so as to maintain continued AE service to the plant at full load operation of the plant.

14. The Davis WTP has two (2) main plant entrances: entrance from 35th Street, and entrance from Mount Bonnell road. The contractor shall perform all construction activity to assure that at least one (1) main plant entrance is available at all times. The plant entrance is said to be available if all the following criteria are met for that plant entrance:

    a. The drive path through the entrance is clear and available for vehicular traffic for both entry and exit through the gate,

    b. The gate itself and adjoining fencing is intact and secure, to the satisfaction of the owner,

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

Documents related to this section will include the construction drawings and general provisions of the Contract, including the General Conditions, Section 00700, Supplemental General Conditions, Section 00810, Bid Form, Section 00300L, and other Division 1 requirements.

### 1.2 SUMMARY

A. This section is intended to provide administrative and procedural requirements governing handling and processing of allowances.

### 1.3 TYPES OF ALLOWANCES

A. Security System Allowance (Allowance 1): Allowance for security system required for this project as identified by the owner to the contractor after the contractor's bid award. The security system shall be furnished and installed by a security system contractor that shall be designated by the owner.

B. Pipe Lining of Existing Raw Water Transmission Line (Allowance 2):
   a. Allowance includes work for internal rehabilitation for approximately 300 feet of the existing 48-inch raw water transmission main as specified by Section 15070 – "Internal Rehabilitation for Prestressed Concrete Cylinder Pipe". The limits for internal pipe rehabilitation are shown on the PLANS for "Raw Water Hydraulic and Energy Efficiency Improvements Raw Water Transmission Main Rehabilitation", drawing RW-C-212 and RW-C-230
   b. Allowance will be constructed at the City's discretion based upon the results of the pipe testing to be conducted by Contractor for the 48" transmission main replacement included in the Base Bid.

**1.4-1.5** (NOT USED)

### 1.6 SUBMITTALS

A. Prior to ordering any manufactured items, furnish in accordance with Specification Section01300, "Submittals".
   a. Shop Drawings. In addition to the items specified in Section 01300, "Submittals", furnish the following:
      i. Detailed installation drawings.
      ii. Product data sheets.
      iii. Complete catalog information, descriptive literature, specifications, and identification of materials of construction.

B. Operation and Maintenance Data: Furnish and install operation and maintenance data, in accordance to specification section 01730, for equipment furnished and services rendered specifically for each allowance item.

C. Submit invoices to indicate actual quantity of services delivered to the site for use in the fulfillment of each allowance.

### 1.7 USE OF ALLOWANCES

A. Only use the allowances described above as directed for the OWNER's purposes, and only by Change Orders which designate the work to be performed and the amounts to be charged to the allowances.

B. Allowances are for discretionary use as directed for the OWNER's purposes.

C. The allowances shall allow for the hiring of a competent subcontractor, with the OWNER's approval, to perform these services. The selected subcontractor shall be specifically approved by

OWNER. The CONTRACTOR must submit information related to the personnel selected to provide services for review and approval by the OWNER.

D. It is understood that the CONTRACTOR has included in the Contract Price all allowance so named in the Contract Documents and shall cause the work so covered to be performed for such sums as may be acceptable to OWNER.
E. CONTRACTOR agrees that the allowance include the cost to CONTRACTOR (less any applicable trade discounts) or material and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and CONTRACTOR's costs for unloading and handling of the site, labor, installation costs, overhead, profit, and other expenses contemplated for the allowances have been included in the allowances, and will be paid per contract provisions.
F. CONTRACTOR must furnish work and items in accordance with Specification Section 01300, "Submittals"
G. CONTRACTOR must submit invoices to indicate actual quantity of services delivered to the site for use in the fulfillment of each allowance.
H. At project closeout, CONTRACTOR shall credit unused Allowance amounts remaining in each allowance to the remaining balance of the contract for OWNER's discretionary use.

**PART 2 – PRODUCTS** (NOT USED)

**PART 3 – EXECUTION**

**3.1 – 3.10** (NOT USED)

**3.11 MEASUREMENT AND PAYMENT**

A. Measurement and payment for work performed under this Section to be in accordance with Specification Section 01025. "Measurement and Payment". Include cost of same in allowance items for work of which this is a component part.

**END**

One set of the progress photos must be taken to depict the work accomplished during the month that includes:

- Work not yet covered up
- When MEP or building inspections are scheduled
- The beginning of installation of major items of equipment
- After installation of major items of equipment
- Other significant construction activities.

Both sets of photos shall be submitted monthly with the CONTRACTOR'S monthly progress payment application. At minimum two (2) aerial photos taken each at five (5) progress milestones during the construction (at milestone points as agreed to by Owner and Engineer). Submit progress aerial photos with corresponding milestone's monthly payment.

### 3.4 POST CONSTRUCTION PHOTOGRAPHS

Post-construction photographs must be taken of the same views taken during pre-construction photography, including minimum two (2) aerial photos, to fully document the completed project. Post-construction photographs must be taken after cleanup and site restoration, and must be submitted with the final payment.

### 3.5 ADDITIONAL ASSET PHOTOGRAPHS

Additional asset photographs shall be taken to show, identify and locate AWU's assets as they are being installed as part of the work. The quantity of asset photos required is determined by the number of asset items added to AWU's Computerized Maintenance Management System (CMMS) data base as part of the construction of this project. A specific complete list of assets to be installed within this contract is identified in the Submittals Section of the Contract (Section 01300).

Each asset photograph shall be submitted in duplicate as two 3x5 prints with no more than 3 photos per page of professional quality enclosed in clear plastic sleeve within 3 ring folders. Prints of size 4x6 are acceptable, however, all submitted photograph prints shall be of the same dimension throughout the project. The prints shall be accompanied by digital date-stamped photographs in CD format or other format acceptable to the City.

Each print of the asset shall be marked with the following information:

- The CIP ID number for the Contract
- Name of CONTRACTOR
- AWU's CMMS asset number
- The date of installation of the asset
- Location of asset (i.e. Sta. number, or State Plane Coordinate number, or other suitable information identifying where the asset was installed)

Each asset photograph must be included in an Asset Management Photo Log that indicates the AWU CMMS asset number, the CIP ID number of Contract, name of CONTRACTOR, the date of the photograph and the filename that the camera assigns to the photo (e.g. MVC-001.jpg).

**End**

**SECTION 13851**

**FIRE ALARM SYSTEM**

## PART 1 - GENERAL

### 1.01 SUMMARY

A. Scope of Work

1. A single Fire Alarm System Contractor (FASC) shall furnish all services and equipment as defined herein and in other Specification sections as listed below under Related Requirements. The FACS shall have the qualifications as described in subsection 1.02 "Related Requirements", this Section of the Specifications.

2. Furnishing a complete system design responsibility for the fire alarm system design for the Substation No. 1 Building accompanied by a complete set of PLANS that shall be designed by a Texas State Fire Marshall's Office Fire Alarm Planning Superintendent certified designer who is licensed in the State of Texas. The system design shall be in accordance with UL, NFPA, NEC, ANSI, and IEEE standards.

3. Furnishing a complete system installation responsibility which shall include the furnishing of all labor, materials, and items of service required for the completion of a functional fire alarm system for the Substation No. 1 Building as reviewed by the Owner in strict accordance with this section of the specifications and the applicable contract drawings. At minimum, all aspects of the fire alarm system installation shall be directly performed by or under the direct supervision of a State of Texas Fire Marshall's Office Fire Alarm Technician certified technician that is licensed in the State of Texas.

4. Furnish and install a complete and fully functional fire alarm system as shown on the PLANS and as Specified herein for the Substation No. 1 Building. The fire alarm system shall utilize a complete, electrically supervised digital addressable, multiplexed signal transmission, intelligent type fire alarm control system.

5. Fire alarm control panel, remote annunciator panels, monitor panels, fire alarm pull stations, smoke and heat detectors, audible and visual notification appliances, addressable interface devices, device enclosures/back boxes, coverplates, interconnect conduit/wiring, mounting hardware, and all related incidentals for a complete and fully functional fire alarm system shall be furnished and installed. Boxes, conduit/wire shall be sized, furnished, and installed per the requirements of the PLANS and Division 16 Specifications unless specified otherwise herein.

6. All major elements of work are believed to be adequately described herein. The FASC is expected to anticipate and include in the cost of the work any incidentals which may be required, but not specifically expressed herein, in order to provide a complete and fully functional fire alarm system for the Substation No. 1 Building.

7. The FASC shall provide a fire alarm system that meets all of the requirements stated herein. The FASC is expected to make allowances for all necessary adjustments for the actual installation and to examine physical conditions which may affect the performance of their work, and coordinate the actual pipe routing and equipment locations as necessary to accommodate the existing conditions, obstructions, and the work of other trades. No extra payment will be allowed for FASC's failure to make such allowances. The cost associated with this task shall be included in the FASC's base bid.

8. The omission by the Engineer of any necessary system component, as required by the Authorities Having Jurisdiction, in the Drawings, or Specifications shall not relieve the FASC of the responsibility for verifying and providing such necessity, without additional cost to the Owner.

9. The fire alarm system shall meet all current NFPA code requirements, including but not limited to NFPA 13, 13R, 13D, 14, and 72 and per the edition as required by the City of Austin. The fire alarm system shall meet all requirements of the City of Austin Fire Department, ADA guidelines, all applicable Texas Accessibility Standards, and currently adopted edition of the International Fire Code (IFC) as amended by the City of Austin.

10. The FASC shall be responsible for coordinating with AT&T and the Owner for the installation of telephone services to the Substation No. 1 Building. The Owner shall furnish and install the telephone cables up to the Substation No. 1 Building, the FASC shall be responsible for routing the telephone cables within the Substation No. 1 Building and for the termination of the telephone cables to the Fire Alarm Control Panel.

B. System Description:

1. The fire alarm system shall monitor the smoke detectors and heat detectors for trouble and activation with audible and visual indication at the fire alarm control panel.

2. The fire alarm system shall be an addressable digital supervised system.

3. As part of the fire alarm control panel, furnish and install a digital alarm communicator transmitter to seize telephone line(s), dial preselected telephone number(s), transmit fire alarm, supervisory, and trouble signals to a remotely located digital alarm communicator receiver central alarm station (operated by the Authority Having Jurisdiction) over a telephone line(s).

4. The fire alarm control panel shall include interface capability with the fire suppression systems.

5. The fire alarm control panel shall provide signals as required to the security system to release all electrically locked exit doors on general alarm, where applicable.

6. The fire alarm control panel shall provide interface capability to smoke dampers, fans, air conditioning equipment, and other equipment as required for a fully functional and complete fire alarm system.

## 1.02 RELATED REQUIREMENTS

A. Drawings and other Technical Specification Sections show and/or specify additional features required to describe and illustrate functional requirements of the fire alarm system.

B. FASC Qualifications:

1. The fire alarm system design/installation entity shall have a minimum of five (5) years experience designing, furnishing, and installing complete fire alarm systems for buildings/facilities that are similar in scope and value as required for this project.

2. FASC shall have current firm alarm certificate of registration issued by the State of Texas Fire Marshal's office and employ the licensed Fire Alarm Planning Superintendent and Fire Alarm Technician(s) who are performing the work on this project.

C. Manufacturer Qualifications: A firm experienced in manufacturing systems similar to those required for this project and with a record of successful in-service performance.

D. Source Limitations for Fire-Alarm System and Components: Obtain fire-alarm system components from a single manufacturer where possible.

E. Comply with the applicable requirements of Division 16 Specifications.

F. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.

G. It is the CONTRACTOR's responsibility for scheduling and coordinating the Work of subcontractors, suppliers, and other individuals or entities performing or furnishing any of CONTRACTOR's Work.

## 1.03 COORDINATION.

A. Coordinate as required with all necessary utility service providers such as telephone (AT&T), Authorities Having Jurisdiction such as the City of Austin Fire Department, etc. as required to establish the complete functional fire alarm system required for the project as shown on the Drawings and as specified herein.

B. Coordinate layout and installation of fire alarm system subcomponents with other trades. Coordination with the overall construction sequencing of facility is required to meet the raceway routing and device mounting requirements of the Drawings and Specifications.

## 1.04 SUBMITTALS

A. Submit shop drawings in accordance with the requirements of Section 01300 of the Contract Specifications. Include:

1. Riser diagram of fire alarm system, initiating devices, notification appliances and interface connections.

2. Layout drawings showing locations of devices and appliances, junction boxes, wire and conduit routing, auxiliary power supplies for visuals and connections to fire suppression system supervisory and ancillary devices.

3. Dimensioned/scaled top and bottom enclosure views, front enclosure elevations, and internal component/device layouts, as applicable

4. Wiring diagrams, as applicable,

5. Catalog cut sheets. Include all system sub-components, annunciator panel, as applicable.

6. Calculations: Include notification circuit voltage drop, control panel battery-sizing, and other calculations.

7. Certifications: Include the Alarm Planning Superintendent, Alarm Installation Technician, and Firm certifications/registrations with the State of Texas Fire Marshall's Office.

B. Field test reports: Indicate and interpret test results for compliance with performance requirements.

C. Submissions to Authorities Having Jurisdiction: In addition to distribution requirements for Submittals previously specified, make an identical submission to the City of Austin Fire Department. Include copies of annotated contract Drawings as needed to depict component locations to facilitate review. Resubmit as required to make clarifications or revisions to obtain approval. Upon receipt of comments from the Authorities Having Jurisdiction, submit to Engineer for review.

D. Certificate of Completion: Comply with NFPA.

## 1.05 OPERATION AND MAINTENANCE MANUALS

A. Furnish Operation and Maintenance Manuals in accordance with the requirements of Section 01730 of the Contract Specifications. Include:

1. Installation and operation manuals.

2. Renewal parts bulletin.

3. As built drawings, including approved shop drawings.

4. Test data

5. Record copy of site specific software on CD ROM, complete with all necessary files

6. Software licenses registered in the name of the Owner

7. Software and Firmware Operational Documentation:
   a. Software operating and upgrade manuals.

   b. Device address list.

   c. Printout of software application and graphic screens.

## 1.06 CODE REQUIREMENTS AND PERMITS

A. Code Requirements:

1. All aspects of the electrical construction shall comply with all National Electrical Code (NEC), NFPA, IEEE, OSHA requirements, local ordinances, the Authorities Having Jurisdiction, and all other pertinent codes and standards, latest revision.

## 1.07 SPECIAL SERVICES

A. Provide service and maintenance of fire alarm equipment for two years from date of Substantial Completion.

B. Software Service Agreement:

1. Comply with UL 864

2. Technical Support:
   a. Provide software support for two years from the date of Substantial Completion

3. Upgrade Service:
   a. Update software to latest version at Project completion. Furnish, install, configure, and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system. Upgrade shall include new or revised licenses for use of software. Provide 30 day advance written notice to the Owner to allow for scheduling and access to the system. All upgrades shall also be provided to the Owner on CD-ROM, and a full backup of the existing (prior to the upgrade) system software and settings shall be made on CD-ROM and provided to the Owner prior to upgrade.

## 1.08 SPARE PARTS

A. Furnish ten percent spare parts or a minimum quantity of three, which ever is greater, for the following:

1. Audio / visual signal units
2. Smoke and heat detectors
3. Manual pull stations
4. Lamps for audio/visual signal units of each type
5. Detector bases of each type
6. Printer ribbons/cartridges
7. Fuses of each type
8. Keys and tools (minimum one set)

B. Furnish the above spare parts packaged with protective covering for storage and identified with labels describing the package contents.

## PART 2 - PRODUCTS

### 2.01 GENERAL

A. All products shall be U. L. Certified, at minimum.

B. Manufacturers:

1. Grinnell Simplex
2. Silent Knight,
3. Federal Signal Corporation,
4. Fire Control Instruments, Inc.
5. Siemens Cerberus
6. General Electric
7. or approved equal

### 2.02 SYSTEM OPERATIONAL DESCRIPTION

A. Furnish and install fire alarm signal initiation by the following:

1. Manual stations
2. Heat detectors
3. Smoke detectors
4. Duct smoke detectors
5. Verified automatic operation of smoke detectors
6. Automatic suppression system flow, as applicable
7. Fire-extinguishing system operation
8. Fire standpipe system
9. other alarm inputs as provided by the Fire Suppression Systems, as applicable

B. Fire alarm signal shall initiate the following actions:

1. Continuously operate alarm notification appliances
2. Identify alarm at fire alarm control panel and applicable remote annunciator panels.
3. Initiate digital alarm communicator transmitter and transmit an alarm signal to the remotely located digital alarm communicator receiver central alarm station operated by the Authority Having Jurisdiction.

4. Unlock electric door locks in designated egress paths
5. Release fire and smoke doors held open by magnetic door holders.
6. Shutdown of fans and other air-handling equipment serving zone when alarm was initiated.
7. Close smoke dampers in air ducts of designated air-conditioning duct systems serving zone where alarm was initiated.
8. Record events in the system memory.
9. Record events by the system printer.

C. Furnish and install fire alarm system supervisory signal initiation by the following:

1. Valve supervisory switch
2. Low air pressure switch for dry pipe or pre-action sprinkler system
3. Other supervisory signals available from the fire suppression systems specified, if any
4. Record events in the system memory.
5. Record events by the system printer.
6. Initiate the digital alarm communicator transmitter and transmit supervisory signals to a remote digital alarm communicator receiver central alarm station operated by the Authority Having Jurisdiction.

D. Furnish and install fire alarm system trouble signal initiation by the following:

1. Open circuits, shorts, and grounds in designated circuits.
2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
3. Loss of primary power at fire-alarm control panel
4. Ground or a single break in fire-alarm control panel internal circuits.
5. Abnormal ac voltage at fire-alarm control panel.
6. Failure in standby battery circuitry or battery charging.
7. Abnormal position of any switch at fire-alarm control panel or annunciator.
8. Low-air-pressure switch operation on a dry-pipe or pre-action sprinkler system
9. Other trouble signals available from the fire suppression systems specified, if any.
10. Record events in the system memory.
11. Record events by the system printer.
12. Initiate the digital alarm communicator transmitter and transmit trouble signals to a remote digital alarm communicator receiver central alarm station operated by the Authority Having Jurisdiction.

## 2.03 FIRE ALARM CONTROL PANEL

A. Construction: Enclosed panel, NEMA 12 rated at minimum, suitable for wall surface mounting and the application environment in which the panel is located. Also refer to the Drawings. Provide multiple enclosures as required to contain the components as specified.

B. Power Supply:

1. Primary Power Input: 120 volts, AC, 60 Hertz, single phase, single point feed.

2. Derive the necessary power for all fire alarm system sub-component loads from the single point feed inclusive of all needed power supplies, voltage transformation, and all necessary short circuit and overload protection for a fully functional system.

3. Secondary Power Input: 24 volts DC supply system with batteries, automatic battery charger, and automatic transfer switch, complete with all accessories, furnished and installed integral to the panel. Batteries shall be sealed valve regulated recombinant lead acid type. Batteries shall be sized to operate the complete system under the following operating scenario: 24 hours with the complete system operating in normal or supervisory (non-alarm) operating mode followed by an additional 10 minutes with the complete system operating in alarm or supervisory mode (including all notification appliances).

4. Fire alarm system loads shall automatically transfer to the secondary power input upon loss of the primary power input.

5. Alarm current draw of entire fire-alarm system shall not exceed 80 percent of the power-supply module rating.

C. General Requirements:

1. Field-programmable, microprocessor-based, modular, power-limited design with electronic modules, complying with UL 864.

2. System software and programs shall be stored in non-volatile programmable memory, retaining the information through failure of primary and secondary power supplies.

3. Include a real-time clock for time annotation of events on the event recorder and printer.

4. The System shall provide a means to recall alarms and trouble conditions in chronological order for the purpose of recreating an event history. Separate alarm, supervisory, and trouble logs shall be provided.

5. Provisions for addressable initiation devices that communicate device identity and status with the following:
   a. Smoke sensors shall additionally communicate sensitivity setting
   b. Temperature sensors shall additionally test for and communicate the sensitivity range of the device
   c. Addressable control circuits for operation of mechanical equipment

d. other devices as required

6. All wiring and terminal blocks shall be tagged.

7. Provide overall three ply phenolic red-white-red nameplate with lettering not less than 1 inch high for control panel. Secure to enclosure with stainless steel screws.

D. Indication and System Controls:

1. Alpha-numeric Indication:
   a. Arranged for interface between human operator at fire-alarm control panel and addressable system components including annunciation, supervision, and control. Display alarm, supervisory, and component status messages and the programming and control menu

   b. Type: Liquid-crystal type, 80 character minimum

2. Keypad: Arranged to permit entry and execution of programming, display, and control commands

3. Discrete Indicating Lights and System Controls:
   a. At a minimum, provide individual LEDs identifying alarm and trouble conditions within each zone and the type of device originating the signal.

   b. At a minimum, provide system reset, alarm acknowledge, alarm silence, system test, and lamp test pushbuttons. These may be integrated into the keypad at the manufacturer's discretion.

E. Serial Interfaces: Minimum of two RS-232 or Universal Serial Bus (USB) ports to provide connections to printers, laptop computers, and miscellaneous peripheral devices. USB ports are preferred if available.

F. Input/Output Signals: Furnish and install the quantity and rating of input/output signals as required to interface with the Fire Suppression Systems, Smoke Dampers, door locks, air conditioners, fans, and other equipment as specified elsewhere and as shown on the Drawings for a complete and functional system at no additional cost to the Owner.

G. Digital Alarm Communicator Transmitter:

1. Furnish and install a digital alarm communicator transmitter to automatically transmit alarm, supervisory, and trouble signals to a remote digital alarm communicator receiver central alarm station operated by the Authority Having Jurisdiction.

2. Digital alarm communicator transmitter shall be acceptable to the remote digital alarm communicator receiver central alarm station and shall comply with UL 632. Coordinate requirements with the Authority Having Jurisdiction.

3. Digital alarm communicator transmitter shall be mounted integral to the Fire Alarm Control Panel.

4. Functional Performance: Unit shall receive an alarm, supervisory, or trouble signal from fire-alarm control panel and automatically captures one or two

telephone line(s) and dials a preset number for a remote digital alarm communicator receiver central alarm station(s). When contact is made with central station(s), signals shall be transmitted. If service on either line is interrupted for longer than 45 seconds, transmitter shall initiate a local trouble signal and transmit the signal indicating loss of telephone line to the remote digital alarm communicator receiver central alarm station over the remaining line. Transmitter shall automatically report telephone service restoration to the remote digital alarm communicator receiver central alarm station. If service is lost on both telephone lines, transmitter shall initiate the local trouble signal. Transmitter shall be field programmable for use with one or two telephone lines.

5. Self-Test: Conducted automatically every 24 hours with report transmitted to remote digital alarm communicator receiver central alarm station.

6. Digital alarm communicator transmitter shall also provide
   a. LED display
   b. Field programmable selection of signals to be transmitted to the remote digital alarm communicator receiver central alarm station
   c. Programming device.

H. Printout of Events: On receipt of signal, print alarm, supervisory, and trouble events. Identify zone, device, and function. Include type of signal (alarm, supervisory, or trouble) and date and time of occurrence. Differentiate alarm signals from all other printed indications. Also print system reset event, including same information for device, location, date, and time. Commands initiate the printing of a list of existing alarm, supervisory, and trouble conditions in the system and a historical log of events. Printer shall be furnished and installed integral with the fire alarm control panel.

I. Instructions: Computer printout or typewritten instruction card mounted behind a plastic or glass cover in a stainless-steel or aluminum frame. Include interpretation and describe appropriate response for displays and signals. Briefly describe the functional operation of the system under normal, alarm, and trouble conditions.

## 2.04 MANUAL PULL STATIONS

A. General:

1. Fabricated of metal or plastic and finished in red with molded, raised-letter operating instructions in contrasting color.

2. The Manual Pull Station shall be surface mounted. Furnish and install manufacturer's surface back box. Furnish and install coverplate.

3. Double-action mechanism requiring two actions to initiate an alarm, pull-lever type.

4. Integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control panel.

## 2.05 SMOKE DETECTORS

A. General:

1. Operating voltage: 24 volts DC
2. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.
3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control panel.
4. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
5. Integral Visual-Indicating Light: LED type indicating detector has operated
6. Field adjustable: Detector can be adjusted and tested after installation

B. Photoelectric Smoke Detector:

1. Detector address shall be accessible from fire-alarm control panel and shall be able to identify the detector's location within the system and its sensitivity setting.
2. LED or infrared light source suitable for use as a smoke detector and tested per UL 268A.

C. Ionization Smoke Detector:

1. Shall respond to both visible and invisible combustion products.

## 2.06 HEAT DETECTORS

A. Heat Detector, Combination Type

1. Actuated by either a fixed temperature of 135 degrees F or rate of rise that exceeds 15 degrees F per minute
2. Mounting: Adapter plate for outlet box mounting
3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control panel.

B. Heat Detector, Fixed Temperature Type:

1. Actuated by either a fixed temperature of 135 degrees F or rate of rise that exceeds 15 degrees F per minute
2. Mounting: Adapter plate for outlet box mounting
3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control panel.

## 2.07 NOTIFICATION APPLIANCES

A. General Requirements for Notification Appliances:

1. Individually addressed, connected to a signaling line circuit, equipped for mounting as indicated and with screw terminals for system connections.

2. Connected to notification appliance signal circuits, zoned as indicated, equipped for mounting as indicated and with screw terminals for system connections.

3. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated and with screw terminals for system connections.

4. Mounted on recessed outlet box. Where surface mounted, furnish and install manufacturer's surface back box. Furnish and install coverplate.

B. Horns: Electric-vibrating-polarized type, 24 volts DC; with provision for housing the operating mechanism behind a grille. Comply with UL 464. Horns shall produce a sound-pressure level of 85 dBA, measured 10 feet from the horn, using the coded signal prescribed in UL 464 test protocol.

C. Visible Notification Appliances: Xenon strobe lights comply with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch high letters on the lens. Provide rated light output in accordance with the requirements of the Authority Having Jurisdiction.

## 2.08 REMOTE ANNUNCIATOR PANEL

A. General: Provide annunciator panel where required by the Drawings or by the Authorities Having Jurisdiction.

B. Description: Annunciator functions shall match those of fire-alarm control panel for alarm, supervisory, and trouble indications. Manual switching functions shall match those of fire-alarm control panel, including acknowledging, silencing, resetting, and testing.

C. Construction: Enclosed panel, NEMA 3R rated at minimum, suitable for wall surface mounting and the application environment in which the panel is located. Also refer to the Drawings.

D. Display Type and Functional Performance: Alphanumeric display and LED indicating lights shall match those of fire-alarm control panel. Provide controls to acknowledge, silence, reset, and test functions for alarm, supervisory, and trouble signals.

E. Provide overall three ply phenolic red-white-red nameplate with lettering not less than 1 inch high for each annunciator panel. Secure to enclosure with stainless steel screws.

## 2.09 ADDRESSABLE INTERFACE DEVICE

A. Description: Microelectronic monitor module for use in providing a system address for alarm-initiating devices with normally open contacts.

B. Integral Relay: Capable of providing a direct signal to/from equipment as required by the Drawings and Specifications for a complete functional system.

## 2.10 MISCELLANEOUS

A. Wiring:

1. Non-Power-Limited Circuits: Furnish and install wiring per Section 16200 "Wiring (600 Volts and Below)". Exception: The following minimum wire sizes apply:
   a. Low voltage circuits: No. 16 AWG, minimum
   b. Line-Voltage circuits: No. 12 AWG minimum.

2. Power-Limited Circuits: Furnish and install NFPA 70, Types FPL, FPLR, or FPLP as recommended by the manufacturer. Minimum wire size is No. 16 AWG

B. Building Maps and Signage:

1. Building map shall be provided adjacent to the Fire Alarm Control Panel and each annunciator panel. Map shall consist of floor plans with all room numbers and zones identified. Maps shall be properly oriented and mounted in a durable frame. Handwritten or hand-drawn maps shall not be accepted.

2. Provide additional signage as required by NFPA and Authorities Having Jurisdiction at no additional cost to the Owner.

# PART 3 - EXECUTION

## 3.01 EQUIPMENT INSTALLATION

A. Equipment Mounting: Install fire-alarm control panel with tops of cabinets not more than 72 inches above the finished floor.

B. Manual Pull Stations: Mount in back boxes at 48 inches above finished floor.

C. Smoke- or Heat-Detector Spacing: Comply with NFPA

D. Visible/Audible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and not more than 80 inches above the floor or least 6 inches below the ceiling, whichever is lower.

E. Although it may not be shown on the Drawings, size, furnish, and install conduit/wire to interconnect the Fire Alarm Control Panel to the Building Telephone System.

## 3.02 GENERAL INSTALLATION

A. Furnish and install all wiring complete in a raceway system per all applicable requirements of the Division 16 specifications and the Contract Drawings, with the following supplementary requirements:

1. Color code all wiring differently from that used for normal building power wiring. Use different wiring colors for alarm and supervisory wiring

2. Paint fire alarm system junction/pull boxes red

3. Ground fire-alarm control panel and associated circuits and comply with IEEE 1100.

## 3.03 FIELD QUALITY CONTROL

A. Field tests shall be witnessed by the Owner and the Authorities Having Jurisdiction.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections, for all tests.

C. Perform the following tests and inspections:

1. Pre-Test:
   a. After installation, align, adjust, calibrate, and balance the system and perform complete pre-testing.
   b. Test audible and visual appliances, smoke detectors, and heat detectors according to manufacturer's written instructions.
   c. Test for proper function of automatic transfer between primary and secondary power sources.
   d. Test battery charging and battery backup system.
   e. Test interlocks between the fire alarm system and:
      1) Fire suppression systems, as applicable
      2) elevators, as applicable
      3) door locks, as applicable,
      4) supervisory valves,
      5) annunciator panels,
      6) and other equipment
   f. Test for functional compliance with the Contract Requirements. Correct deficiencies observed, replace malfunctioning components as required, and perform all necessary adjustments re-testing until satisfactory performance is achieved.
   g. Maintain a log of testing and associated test results for the Owner’s review.

2. Final Test:
   a. Provide minimum of 14 days written notice to the Owner when the system is ready for final acceptance testing.
   b. Test system per the requirements of NFPA and the Authority Having Jurisdiction.
   c. Correct all deficiencies and completely re-test work affected.
   d. Provide a typewritten report of test results signed by the Technician and witnesses.
   e. Provide Certificate of Completion per NFPA.
3. After installation and final testing, clean and vacuum all interior of the equipment. Touch-up and restore damaged surfaces to factory finish.

## 3.04 TRAINING

A. Engage a factory-authorized service representative to train the Owner's maintenance personnel to adjust, operate, and maintain the fire alarm system. Include software related upgrades and maintenance.

## 3.05 MEASUREMENT AND PAYMENT

A. No separate measurement or payment for work performed under this Section. All costs are included in the Base Bid.

**END OF SECTION**

a. Threaded insert plug shall have a square head and shall be constructed from copper-free Aluminum material.

b. Threaded insert plug shall be Type CUPX by Hubbell-Killark, Type PLG by Crouse-Hinds, or approved equal.

2. Seal and pack/fill ends of each conduit with flame-retardant sealant.

3. In all sealing fittings, utilize sealing compound to seal around and between each conductor and associated sealing fitting body.

4. Each conduit Bell-End fitting shall have integral concentric water stop ring surrounding the exterior of the Bell-End.

5. Seal empty underground conduit Bell-Ends. Furnish and install conduit manufacturer's conduit Plug with Pull Tabs to seal each empty underground conduit at each Bell-End for all duct banks renovated in this project. Conduit Plug shall be of Polyethylene material.

F. Requirements for cables inside of Manholes, Handholes, etc.:

1. Arrange cables so that there is a minimum of crossing. Provide slack in each cable.

2. Secure cables in handholes/manholes on support channel system as specified herein and as shown on the PLANS.

G. Connections to Equipment:

1. Liquid tight flexible conduit shall be used for connections to motors, field instruments, etc., and any equipment subject to vibration, and where shown on the PLANS. Length of conduit shall not exceed 30-inches, unless specifically noted otherwise on the PLANS.

## 3.03 INSTALLATION OF SUPPORT CHANNELS

A. Utilize support channels and mounting hardware as previously specified to install raceways, and any other surface mounted electrical, instrumentation and control equipment. Refer to details shown on the PLANS. Use 316 stainless steel split ring lock washers with mounting hardware when installing support channels.

## 3.04 HOUSEKEEPING CONCRETE PAD FOR EQUIPMENT

A. Provide housekeeping concrete pad for all outdoor equipment whether it is free-standing or surface mounted. All housekeeping pad edges shall be chamfered. Outdoor electrical equipment pads shall be as detailed on the PLANS.

B. Provide housekeeping concrete pad for all indoor free-standing equipment. Indoor electrical equipment pads shall be as detailed on the PLANS.

## 3.05 MEASUREMENT AND PAYMENT

A. No separate measurement or payment for work performed under this Section. All costs are included in the Base Bid.

**END OF SECTION**

B. For 15kV cable installations, furnish single-conductor cable assemblies suitable for use in circuits not exceeding 15,000 volts measured phase-to-phase at conductor temperatures of 90 deg. C continuous normal operation, 130 deg. C for emergency overload conditions, and 250 deg. C for short circuit conditions, in wet or dry locations.

C. The manufacturer's name, the voltage class, type of insulation, thickness of insulation, conductor size, U.L. listing and date of manufacture shall be printed on the jacket.

D. Cables shall be suitable for use in partially submerged wet locations, in non-metallic or metallic conduits, underground duct systems and direct buried installation.

## 2.02 MATERIALS

A. Phase Conductors: Copper, stranded in accordance with ASTM B-8.

B. Phase Conductors Strand Screen: Extruded semiconducting copolymer Strand Screen compatible with EPR. Concentrically extruded directly over the copper strands. Minimum average thickness of 40 mils with a minimum thickness of 35 mils and maximum thickness of 45 mils. Strand Screen shall meet the electrical and physical requirements of ICEA S-68-516, AEIC CS6 and UL 1072.

C. Phase Conductor Insulation: A homogenous wall of thermosetting Ethylene-Propylene Rubber (EPR) based elastomer applied directly over the Phase Conductor Strand Screen. Average thickness of 135 mils. Physical and electrical properties per IPCEA Paragraph 3.7. Test for voids and contaminants per AEIC 6-75, Section A-3.

D. Phase Conductor Insulation Screen: Extruded semiconducting copolymer Strand Screen compatible with EPR and providing 100% coverage directly over the Conductor Insulation. Minimum average thickness of 40 mils with a minimum thickness of 35 mils and maximum thickness of 45 mils. Strand Screen shall meet the electrical and physical requirements of ICEA S-68-516, AEIC CS6 and UL 1072.

E. Phase Conductor Shielding: Conductor shielding shall be concentrically extruded directly over the Conductor Insulation Screen. Apply a semi-conducting tape, providing 100% coverage directly over the insulation with 10% lap. Apply (helically) a 5 mil copper tape shield directly over the semiconducting tape (Conductor Insulation Screen) with a 20% lap over the auxiliary tape shield. Wire shielding to meet IPCEA Paragraph 4.1.1.3.

F. Manufacturer's Cable Overall Jacket: Overall cable jacket shall be Flame resistant and shall be PVC jacket encasing the cables round core.

G. Identification: Surface printed on overall jacket identifying manufacturer, insulation type, jacket type, conductor size, UL symbol and voltage.

H. Stress Cones and Splice Kits: Use Stress Cones as manufactured by 3M or approved equal, and splice kits of Model HVS as manufactured by Raychem, or approved equal, and as also recommended by the Medium Voltage Cable Manufacturer. A letter of approval must be issued by the Cable Manufacturer which shall accept and approve the use of the selected Stress Cones and Splice Kits. Stress cones located outdoors shall have skirts and shall be UV resistant.

## GENERAL NOTES (CONTINUED):

36. CONTINUOUS OPERATION OF OWNER'S FACILITIES IS OF CRITICAL IMPORTANCE. THE CONTRACTOR SHALL:

A. SCHEDULE AND CONDUCT ACTIVITIES TO ENABLE EXISTING FACILITIES TO OPERATE CONTINUOUSLY, UNLESS OTHERWISE SPECIFIED.

B. CONDUCT WORK OUTSIDE NORMAL WORKING HOURS AS MAY BE NECESSARY TO MEET PROJECT SCHEDULE AND AVOID UNDESIRABLE CONDITIONS.

C. NOTHING IN THESE DOCUMENTS SHALL RESTRICT THE OWNER FROM PARTIAL UTILIZATION OF ANY COMPLETED PART OF THE WORK, NOR SHALL THE RIGHT OF THE OWNER TO OPERATE FACILITIES BE RESTRAINED IN ANY WAY, EXCEPT WHERE SHUTDOWN OF SPECIFIC FACILITIES FOR CONSTRUCTION HAS BEEN AGREED UPON BY THE OWNER.

D. OWNER'S EQUIPMENT, INCLUDING GATES, VALVES, AND MOTORS SHALL NOT BE OPERATED WITHOUT THE APPROVAL OF THE OWNER. THE OWNER MAY ELECT TO HAVE AN AUTHORIZED OWNER'S REPRESENTATIVE OPERATE OWNER'S EQUIPMENT OR TO WITNESS OPERATION.

E. SHOULD A POWER OUTAGE TO A FACILITY BE REQUIRED, THE CONTRACTOR SHALL REQUEST SUCH AN OUTAGE IN WRITING NO LESS THAN NINETY–SIX (96) HOURS IN ADVANCE. CONTRACTOR'S WRITTEN REQUEST SHALL IDENTIFY THE DESIRED DATE, TIME, DURATION, AND PURPOSE OF THE REQUESTED DAY UNLESS HE/SHE OBTAINS A WRITTEN APPROVAL FROM THE OWNER AUTHORIZING THE OUTAGE. THE OWNER RESERVES THE RIGHT TO MODIFY OR REJECT ANY REQUEST SUCH AN OUTAGE. MODIFICATION OR REJECTION OF THE CONTRACTORS REQUEST BE THE OWNER SHALL NOT BE CONSIDERED REASON FOR DELAYS IN THE CONSTRUCTION SCHEDULE. UNLESS OTHERWISE NOTED, THE DURATION OF THE OUTAGE SHALL BE LIMITED TO FOUR (4) HOURS OR LESS. THE OWNER RESERVES THE RIGHT TO LIMIT THE DURATION OF THE OUTAGE TO LESS THAN 4 HOURS. MODIFICATION OF THE OUTAGE DURATION BY THE OWNER SHALL NOT BE CONSIDERED REASON FOR DELAYS IN THE CONSTRUCTION SCHEDULE.

37. THE CONTRACTOR SHALL PERFORM COORDINATION WITH AUSTIN ENERGY THROUGHOUT THE PROJECT, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING ACTIVITIES:

A. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH AUSTIN ENERGY (AE) THROUGHOUT THE COURSE OF THE PROJECT TO ASSURE COMPLIANCE WITH THE PROJECT REQUIREMENTS, SCHEDULE, AND THE CONTRACTOR'S CONSTRUCTION SEQUENCING.

B. CONTRACTOR IS RESPONSIBLE FOR COORDINATING, SCHEDULING, AND STAGING OF INTERCONNECTION WITH AUSTIN ENERGY OF THE PROPOSED AUSTIN ENERGY (AE) SERVICE FEEDERS AND DEMOLITION OF THE EXISTING AE SERVICE FEEDERS SO AS TO ASSURE CONTINUED SERVICE OF FULL LOAD OPERATION OF THE PLANT AND SMOOTH, NON–INTERRUPTED TRANSITION OF SERVICE FROM THE EXISTING AE SERVICE FEEDERS TO THE PROPOSED AE SERVICE FEEDERS SO AS TO MAINTAIN CONTINUED AE SERVICE TO THE PLANT AT FULL LOAD OPERATION OF THE PLANT.

C. CONTRACTOR SHALL COORDINATE WITH AE FOR THE MINIMUM DURATION (MINIMUM SIX (6) WEEKS) FOR NOTIFYING AE PRIOR TO TERMINATION OF THE AE FEEDERS ONTO THE SUBSTATION NO. 1 15KV SWITCHGEARS, SO THAT AE MAY COMMENCE THE PROCESS OF PULLING THE SERVICE FEEDERS FROM THE WARREN SUBSTATION TO THE DAVIS WTP SUBSTATION NO. 1 SWITCHGEARS SUB1–SWGR–01A AND SUB1–SWGR–01B. CONTRACTOR SHALL NOTIFY AE ACCORDING TO THIS MUTUALLY AGREED UPON DURATION. CONTRACTOR SHALL BE AWARE THAT AE SHALL PULL THE SERVICE FEEDERS FOR BOTH SUBSTATION NO. 1 SWITCHGEARS SUB1–SWGR–01A AND SUB1–SWGR–01B AS ONE SCHEDULED EVENT, AND NOT AS MULTIPLE/SEPARATE EVENTS. BOTH SWITCHGEARS SUB1–SWGR–01A AND SUB1–SWGR–01B SHALL BE INSTALLED AND SUCCESSFULLY COMMISSIONED BY THE SWITCHGEAR MANUFACTURER PRIOR TO TERMINATION OF ANY AE SERVICE FEEDER TO A SWITCHGEAR. CONTRACTOR SHALL INCLUDE THIS TIME DELAY REQUIRED FOR AE SERVICE FEEDER PULLING IN THE CONSTRUCTION SCHEDULE AND SHALL ACCOMMODATE THIS TIME DELAY AS PART OF THE CONSTRUCTION CONTRACT.

38. ALL PROPOSED GROUNDING SYSTEM CONDUITS IN PROPOSED DUCT BANKS SHALL BE 1–1/2" INCH TRADE SIZE WITH #250 KCMIL INSULATED GROUND CONDUCTOR.

1

ALL GENERAL NOTES LISTED ON THIS SHEET ARE APPLICABLE TO ALL ELECTRICAL AND INSTRUMENTATION AND CONTROLS SHEETS IN ADDITION TO ANY GENERAL NOTES SHOWN ON EACH INDIVIDUAL SHEET.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.

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K. A. HARUTUNIAN 59181 STATE OF TEXAS REGISTERED PROFESSIONAL ENGINEER 5/1/2016

HARUTUNIAN ENGINEERING INCORPORATED
TEXAS FIRM REGISTRATION NUMBER F–2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | GROUNDING SYSTEM AND AE COORDINATION |

DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

ELECTRICAL
GENERAL NOTES (SHEET 2 OF 2)

PROJECT NO: 2009–800 | SHT. 13 OF 854 | DWG NO. G–E–005

ADDENDUM NO. 1

## CONDUIT/WIRE SCHEDULE

| | CONDUIT TAG | SIZE | CABLE/WIRE DESCRIPTION |
|---|---|---|---|
| | ABL-E | 2" | 3 #3/0 (P), 1 #6 (G) |
| | AD-AC2-P | 3/4" | 3 #8 (P), 1 #8 (G) |
| | AD-CH-COMA | 3" | 1 FIBER OPTIC CABLE (COM) |
| | AD-CH-COMB | 3" | 1 FIBER OPTIC CABLE (COM) |
| 6 | AD-CH-EC2 | 3" | EMPTY |
| | AD-MSBWP2-P | 1-1/2" | 3 #1/0 (P), 1 #6 (G) |
| | AD-PP1-F1 | 2-1/2" | 3 250 KCMIL (P), 1 #4 (G) |
| | AD-SWGR6L-F1 | 4" | 3 #2/0 5kV RATED SHIELDED CABLE (P) |
| | AD-SWGR6R-F1 | 4" | 3 #2/0 5kV RATED SHIELDED CABLE (P) |
| | BWP-1 | 1" | 3 #10 (P), 1 #10 (G) |
| 3 | BWV-A | 4" | 3 #14 15-CONDUCTOR SHIELDED CABLE (C) |
| 4 | BWV-A/RCCB | 4" | 6 #14 15-CONDUCTOR SHIELDED CABLE (C) |
| | BWV-A/RPS | 4" | 11 #14 15-CONDUCTOR SHIELDED CABLE (C) |
| | CB-MCC-F1 | 3" | 3 500 KCMIL (P), 1 #1/0 (G) |
| | CEB-VV-F1 | 1" | 3 #10 (P), 1 #10 (G) |
| | CEB-VV-F2 | 1" | EMPTY |
| | CH-CP-COM | 1" | EMPTY |
| | CH-SWGR5L-F1 | 4" | 3 350 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | CH-SWGR5R-F1 | 4" | 3 350 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | CH-XFMRCB-F1 | 3" | 3 #4 5kV RATED SHIELDED CABLE (P) |
| | CH-XFMRCH-F1 | 3" | 3 #4 5kV RATED SHIELDED CABLE (P) |
| | COMP-E | 3/4" | 3 #10 (P), 1 #10 (G) |
| | COMP-N | 3/4" | 3 #10 (P), 1 #10 (G) |
| | COMP-P | 3/4" | 3 #10 (P), 1 #10 (G) |
| | CRP-E | 1" | 3 #8 (P), 1 #10 (G) |
| | CRP-N | 1" | 3 #8 (P), 1 #10 (G) |
| | CRP-P | 1" | 3 #8 (P), 1 #10 (G) |
| 7 | EMG-C1 | 3" | 2 #10 (C), 2 #10 (SP) |
| | EMG-C2 | 2" | 3 #1/0 (P), 2 #14 (C) |
| | EMG-C3 | 1-1/2" | 2 #10 (C), 2 #10 (SP) |
| | EMG-P1 | 3" | 3 350 KCMIL (P), 1 #2 (G) |
| | EMG-P2 | 3" | 3 350 KCMIL (P), 1 #2 (G) |
| | EP1-A | 2" | 3 #1/0 (P), 1 #6 (G) |
| | EP1-B | 3-1/2" | 4 500 KCMIL (P), 1 #2 (G) |
| | EP-E | 1" | 3 #8 (P), 1 #10 (G) |
| | EP-N | 1" | 3 #8 (P), 1 #10 (G) |
| | EP-P | 1" | 3 #8 (P), 1 #10 (G) |
| | F1-MCC1L | 3" | 3 500 KCMIL (P), 1 250 KCMIL (G) |
| 2 | F1-MCC1R | 3" | EMPTY |
| | F1-MCC2L | 3" | 3 500 KCMIL (P), 1 250 KCMIL (G) |
| | F1-MCC2R | 3" | EMPTY |
| | F1-SWGRCH | 3-1/2" | 3 500 KCMIL 5kV RATED SHIELDED CABLE (P), 1 250 KCMIL (G) |
| | F1-XCEB | 3-1/2" | 3 250 KCMIL 5kV RATED SHIELDED CABLE (P), 1 #2 (G) |
| | F1-XVFD1 | 3" | 3 350 KCMIL (P), 1 250 KCMIL (G) |
| | F1-XVFD2 | 3" | 3 350 KCMIL (P), 1 250 KCMIL (G) |
| | F2-MCC1L | 3" | 3 500 KCMIL (P), 1 250 KCMIL (G) |
| 2 | F2-MCC1R | 3" | EMPTY |
| | F2-MCC2L | 3" | 3 500 KCMIL (P), 1 250 KCMIL (G) |
| | F2-MCC2R | 3" | EMPTY |
| | F2-SWGRCH | 3-1/2" | 3 500 KCMIL 5kV RATED SHIELDED CABLE (P), 1 250 KCMIL (G) |
| | F2-XVFD1 | 3" | 3 350 KCMIL (P), 1 250 KCMIL (G) |
| | F2-XVFD2 | 3" | 3 350 KCMIL (P), 1 250 KCMIL (G) |
| | F3-MCC1L | 3" | EMPTY |
| 2 | F3-MCC1R | 3" | EMPTY |
| | F3-MCC2L | 3" | EMPTY |
| | F3-MCC2R | 3" | EMPTY |
| | F3-XVFD1 | 3" | EMPTY |

## CONDUIT/WIRE SCHEDULE

| | CONDUIT TAG | SIZE | CABLE/WIRE DESCRIPTION |
|---|---|---|---|
| 2 | F3-XVFD2 | 3" | EMPTY |
| | FHA-F | 2" | 4 #1/0 (P), 1 #6 (G) |
| | FHB-F | 2-1/2" | 4 #4/0 (P), 1 #2 (G) |
| | FHC-F | 2-1/2" | 4 #4/0 (P), 1 #2 (G) |
| | FL-E | 1-1/4" | 3 #4 (P), 1 #8 (G) |
| | FL-N | 1-1/4" | 3 #4 (P), 1 #8 (G) |
| | FL-P | 1-1/4" | 3 #4 (P), 1 #8 (G) |
| | GATE-E | 3/4" | 3 #10 (P), 1 #10 (G) |
| | GATE-N/P | 3/4" | 6 #10 (P), 2 #10 (G) |
| 2 | GATE-P | 3/4" | 3 #10 (P), 1 #10 (G) |
| | HSPS-MCC3-C | 3" | 4 #8 (C) |
| | HSPS-MCC3L-F1 | 4" | 3 500 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | HSPS-MCC3L-F2 | 4" | 3 500 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | HSPS-MCC3L-F3 | 4" | 3 500 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | HSPS-MCC3R-F1 | 4" | 3 500 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | HSPS-MCC3R-F2 | 4" | 3 500 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | HSPS-MCC3R-F3 | 4" | 3 500 KCMIL 5kV RATED SHIELDED CABLE (P) |
| 1 | LABA-E | 2" | 3 #4/0 (P) |
| | LABA-N | 2" | 3 #4/0 (P) |
| | LABA-P1 | 2" | 3 #4/0 (P) |
| | LABA-P2 | 2" | 3 #4/0 (P) |
| | LPA-E | 1-1/2" | 3 #1/0 (P) |
| | LPA-N | 1-1/2" | 3 #1/0 (P) |
| | LPA-P1 | 1-1/2" | 3 #1/0 (P) |
| | LPA-P2 | 1-1/2" | 3 #1/0 (P) |
| | LPB-E | 2" | 3 #4/0 (P) |
| | LPB-N | 2" | 3 #4/0 (P) |
| | LPB-P1 | 2" | 3 #4/0 (P) |
| | LPB-P2 | 2" | 3 #4/0 (P) |
| | LPD-E | 1-1/2" | 3 #1/0 (P) |
| | LPD-N | 1-1/2" | 3 #1/0 (P) |
| | LPD-P | 1-1/2" | 3 #1/0 (P) |
| | LS31-F1 | 4" | 3 500 KCMIL 15kV RATED SHIELDED CABLE (P) |
| 5 | LS32-F1 | 4" | 3 500 KCMIL 15kV RATED SHIELDED CABLE (P) |
| | LS5-F1 | 4" | 3 500 KCMIL 15kV RATED SHIELDED CABLE (P) |
| | LSPS-F1-MCC1L | 4" | 3 500 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | LSPS-F1-MCC1R | 4" | 3 500 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | LSPS-F2-MCC1L | 4" | 3 500 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | LSPS-F2-MCC1R | 4" | 3 500 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | LSPS-F3-MCC1L | 4" | EMPTY |
| 2 | LSPS-F3-MCC1R | 4" | EMPTY |
| | LSPS-F4-MCC1L | 4" | EMPTY |
| | LSPS-F4-MCC1R | 4" | EMPTY |
| | LSPS-F5-MCC1L | 4" | EMPTY |
| | LSPS-F5-MCC1R | 4" | EMPTY |
| | LSPS-F6-MCC1L | 4" | EMPTY |
| | LSPS-F6-MCC1R | 4" | EMPTY |
| | LSPS-MCC1L-F1 | 4" | 3 500 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | LSPS-MCC1L-F2 | 4" | 3 500 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | LSPS-MCC1R-F1 | 4" | 3 500 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | LSPS-MCC1R-F2 | 4" | 3 500 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | MCC1L-G | 1-1/4" | EMPTY |
| | MCC1R-G | 1-1/4" | EMPTY |
| | MCC2L-G | 1-1/4" | EMPTY |
| | MCC2R-G | 1-1/4" | EMPTY |
| | MCCVFL-G | 1-1/4" | EMPTY |
| | MCCVFR-G | 1-1/4" | EMPTY |

## CONDUIT/WIRE SCHEDULE

| | CONDUIT TAG | SIZE | CABLE/WIRE DESCRIPTION |
|---|---|---|---|
| | MCPA-G | 1-1/4" | EMPTY |
| | MCPB-G | 1-1/4" | EMPTY |
| | MCPC-G | 1-1/4" | EMPTY |
| | MSPS-MCC1L-F1 | 4" | 3 350 KCMIL 5kV RATED SHIELDED CABLE (P) |
| 1 | MSPS-MCC1L-F2 | 4" | 3 350 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | MSPS-MCC1R-F1 | 3" | 3 350 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | MSPS-MCC1R-F2 | 3" | 3 350 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | PC2-E1 | 3" | 3 #2 5kV RATED SHIELDED CABLE (P) |
| | PC2-E2 | 3" | 3 #2 5kV RATED SHIELDED CABLE (P) |
| | PC3-E1 | 3" | 3 #2 5kV RATED SHIELDED CABLE (P) |
| | PC3-E2 | 3" | 3 #2 5kV RATED SHIELDED CABLE (P) |
| | PGC-LPB-P | 3/4" | 3 #10 (P), 1 #10 (G) |
| 4 | RCCB | 3" | 3 #14 15-CONDUCTOR SHIELDED CABLE (C) |
| | RPS2-F1 | 3" | 3 250 KCMIL (P), 1 #2 (G) |
| | RPS2-F2 | 3" | 3 250 KCMIL (P), 1 #2 (G) |
| | SD-1A-1 | 3" | 3 250 KCMIL (P), 1 #2 (G) |
| | SD-1A-2 | 3" | 3 250 KCMIL (P), 1 #2 (G) |
| | SD-1A-3 | 3" | 3 250 KCMIL (P), 1 #2 (G) |
| | SD-1A-4 | 3" | 3 250 KCMIL (P), 1 #2 (G) |
| | SD-1A-5 | 3" | EMPTY |
| | SD-1A-6 | 3" | EMPTY |
| | SHOP-MCC-F1 | 3" | 3 500 KCMIL (P), 1 #1/0 (G) |
| | TB-SWBD1L-F1 | 4" | 4 500 KCMIL (P) |
| | TB-SWBD1L-F2 | 4" | 4 500 KCMIL (P) |
| | TB-SWBD1L-F3 | 4" | 4 500 KCMIL (P) |
| | TB-SWBD1L-F4 | 4" | 4 500 KCMIL (P) |
| | TB-SWBD1L-F5 | 4" | 4 500 KCMIL (P) |
| | TB-SWBD1L-F6 | 4" | 4 500 KCMIL (P) |
| | TB-SWBD1L-F7 | 4" | 4 500 KCMIL (P) |
| | TB-SWBD1L-F8 | 4" | 4 500 KCMIL (P) |
| | TB-SWBD1R-F1 | 4" | 4 500 KCMIL (P) |
| | TB-SWBD1R-F2 | 4" | 4 500 KCMIL (P) |
| | TB-SWBD1R-F3 | 4" | 4 500 KCMIL (P) |
| | TB-SWBD1R-F4 | 4" | 4 500 KCMIL (P) |
| | TB-SWBD1R-F5 | 4" | 4 500 KCMIL (P) |
| | TB-SWBD1R-F6 | 4" | 4 500 KCMIL (P) |
| | TB-SWBD1R-F7 | 4" | 4 500 KCMIL (P) |
| | TB-SWBD1R-F8 | 4" | 4 500 KCMIL (P) |
| | TRNG1L-F1 | 5" | 3 250 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | TRNG1R-F1 | 5" | 3 250 KCMIL 5kV RATED SHIELDED CABLE (P) |
| | TRNG-ATS1-EF | 2" | 3 #4/0 (P), 1 #2 (G) |
| | TRNG-ATS1-NF1 | 3" | 3 350 KCMIL (P), 1 #2/0 (G) |
| | TRNG-ATS1-NF2 | 3" | 3 350 KCMIL (P), 1 #2/0 (G) |
| | TRNG-ATS1-NF3 | 3" | 3 350 KCMIL (P), 1 #2/0 (G) |
| 5 | TRNG-PP1-F1 | 2-1/2" | 3 250 KCMIL (P), 1 #4 (G) |
| | WA4-F1 | 5" | 3 EXISTING 15kV CABLE(S) (P) |
| | XFMRCP-IG | 1-1/4" | EMPTY |
| | XFMRVFD1-G | 1-1/4" | EMPTY |
| | XFMRVFD2-G | 1-1/4" | EMPTY |

### KEY NOTES:

1. CABLES/CONDUITS TO BE DEMOLISHED BY OTHERS.
2. DISCONNECT AND REMOVE CONTENTS OF CONDUIT IN ITS ENTIRETY. SEGMENTS OF CONDUIT TO BE DEMOLISHED, REFER TO PLAN DRAWINGS FOR ADDITIONAL INFORMATION. SEGMENTS OF CONDUIT THAT ARE NOT DEMOLISHED TO BE RE-USED DURING RENOVATION ACTIVITIES.
3. PULL CABLE/WIRE OUT OF CONDUIT, TAKE CARE NOT TO DAMAGE CABLE/WIRE. CONDUIT TO BE DEMOLISHED. REFER TO PLANS FOR ADDITIONAL INFORMATION.

### KEY NOTES (CONTINUED):

4. THE THREE SETS OF MULTI-CONDUCOTR CABLE/WIRE ASSOCIATED WITH "RCCB" TO BE PARTIALLY DEMOLISHED, TAKE CARE NOT TO DAMAGE REMAINING CABLE/WIRE. REFER TO PLANS FOR ADDITIONAL INFORMATION.
5. CABLES TO BE DEMOLISHED BY AUSTIN ENERGY. COORDINATE DEMOLITION ACTIVITIES WITH AUSTIN ENERGY.
6. CONDUIT SHALL REMAIN AND BE REUSED DURING RENOVATION. CONDUIT RETAGGED "AD-SUB1-SEC/TEL" ON RENOVATION DRAWINGS.
7. DISCONNECT AND REMOVE PORTION OF CONDUIT/WIRE AS INDICATED ON PLANS.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.


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K. A. HARUTUNIAN
STATE OF TEXAS
59181
REGISTERED
PROFESSIONAL ENGINEER
5/1/2016


HARUTUNIAN ENGINEERING INCORPORATED
TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | HSPS FEEDERS |

DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

CONDUIT/WIRE SCHEDULE
DEMOLITION

PROJECT NO: 2009-800 | SHT. 17 OF 854 | DWG NO. G-E-009

ADDENDUM NO. 1

## CONDUIT/WIRE SCHEDULE

| CONDUIT TAG | SIZE | CABLE/WIRE DESCRIPTION |
|---|---|---|
| COM-24/25-A1 | 5" | EMPTY |
| COM-24/25-A2 | 5" | EMPTY |
| COM-24/25-A3 | 5" | EMPTY |
| COM-24/25-A4 | 5" | EMPTY |
| COM-24/25-B1 | 5" | EMPTY |
| COM-24/25-B2 | 5" | EMPTY |
| COM-24/25-B3 | 5" | EMPTY |
| COM-24/25-B4 | 5" | EMPTY |
| COM-24/AD-A1 | 5" | EMPTY |
| COM-24/AD-A2 | 5" | EMPTY |
| COM-24/AD-B1 | 5" | EMPTY |
| COM-24/AD-B2 | 5" | EMPTY |
| COM-24/AD-B3 | 5" | EMPTY |
| COM-25/26-A1 | 5" | EMPTY |
| COM-25/26-A2 | 5" | EMPTY |
| COM-25/26-A3 | 5" | EMPTY |
| COM-25/26-A4 | 5" | EMPTY |
| COM-25/26-B1 | 5" | EMPTY |
| COM-25/26-B2 | 5" | EMPTY |
| COM-25/26-B3 | 5" | EMPTY |
| COM-25/26-B4 | 5" | EMPTY |
| COM-26/27-A1 | 5" | EMPTY |
| COM-26/27-A2 | 5" | EMPTY |
| COM-26/27-A3 | 5" | EMPTY |
| COM-26/27-A4 | 5" | EMPTY |
| COM-26/27-B1 | 5" | EMPTY |
| COM-26/27-B2 | 5" | EMPTY |
| COM-26/27-B3 | 5" | EMPTY |
| COM-26/27-B4 | 5" | EMPTY |
| COM-27/28-A1 | 5" | EMPTY |
| COM-27/28-A2 | 5" | EMPTY |
| COM-27/28-A3 | 5" | EMPTY |
| COM-27/28-A4 | 5" | EMPTY |
| COM-27/28-B1 | 5" | EMPTY |
| COM-27/28-B2 | 5" | EMPTY |
| COM-27/28-B3 | 5" | EMPTY |
| COM-27/28-B4 | 5" | EMPTY |
| COM-28/29-A1 | 5" | EMPTY |
| COM-28/29-A2 | 5" | EMPTY |
| COM-28/29-A3 | 5" | EMPTY |
| COM-28/29-A4 | 5" | EMPTY |
| COM-28/29-B1 | 5" | EMPTY |
| COM-28/29-B2 | 5" | EMPTY |
| COM-28/29-B3 | 5" | EMPTY |
| COM-28/29-B4 | 5" | EMPTY |
| COM-29/30-A1 | 5" | EMPTY |
| COM-29/30-A2 | 5" | EMPTY |
| COM-29/30-A3 | 5" | EMPTY |
| COM-29/30-B1 | 5" | EMPTY |
| COM-29/30-B2 | 5" | EMPTY |
| COM-29/30-B3 | 5" | EMPTY |
| COM-MSPS/SUB1-A1 | 5" | EMPTY |
| COM-MSPS/SUB1-A2 | 5" | EMPTY |
| COM-MSPS/SUB1-B1 | 5" | EMPTY |
| COM-MSPS/SUB1-B2 | 5" | EMPTY |
| COM-SUB1/20-A1 | 5" | EMPTY |
| COM-SUB1/20-A2 | 5" | EMPTY |
| COM-SUB1/20-A3 | 5" | EMPTY |

## CONDUIT/WIRE SCHEDULE

| CONDUIT TAG | SIZE | CABLE/WIRE DESCRIPTION |
|---|---|---|
| COM-SUB1/20-B1 | 5" | EMPTY |
| COM-SUB1/20-B2 | 5" | EMPTY |
| COM-SUB1/20-B3 | 5" | EMPTY |
| COM-SUB1/24-A1 | 5" | EMPTY |
| COM-SUB1/24-A2 | 5" | EMPTY |
| COM-SUB1/24-B1 | 5" | EMPTY |
| COM-SUB1/24-B2 | 5" | EMPTY |
| COM-SUB1/24-B3 | 5" | EMPTY |
| EMG-C1 | 3/4" | 2 #10 (P), 2 #10 (SP) |
| EMG-P1 | 2-1/2" | 3 350 kCMIL (P), 1 #2 (G) |
| EMG-P2 | 2-1/2" | 3 350 kCMIL (P), 1 #2 (G) |
| F1-MCC1L | 3" | 3 500 kCMIL (P), 1 250 kCMIL (G) |
| F1-MCC1R | 3" | 3 500 kCMIL (P), 1 250 kCMIL (G) |
| F1-MCC2L | 3" | 3 500 kCMIL (P), 1 250 kCMIL (G) |
| F1-MCC2R | 3" | 3 500 kCMIL (P), 1 250 kCMIL (G) |
| F1-XVFD1 | 3" | 3 350 kCMIL (P), 1 250 kCMIL (G) |
| F1-XVFD2 | 3" | 3 350 kCMIL (P), 1 250 kCMIL (G) |
| F2-MCC1L | 3" | 3 500 kCMIL (P), 1 250 kCMIL (G) |
| F2-MCC1R | 3" | 3 500 kCMIL (P), 1 250 kCMIL (G) |
| F2-MCC2L | 3" | 3 500 kCMIL (P), 1 250 kCMIL (G) |
| F2-MCC2R | 3" | 3 500 kCMIL (P), 1 250 kCMIL (G) |
| F2-XVFD1 | 3" | 3 350 kCMIL (P), 1 250 kCMIL (G) |
| F2-XVFD2 | 3" | 3 350 kCMIL (P), 1 250 kCMIL (G) |
| F3-MCC1L | 3" | 3 500 kCMIL (P), 1 250 kCMIL (G) |
| F3-MCC1R | 3" | 3 500 kCMIL (P), 1 250 kCMIL (G) |
| F3-MCC2L | 3" | 3 500 kCMIL (P), 1 250 kCMIL (G) |
| F3-MCC2R | 3" | 3 500 kCMIL (P), 1 250 kCMIL (G) |
| F3-XVFD1 | 3" | EMPTY |
| F3-XVFD2 | 3" | EMPTY |
| HSPS-MCC3-C | 3" | 2 #10 4-CONDUCTOR (C) W/1#10 (G) CABLE |
| HSPS-MCC3-C1 | 3" | 1 #10 4-CONDUCTOR (C) W/1#10 (G) CABLE |
| HSPS-MCC3-C2 | 4" | 1 #10 4-CONDUCTOR (C) W/1#10 (G) CABLE |
| HSPS-MCC3L-F1 | 4" | 3 500 kCMIL 5kV RATED SHIELDED CABLE (P), 1 250 kCMIL (G) |
| HSPS-MCC3L-F2 | 4" | 3 500 kCMIL 5kV RATED SHIELDED CABLE (P), 1 250 kCMIL (G) |
| HSPS-MCC3L-F3 | 4" | 3 500 kCMIL 5kV RATED SHIELDED CABLE (P), 1 250 kCMIL (G) |
| HSPS-MCC3R-F1 | 4" | 3 500 kCMIL 5kV RATED SHIELDED CABLE (P), 1 250 kCMIL (G) |
| HSPS-MCC3R-F2 | 4" | 3 500 kCMIL 5kV RATED SHIELDED CABLE (P), 1 250 kCMIL (G) |
| HSPS-MCC3R-F3 | 4" | 3 500 kCMIL 5kV RATED SHIELDED CABLE (P), 1 250 kCMIL (G) |
| LSPS-F1-MCC1L | 5" | 3 500 kCMIL 5kV RATED SHIELDED CABLE (P), 1 250 kCMIL (G) |
| LSPS-F1-MCC1R | 5" | 3 500 kCMIL 5kV RATED SHIELDED CABLE (P), 1 250 kCMIL (G) |
| LSPS-F2-MCC1L | 5" | 3 500 kCMIL 5kV RATED SHIELDED CABLE (P), 1 250 kCMIL (G) |
| LSPS-F2-MCC1R | 5" | 3 500 kCMIL 5kV RATED SHIELDED CABLE (P), 1 250 kCMIL (G) |
| LSPS-F3-MCC1L | 5" | 3 500 kCMIL 5kV RATED SHIELDED CABLE (P), 1 250 kCMIL (G) |
| LSPS-F3-MCC1R | 5" | 3 500 kCMIL 5kV RATED SHIELDED CABLE (P), 1 250 kCMIL (G) |
| LSPS-F4-MCC1L | 5" | EMPTY |
| LSPS-F4-MCC1R | 5" | EMPTY |
| LSPS-F5-MCC1L | 5" | EMPTY |
| LSPS-F5-MCC1R | 5" | EMPTY |
| LSPS-F6-MCC1L | 5" | EMPTY |
| LSPS-F6-MCC1R | 5" | EMPTY |
| LSPS-XFMR1A-G1 | 1-1/2" | 1 250 kCMIL (G) |
| LSPS-XFMR1A-G2 | 1-1/2" | 1 250 kCMIL (G) |
| LSPS-XFMR1A-SP | 1-1/2" | EMPTY |
| LSPS-XFMR1B-G1 | 1-1/2" | 1 250 kCMIL (G) |
| LSPS-XFMR1B-G2 | 1-1/2" | 1 250 kCMIL (G) |
| LSPS-XFMR1B-SP | 1-1/2" | EMPTY |

### KEY NOTES:

1. EXISTING CONDUIT IS EXTENDED TO PROPOSED EQUIPMENT. REFER TO PLAN/ONE LINE DRAWINGS FOR ADDITIONAL INFORMATION.
2. FURNISH AND INSTALL PROPOSED CABLE/WIRE IN EXISTING CONDUIT.
3. PORTION OF THE CABLE/WIRE IS PROPOSED AND THE REMAINDER IS EXISTING. EXISTING FEEDER CABLE/WIRE WAS PULLED BACK TO MANHOLE "MH-7" DURING DEMOLITION ACTIVITIES, REFER TO DRAWING NO. [SUBO-E-006]. CUT EXISTING CABLE/WIRE IN MANHOLE "MH-7". FURNISH, INSTALL, AND TERMINATE PROPOSED CABLE/WIRE FROM PROPOSED SWITCHGEAR "Y-SWGR-01B" TO MANHOLE "MH-7" AND SPLICE TO EXISTING CABLE/WIRE IN MANHOLE "MH-7".
4. PORTION OF THE CABLE/WIRE IS PROPOSED AND THE REMAINDER IS EXISTING. EXISTING FEEDER CABLE/WIRE WAS PULLED BACK TO MANHOLE "MH-8" DURING DEMOLITION ACTIVITIES, REFER TO DRAWING NO. [SUBO-E-006]. CUT EXISTING CABLE/WIRE IN MANHOLE "MH-8". FURNISH, INSTALL, AND TERMINATE PROPOSED CABLE/WIRE FROM PROPOSED SWITCHGEAR "Y-SWGR-01A" TO MANHOLE "MH-8" AND SPLICE TO EXISTING CABLE/WIRE IN MANHOLE "MH-8".

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.


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K. A. HARUTUNIAN 59181 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS
5/1/2016


HARUTUNIAN ENGINEERING INCORPORATED
TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | HSPS FEEDERS |

DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

CONDUIT/WIRE SCHEDULE
PROPOSED (SHEET 2 OF 4)

PROJECT NO: 2009-800 | SHT. 20 OF 854 | DWG NO. G-E-012

ADDENDUM NO. 1

## CONDUIT/WIRE SCHEDULE

| CONDUIT TAG | SIZE | CABLE/WIRE DESCRIPTION |
|---|---|---|
| MCC1L-G | 1-1/4" | 1 250 KCMIL (G) |
| MCC1R-G | 1-1/4" | 1 250 KCMIL (G) |
| MCC2L-G | 1-1/4" | 1 250 KCMIL (G) |
| MCC2R-G | 1-1/4" | 1 250 KCMIL (G) |
| MCCVFL-G | 1-1/4" | 1 250 KCMIL (G) |
| MCCVFR-G | 1-1/4" | 1 250 KCMIL (G) |
| MCPA-G | 1-1/4" | 1 250 KCMIL (G) |
| MCPB-G | 1-1/4" | 1 250 KCMIL (G) |
| MCPC-G | 1-1/4" | 1 250 KCMIL (G) |
| PGC-TLPB-F1 | 3" | 3 500 kCMIL (P), 1 250 kCMIL (G) |
| SHOP-MCC-F1 | 3" | 3 500 kCMIL (P), 1 250 kCMIL (G) |
| SITE-XFMR-F1 | 3/4" | 3 #10 (P), 1 #10 (G) |
| SUB1-1A07-F1 | 5" | EMPTY |
| SUB1-1A07-F2 | 5" | EMPTY |
| SUB1-1A07-F3 | 5" | EMPTY |
| SUB1-1A07-F4 | 5" | EMPTY |
| SUB1-1A08-F1 | 5" | 3 #2 15kV RATED SHIELDED CABLE (P), 1 #6 (G) |
| SUB1-1A08-F2 | 5" | EMPTY |
| SUB1-1A09-F1 | 5" | 3 #4/0 15kV RATED SHIELDED CABLE (P), 1 #1 (G) |
| SUB1-1A09-F2 | 5" | 3 #4/0 15kV RATED SHIELDED CABLE (P), 1 #1 (G) |
| SUB1-1A09-F3 | 5" | EMPTY |
| SUB1-1A09-F4 | 5" | EMPTY |
| SUB1-1A13-F1 | 5" | 3 #2 15kV RATED SHIELDED CABLE (P), 1 #6 (G) |
| SUB1-1A13-F2 | 5" | EMPTY |
| SUB1-1A14-F1 | 5" | 3 #2 15kV RATED SHIELDED CABLE (P), 1 #6 (G) |
| SUB1-1A14-F2 | 5" | EMPTY |
| SUB1-1A15-F1 | 5" | 3 #4/0 15kV RATED SHIELDED CABLE (P), 1 #1 (G) |
| SUB1-1A15-F2 | 5" | 3 #4/0 15kV RATED SHIELDED CABLE (P), 1 #1 (G) |
| SUB1-1A15-F3 | 5" | EMPTY |
| SUB1-1A15-F4 | 5" | EMPTY |
| SUB1-1B07-F1 | 5" | EMPTY |
| SUB1-1B07-F2 | 5" | EMPTY |
| SUB1-1B07-F3 | 5" | EMPTY |
| SUB1-1B07-F4 | 5" | EMPTY |
| SUB1-1B08-F1 | 5" | 3 #2 15kV RATED SHIELDED CABLE (P), 1 #6 (G) |
| SUB1-1B08-F2 | 5" | EMPTY |
| SUB1-1B09-F1 | 5" | 3 #4/0 15kV RATED SHIELDED CABLE (P), 1 #1 (G) |
| SUB1-1B09-F2 | 5" | 3 #4/0 15kV RATED SHIELDED CABLE (P), 1 #1 (G) |
| SUB1-1B09-F3 | 5" | EMPTY |
| SUB1-1B09-F4 | 5" | EMPTY |
| SUB1-1B13-F1 | 5" | 3 #2 15kV RATED SHIELDED CABLE (P), 1 #6 (G) |
| SUB1-1B13-F2 | 5" | EMPTY |
| SUB1-1B14-F1 | 5" | 3 #2 15kV RATED SHIELDED CABLE (P), 1 #6 (G) |
| SUB1-1B14-F2 | 5" | EMPTY |
| SUB1-1B15-F1 | 5" | 3 #4/0 15kV RATED SHIELDED CABLE (P), 1 #1 (G) |
| SUB1-1B15-F2 | 5" | 3 #4/0 15kV RATED SHIELDED CABLE (P), 1 #1 (G) |
| SUB1-1B15-F3 | 5" | EMPTY |
| SUB1-1B15-F4 | 5" | EMPTY |
| SUB1-AE1000-I | 1" | 1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (I),<br>1 #16 3-CONDUCTOR TWISTED SHIELDED CABLE (I) |
| SUB1-AHU1/2-C | 1" | 6 #12 (C), 6 #12 (SP), 3 #12 (G) |
| SUB1-AHU1-P | 3/4" | 3 #10 (P), 1 #10 (G) |
| SUB1-AHU2-P | 3/4" | 3 #10 (P), 1 #10 (G) |
| SUB1-AIT1000-C | 3/4" | 4 #12 (C), 4 #12 (SP), 1 #12 (G) |
| SUB1-AIT1000-P | 3/4" | 1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (P),<br>1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (I) |

## CONDUIT/WIRE SCHEDULE

| CONDUIT TAG | SIZE | CABLE/WIRE DESCRIPTION |
|---|---|---|
| SUB1-AS-1 | 5" | EMPTY |
| SUB1-AS-10 | 5" | EMPTY |
| SUB1-AS-2 | 5" | EMPTY |
| SUB1-AS-3 | 5" | 3 #4/0 15kV RATED SHIELDED CABLE (P), 1 #1 (G) |
| SUB1-AS-4 | 5" | EMPTY |
| SUB1-AS-5 | 5" | EMPTY |
| SUB1-AS-6 | 5" | EMPTY |
| SUB1-AS-7 | 5" | EMPTY |
| SUB1-AS-8 | 5" | 3 #2 15kV RATED SHIELDED CABLE (P), 1 #6 (G) |
| SUB1-AS-9 | 5" | EMPTY |
| SUB1-ATS1-C | 3/4" | 4 #12 (C), 1 #12 (G), 2 #12 (SP) |
| SUB1-ATS1-EF1 | 2" | 3 #4/0 (P), 1 #1 (G) |
| SUB1-ATS1-EF2 | 2" | 3 #4/0 (P), 1 #1 (G) |
| SUB1-ATS1-NF1 | 2" | 3 #4/0 (P), 1 #1 (G) |
| SUB1-ATS1-NF2 | 2" | 3 #4/0 (P), 1 #1 (G) |
| SUB1-ATS2-C | 3/4" | 4 #12 (C), 1 #12 (G), 2 #12 (SP) |
| SUB1-ATS2-EF1 | 1-1/4" | 3 #2 (P), 1 #6 (G) |
| SUB1-ATS2-NF1 | 1-1/4" | 3 #2 (P), 1 #6 (G) |
| SUB1-BAT1A-C | 3/4" | 1 VENDOR CABLE (C), 1 #12 (G) |
| SUB1-BAT1A-G | 1-1/2" | 1 250 kCMIL (G) |
| SUB1-BAT1B-C | 3/4" | 1 VENDOR CABLE (C), 1 #12 (G) |
| SUB1-BAT1B-G | 1-1/2" | 1 250 kCMIL (G) |
| SUB1-BAT1-P1 | 3" | 2 500 kCMIL (P), 1 250 kCMIL (G) |
| SUB1-BAT1-P2 | 3" | 2 500 kCMIL (P), 1 250 kCMIL (G) |
| SUB1-BAT1-P3 | 3" | 2 500 kCMIL (P), 1 250 kCMIL (G) |
| SUB1-BC1-C | 1" | 12 #12 (C), 1 #12 (G), 4 #12 (SP) |
| SUB1-BC1-P | 3/4" | 3 #8 (P), 1 #10 (G) |
| SUB1-BC2-C | 1" | 12 #12 (C), 1 #12 (G), 4 #12 (SP) |
| SUB1-BC2-P | 3/4" | 3 #8 (P), 1 #10 (G) |
| SUB1-BC-C | 3/4" | 1 VENDOR CABLE (C) |
| SUB1-BKRATS1E-C | 3/4" | 4 #12 (C), 2 #12 (P), 1 #10 (G) |
| SUB1-BKRATS1E-F1 | 2" | 3 #4/0 (P), 1 #1 (G) |
| SUB1-BKRATS1E-F2 | 2" | 3 #4/0 (P), 1 #1 (G) |
| SUB1-BKRATS1N-C | 3/4" | 4 #12 (C), 2 #12 (P), 1 #10 (G) |
| SUB1-BKRATS1N-F1 | 2" | 3 #4/0 (P), 1 #1 (G) |
| SUB1-BKRATS1N-F2 | 2" | 3 #4/0 (P), 1 #1 (G) |
| SUB1-BM1-C1 | 3/4" | 4 #12 (C), 1 #12 (G), 2 #12 (SP) |
| SUB1-BM1-C2A | 1" | 4 VENDOR CABLE (C) |
| SUB1-BM1-C2B | 1" | 4 VENDOR CABLE (C) |
| SUB1-BM1-COM | 3/4" | 1 COPPER ETHERNET CABLE (COM) |
| SUB1-BS-1 | 5" | EMPTY |
| SUB1-BS-10 | 5" | EMPTY |
| SUB1-BS-2 | 5" | EMPTY |
| SUB1-BS-3 | 5" | 3 #4/0 15kV RATED SHIELDED CABLE (P), 1 #1 (G) |
| SUB1-BS-4 | 5" | EMPTY |
| SUB1-BS-5 | 5" | EMPTY |
| SUB1-BS-6 | 5" | EMPTY |
| SUB1-BS-7 | 5" | EMPTY |
| SUB1-BS-8 | 5" | EMPTY |
| SUB1-BS-9 | 5" | EMPTY |
| SUB1-BTA-G | 1-1/2" | 1 250 kCMIL (G) |
| SUB1-CPSEC-P | 3/4" | EMPTY |
| SUB1-CPT1A-G | 1-1/2" | 1 250 kCMIL (G) |
| SUB1-CPT1B-G | 1-1/2" | 1 250 kCMIL (G) |
| SUB1-CU1-P | 1-1/4" | 3 #4 (P), 1 #6 (G) |
| SUB1-CU2-P | 1-1/4" | 3 #4 (P), 1 #6 (G) |

## CONDUIT/WIRE SCHEDULE

| CONDUIT TAG | SIZE | CABLE/WIRE DESCRIPTION |
|---|---|---|
| Y-FAS1 | 3" | EMPTY |
| Y-FAS2 | 3" | EMPTY |

### KEY NOTES:

1. EXISTING CONDUIT IS EXTENDED TO PROPOSED EQUIPMENT. REFER TO PLAN/ONE LINE DRAWINGS FOR ADDITIONAL INFORMATION.
2. FURNISH AND INSTALL PROPOSED CABLE/WIRE IN EXISTING CONDUIT.
3. FEEDER IS USED TO SERVE TEMPORARILY RELOCATED TRANSFORMER "TB-XFMR-2" IN THE CHEMICAL AREA. FEEDER SHALL BE DISCONNECTED AND REMOVED ONCE FINAL DISTRIBUTION SYSTEM IS IN PLACE. REFER TO DRAWINGS [SEQ-E-029], [SEQ-E-030] AND [SEQ-E-084] FOR ADDITIONAL INFORMATION.
4. FEEDER IS USED TO SERVE TEMPORARILY TRANSFORMER "T1" IN THE EXISTING SUBSTATION. FEEDER SHALL BE DISCONNECTED AND REMOVED ONCE FINAL DISTRIBUTION SYSTEM IS IN PLACE. REFER TO DRAWINGS [SEQ-E-010], [SEQ-E-054], [SEQ-E-068] AND [SEQ-E-092] FOR ADDITIONAL INFORMATION.
5. FEEDER IS USED TO SERVE TEMPORARILY TRANSFORMER "T2" IN THE EXISTING SUBSTATION. FEEDER SHALL BE DISCONNECTED AND REMOVED ONCE FINAL DISTRIBUTION SYSTEM IS IN PLACE. REFER TO DRAWINGS [SEQ-E-007], [SEQ-E-063], [SEQ-E-066] AND [SEQ-E-096] FOR ADDITIONAL INFORMATION.
6. EMPTY CONDUIT DEDICATED FOR TELEPHONE CABLE/WIRE. COORDINATE WITH OWNER.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.


**REUSE OF DOCUMENTS**

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K. A. HARUTUNIAN 59181 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS 5/1/2016


HARUTUNIAN ENGINEERING INCORPORATED
TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | FIRE ALARM SYSTEM, SUB0 TEMP FEEDERS |

DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

CONDUIT/WIRE SCHEDULE
PROPOSED (SHEET 3 OF 4)

PROJECT NO: 2009-800 | SHT. 21 OF 854 | DWG NO. G-E-013

ADDENDUM NO. 1

3.9. STEP 9 FURNISH AND INSTALL REMAINING PROPOSED FEEDERS TO THIRD FLOOR CH ELECTRICAL:

3.9.1. COORDINATE POWER OUTAGE WITH OWNER. OPEN MAIN CIRCUIT BREAKER IN "CH-VFD-002", CLOSE TIE CIRCUIT BREAKER IN "CH-MCC-VFL", AND OPEN CIRCUIT BREAKER IN "CH-SWBD-TEMP" SERVING "CH-XFMR-VFD2". DISCONNECT TEMPORARY CABLE/WIRE TO "CH-XFMR-VFD2" FROM "CH-SWBD-TEMP". PULL BACK CABLE/WIRE INTO EXISTING PULL BOX "CH-PBOX-SP1", LEAVE ADEQUATE LENGTH OF CABLE/WIRE TO RE-PULL INTO "CH-SWBD-01B". DEMOLISH TEMPORARY CONDUIT FROM ABOVE LIME SLAG CONVEYOR AREA TO "CH-SWBD-TEMP" THAT WERE USED TO SERVE "CH-XFMR-VFD2". EXTEND PROPOSED CONDUIT FROM LIME SLAG CONVEYOR AREA TO PROPOSED "CH-SWBD-01B". PULL CABLE/WIRE FROM "CH-PBOX-SP1" TO "CH-SWBD-01B" AND TERMINATE. OPEN TIE CIRCUIT BREAKER IN "CH-MCC-VFR" AND CLOSE CIRCUIT BREAKER IN "CH-VFD-002"; THUS ENERGIZING "CH-MCC-VFR" FROM THE PROPOSED POWER DISTRIBUTION SYSTEM.

3.9.2. COORDINATE POWER OUTAGE WITH OWNER. OPEN MAIN CIRCUIT BREAKER IN "CH-MCC-2R", CLOSE MAIN CIRCUIT BREAKER IN "CH-MCC-2L", AND CLOSE TIE CIRCUIT BREAKER IN "CH-MCC-2R". OPEN CIRCUIT BREAKER IN "CH-SWBD-TEMP" SERVING "CH-MCC-2R". DISCONNECT AND REMOVE TEMPORARY CONDUIT/CABLE IN ITS ENTIRETY. EXTEND PROPOSED CONDUIT FROM LIME SLAG CONVEYOR AREA TO PROPOSED "CH-SWBD-01B". FURNISH AND INSTALL CABLE/WIRE BETWEEN "CH-SWBD-01B" AND "CH-MCC-2R". OPEN TIE CIRCUIT BREAKER IN "CH-MCC-2R" AND CLOSE THE MAIN BREAKER IN "CH-MCC-2R"; THUS ENERGIZING "CH-MCC-2R" FROM THE PROPOSED POWER DISTRIBUTION SYSTEM.

3.9.3. COORDINATE POWER OUTAGE WITH OWNER. OPEN MAIN CIRCUIT BREAKER IN "CH-MCC-1L", CLOSE TIE CIRCUIT BREAKER IN "CH-MCC-1R". EXTEND PROPOSED CONDUITS FROM LIME SLAG CONVEYOR AREA TO PROPOSED "CH-SWBD-01A". FURNISH AND INSTALL CABLE/WIRE BETWEEN "CH-SWBD-01A" AND "CH-MCC-1L". OPEN MAIN CIRCUIT BREAKER IN "CH-MCC-1R" AND CLOSE THE MAIN BREAKER IN "CH-MCC-1L"; THUS ENERGIZING "CH-MCC-1L" FROM THE PROPOSED POWER DISTRIBUTION SYSTEM.

3.9.4. COORDINATE POWER OUTAGE WITH OWNER. OPEN MAIN CIRCUIT BREAKER IN "CH-MCC-1R", CLOSE MAIN CIRCUIT BREAKER IN "CH-MCC-1L", AND CLOSE TIE CIRCUIT BREAKER IN "CH-MCC-1R". OPEN CIRCUIT BREAKER IN "CH-SWBD-TEMP" SERVING "CH-MCC-1R". DISCONNECT AND REMOVE TEMPORARY CONDUIT/CABLE IN ITS ENTIRETY. EXTEND PROPOSED CONDUIT FROM LIME SLAG CONVEYOR AREA TO PROPOSED "CH-SWBD-01B". FURNISH AND INSTALL CABLE/WIRE BETWEEN "CH-SWBD-01B" AND "CH-MCC-1R". OPEN TIE CIRCUIT BREAKER IN "CH-MCC-1R" AND CLOSE THE MAIN BREAKER IN "CH-MCC-1R"; THUS ENERGIZING "CH-MCC-1R" FROM THE PROPOSED POWER DISTRIBUTION SYSTEM.

3.10. STEP 10 DEMOLISH TEMPORARY POWER DISTRIBUTION SYSTEM

3.10.1. OPEN VACUUM CIRCUIT BREAKER "9" IN "SWGR-1".

3.10.2. DISCONNECT AND REMOVE CABLE/WIRES "CH-SWGR5L-F1" AND "CH-TBXFMR2-F1".

3.10.3. DEMOLISH TRANSFORMER "TB-XFMR-2", TEMPORARY SWITCHBOARD "CH-SWBD-TEMP", AND ALL REMAINING ASSOCIATED CONDUIT/WIRE IN ITS ENTIRETY.

3.10.4. COORDINATE WITH STRUCTURAL/CIVIL TO DEMOLISH TEMPORARY EQUIPMENT PAD CAP AND SEAL DUCT BANK.

## 4. STAGE 4 CONSTRUCTION SEQUENCE

4.0. PROVIDE SERVICE TO LOW SERVICE PUMP STATION (LSPS) FROM PROPOSED POWER DISTRIBUTION SYSTEM.

4.0.1. REFER TO PLAN DRAWING NOS. [SEQ-E-045] THROUGH [SEQ-E-052] AND [SEQ-E-090] THROUGH [SEQ-E-091].

4.0.2. THE FOLLOWING WORK EVENTS WILL BE COMPLETED:

4.1. STEP 1 DEMOLISH EXISTING SIDE "A" FEEDERS

4.1.1. OPEN VACUUM CIRCUIT BREAKER "11" IN "SWGR-1".

4.1.2. OPEN 5KV MAIN LOAD BREAK SWITCH IN "LSPS-MCC-1L", AND CLOSE 5KV TIE LOAD BREAK SWITCHES IN "LSPS-MCC-1L" AND "LSPS-MCC-1R".

4.1.3. DISCONNECT AND REMOVE 5KV FEEDERS BETWEEN "SWGR-1" AND "LSPS-MCC-1L" IN THEIR ENTIRETY.

4.2. STEP 2 INSTALL PROPOSED SIDE "A" FEEDERS FROM PROPOSED POWER DISTRIBUTION SYSTEM.

4.2.1. INVESTIGATE EXISTING AVAILABLE CONDUITS IN UNDERGROUND DUCT BANKS BETWEEN MAN HOLES "MH-1" AND "MH-3". SHOULD ANY CONDUIT BE OBSTRUCTED OR UN-USABLE CONTACT ENGINEER FOR FURTHER INSTRUCTION.

4.2.2. DEMOLISH SEGMENT OF DUCT BANK "DBP-MCCL" AS SHOWN ON PLANS [S-E-050]. HAND EXCAVATE AT LOCATION WHERE EXISTING DUCT BANK IS TO REMAIN AND BE EXTENDED TO PROPOSED TRANSFORMER "LSPS-XFMR-01A". TAKE CARE NOT TO DAMAGE EXISTING CONDUIT AND LEAVE AN ADEQUATE AMOUNT OF CONDUIT EXPOSED TO COUPLE THE PROPOSED DUCT BANK.

4.2.3. COORDINATE WITH STRUCTURAL/CIVIL FOR CONSTRUCTION OF LSPS TRANSFORMER EQUIPMENT PAD AND DUCTBANKS.

4.2.4. STUB-OUT PROPOSED DUCT BANK "DBP-LSPSXFMR1B/LSPSMCC1R" FROM BENEATH TRANSFORMER PAD UNTIL STEP 4, WHEN THE PROPOSED DUCT BANK WILL BE CONNECTED TO THE EXISTING DUCT BANK.

4.2.5. CONNECT THE PROPOSED DUCT BANK "DBP-LSPSXFMR1A/LSPSMCC1L" TO THE EXISTING DUCT BANK "DBP-MCCL".

4.2.6. FURNISH AND INSTALL 15KV CABLE/WIRE "SUB1-1A15-F1" AND "SUB1-1A15-F2". FURNISH AND INSTALL 5KV CABLE/WIRE "LSPS-F1-MCC1L", "LSPS-F2-MCC1L", AND "LSPS-F3-MCC1L".

4.2.7. CLOSE VACUUM CIRCUIT BREAKER "VCB-1A15" IN "SUB1-SWGR-01A".

4.2.8. COORDINATE POWER OUTAGE WITH OWNER. OPEN 5KV MAIN LOAD BREAK SWITCH IN "LSPS-MCC-1R", CLOSE 5KV TIE LOAD BREAK SWITCHES IN "LSPS-MCC-1L" AND "LSPS-MCC1R", AND CLOSE 5KV MAIN LOAD BREAK SWITCH IN "LSPS-MCC-1L"; THUS ENERGIZING THE LSPS FROM THE PROPOSED POWER DISTRIBUTION SYSTEM.

4.3. STEP 3 DEMOLISH EXISTING SIDE "B" FEEDERS

4.3.1. OPEN VACUUM CIRCUIT BREAKER "14" IN "SWGR-1".

4.3.2. DISCONNECT AND REMOVE 5KV FEEDERS BETWEEN "SWGR-1" AND "LSPS-MCC-1R" IN THEIR ENTIRETY.

4.3.3. DEMOLISH SEGMENT OF DUCT BANK "DBP-MCCR" AS SHOWN ON PLANS [S-E-050]. HAND EXCAVATE AT LOCATION WHERE EXISTING DUCT BANK IS TO REMAIN AND BE EXTENDED TO PROPOSED DUCT BANK "DBP-LSPSXFMR1B/LSPSMCC1R". TAKE CARE NOT TO DAMAGE EXISTING CONDUIT AND LEAVE AN ADEQUATE AMOUNT OF CONDUIT EXPOSED TO COUPLE THE PROPOSED DUCT BANK.

4.4. STEP 4 INSTALL PROPOSED SIDE "B" FEEDERS FROM PROPOSED POWER DISTRIBUTION SYSTEM

4.4.1. COMPLETE DUCT BANK "BDP-LSPSXFMR1B/LSPSMCC1R".

4.4.2. INVESTIGATE EXISTING REMAINING CONDUITS IN UNDERGROUND DUCT BANKS BETWEEN MAN HOLES "MH-1" AND "MH-3". SHOULD ANY CONDUIT BE OBSTRUCTED OR UN-USABLE CONTACT ENGINEER FOR FURTHER INSTRUCTION.

4.4.3. FURNISH AND INSTALL 15KV CABLE/WIRE "SUB1-1B15-F1" AND "SUB1-1B15-F2". FURNISH AND INSTALL 5KV CABLE/WIRE "LSPS-F1-MCC1R" "LSPS-F2-MCC1R", AND "LSPS-F3-MCC1R".

4.4.4. CLOSE VACUUM CIRCUIT BREAKER "VCB-1B15" IN "SUB1-SWGR-01B".

4.4.5. COORDINATE POWER OUTAGE WITH OWNER. OPEN 5KV TIE LOAD BREAK SWITCHES IN "LSPS-MCC1L" AND "LSPS-MCC-1R", AND CLOSE 5KV MAIN LOAD BREAK SWITCH IN "LSPS-MCC-1R".

## 5. STAGE 5 CONSTRUCTION SEQUENCE

5.0. PROVIDE SERVICE TO HIGH SERVICE PUMP STATION (HSPS) FROM PROPOSED POWER DISTRIBUTION SYSTEM; DEMOLISH SERVICE TO EXISTING MEDIUM SERVICE PUMP STATION (MSPS); DEMOLISH SUBO SWITCHGEAR.

5.0.1. REFER TO PLAN DRAWING NOS. [SEQ-E-053] THROUGH [SEQ-E-064] AND [SEQ-E-092] THROUGH [SEQ-E-097].

5.0.2. THE FOLLOWING WORK EVENTS WILL BE COMPLETED:

5.1. STEP 1 DEMOLISH SERVICE TO EXISTING MSPS

5.1.1. EXISTING FEEDERS TO MEDIUM SERVICE PUMP STATION TO BE DEMOLISHED BY TWDS CONTRACTOR. COORDINATE WITH TWDS CONTRACTOR.

5.1.2. COORDINATE DEMOLITION OF POWER TO EXISTING SUBSTATION LIGHTING WITH TWDS CONTRACTOR.

5.1.3. PROVIDE TEMPORARY LIGHTING FOR EXISTING SUBSTATION WHILE UNDER RENOVATION.

5.2. STEP 2 DEMOLISH SIDE "B" SERVICE TO HSPS AND TEMPORARY SERVICE TO TRANSFORMER "T1"

5.2.1. COORDINATE POWER OUTAGE WITH OWNER. OPEN VACUUM CIRCUIT BREAKER "VCB-1B09" IN "SUB1-SWGR-01B", 5KV MAIN LOAD BREAK SWITCH ON "RIGHT" SIDE OF "HSPS-MCC-3", AND CLOSE 5KV TIE LOAD BREAK SWITCH IN "HSPS-MCC-3". LOAD SHEDDING MAY BE REQUIRED.

5.2.2. DISCONNECT AND REMOVE 5KV FEEDERS FROM "SWGR-3". PULL FEEDERS BACK TO MANHOLE "MH-7" AND COIL ADEQUATE LENGTH OF CABLE TO PERFORM A SPLICE.

5.2.3. DEMOLISH OVERHEAD BUS DUCT BETWEEN TRANSFORMER "T4" AND SWITCHGEAR "SWGR-3" IN ITS ENTIRETY.

5.2.4. DEMOLISH SWITCHGEAR "SWGR-3" IN ITS ENTIRETY.

5.2.5 DISCONNECT AND REMOVE TEMPORARY FEEDERS "SUB1-AS-3" IN THEIR ENTIRETY.

5.3. STEP 3 SERVE HSPS SIDE "B" FROM PROPOSED POWER DISTRIBUTION SYSTEM

5.3.1. FURNISH AND INSTALL OUTDOOR 5KV SWITCHGEAR "Y-SWGR-01B".

5.3.2. INVESTIGATE EXISTING CONDUITS IN UNDERGROUND DUCT BANKS BETWEEN MAN HOLES "MH-11" AND MANHOLE "MH-7", SHOULD ANY CONDUIT BE OBSTRUCTED OR UN-USABLE CONTACT ENGINEER FOR FURTHER INSTRUCTION.

5.3.3. COORDINATE WITH STRUCTURAL AND CONSTRUCT PROPOSED EQUIPMENT PAD/CONTAINMENT FOR EXISTING TRANSFORMER "T4". RELOCATE TRANSFORMER "T4". EXTEND CONDUITS "SUB1-1B09-F1" AND "SUB1-1B09-F2" TO RE-LOCATED TRANSFORMER "T4". TERMINATE CABLE/WIRE.

5.3.4. FURNISH AND INSTALL 5K FEEDERS BETWEEN PROPOSED OUTDOOR 5KV SWITCHGEAR "Y-SWGR-01B" AND TRANSFORMER "T4".

5.3.5. FURNISH AND INSTALL 5K FEEDERS BETWEEN PROPOSED OUTDOOR 5KV SWITCHGEAR "Y-SWGR-01B" AND EXISTING COILED FEEDERS FOR THE "RIGHT" SIDE OF "HSPS-MCC-3" IN MANHOLE "MH-7". SPLICE EXISTING AND PROPOSED CABLES/WIRES.

5.3.6. COORDINATE POWER OUTAGE WITH OWNER. CLOSE VACUUM CIRCUIT BREAKER "VCB-1B09" IN "SUB1-SWGR-01B", CLOSE VACUUM CIRCUIT BREAKER "VCB-1B02" IN "Y-SWGR-01B", OPEN MAIN LOAD BREAK SWITCH ON "LEFT" SIDE OF "HSPS-MCC-3", AND CLOSE MAIN LOAD BREAK SWITCH ON "RIGHT" SIDE OF "HSPS-MCC-3"; THUS ENERGIZING "HSPS-MCC-3" FROM THE PROPOSED POWER DISTRIBUTION SYSTEM.

5.4. STEP 4 DEMOLISH SIDE "A" SERVICE TO HSPS

5.4.1. OPEN VACUUM CIRCUIT BREAKER "VCB-1A09" IN "SUB1-SWGR-01A".

5.4.2. DISCONNECT AND REMOVE 5KV FEEDER FROM "SWGR-2". PULL FEEDERS BACK TO MANHOLE "MH-8" AND COIL ADEQUATE LENGTH OF CABLE TO PERFORM A SPLICE.

5.4.3. DEMOLISH OVERHEAD BUS DUCT BETWEEN TRANSFORMER "T3" AND SWITCHGEAR "SWGR-1" IN ITS ENTIRETY.

5.4.4. DEMOLISH SWITCHGEAR "SWGR-2" IN ITS ENTIRETY.

5.5. STEP 5 SERVE HSPS SIDE "A" FROM PROPOSED POWER DISTRIBUTION SYSTEM

5.5.1. FURNISH AND INSTALL OUTDOOR 5KV SWITCHGEAR "Y-SWGR-01A".

5.5.2. COORDINATE WITH STRUCTURAL AND CONSTRUCT PROPOSED EQUIPMENT PAD/CONTAINMENT FOR EXISTING TRANSFORMER "T3". RELOCATE TRANSFORMER "T3". EXTEND CONDUITS "SUB1-1A09-F1" AND "SUB1-1A09-F2" TO RE-LOCATED TRANSFORMER "T3". TERMINATE CABLE/WIRE.

5.5.3. FEED EXISTING LIGHTING AT SUBO FROM "Y-SWGR-01B".

5.5.4. INVESTIGATE EXISTING CONDUITS IN UNDERGROUND DUCT BANKS BETWEEN MANHOLE "MH-7" AND MANHOLE "MH-8". SHOULD ANY CONDUIT BE OBSTRUCTED OR UN-USABLE CONTACT ENGINEER FOR FURTHER INSTRUCTION.

5.5.5. FURNISH AND INSTALL 5K FEEDERS BETWEEN PROPOSED OUTDOOR 5KV SWITCHGEAR "Y-SWGR-01A" AND TRANSFORMER "T3".

5.5.6. FURNISH AND INSTALL 5K FEEDERS BETWEEN PROPOSED OUTDOOR 5KV SWITCHGEAR "Y-SWGR-01A" AND EXISTING COILED FEEDERS FOR THE "LEFT" SIDE OF "HSPS-MCC-3" IN MANHOLE "MH-8". SPLICE EXISTING AND PROPOSED CABLES/WIRES.

5.5.7. COORDINATE POWER OUTAGE WITH OWNER. CLOSE VACUUM CIRCUIT BREAKER "VCB-1A09" IN "SUB1-SWGR-01A", CLOSE VACUUM CIRCUIT BREAKER "VCB-1A02" IN "Y-SWGR-01A", OPEN TIE LOAD BREAK SWITCH IN "HSPS-MCC-3", AND CLOSE MAIN LOAD BREAK SWITCH ON "LEFT" SIDE OF "HSPS-MCC-3".

5.6. STEP 6 DEMOLISH REMAINING SWITCHGEAR AND DC BATTERY SHED

5.6.1. OPEN VACUUM CIRCUIT BREAKERS "VCB-1A10" AND "VCB-1B10" IN SWITCHGEARS "SUB1-SWGR-01A" AND "SUB1-SWGR-01B", RESPECTIVELY.

5.6.2. DISCONNECT AND REMOVE TEMPORARY FEEDERS "SUB1-BS-3" IN THEIR ENTIRETY.

5.6.3. DEMOLISH EXISTING DC POWER SHED AND ALL ITS CONTENTS IN THEIR ENTIRETY.

5.6.4. DEMOLISH EXISTING SWITCHGEAR "SWGR-1".

5.7. STEP 7 FINALIZE CONTROLS WIRING

5.7.1. FURNISH AND INSTALL CONTROLS CONDUIT/CABLE BETWEEN SWITCHGEAR "Y-SWGR-01A" AND "SUB1-SWGR-01A".

5.7.2. FURNISH AND INSTALL CONTROLS CONDUIT/CABLE BETWEEN SWITCHGEAR "Y-SWGR-01B" AND "SUB1-SWGR-01B".

1

## 6. STAGE 6

6.0. COMPLETION OF CONTRACT DOCUMENT WORK.

6.1. THE FOLLOWING WORK EVENTS WILL BE COMPLETED:

6.2. COMPLETE ALL OTHER WORK EVENTS, IN THEIR ENTIRETY AND AS SET FORTH IN THIS SET OF CONTRACT DOCUMENTS, WHICH HAVE NOT BEEN OUTLINED WITHIN THESE CONSTRUCTION SEQUENCING DOCUMENTS.

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K. A. HARUTUNIAN 59181 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS 5/1/2016

HARUTUNIAN ENGINEERING INCORPORATED

TEXAS FIRM REGISTRATION NUMBER F-2408

ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | HSPS FEEDERS |

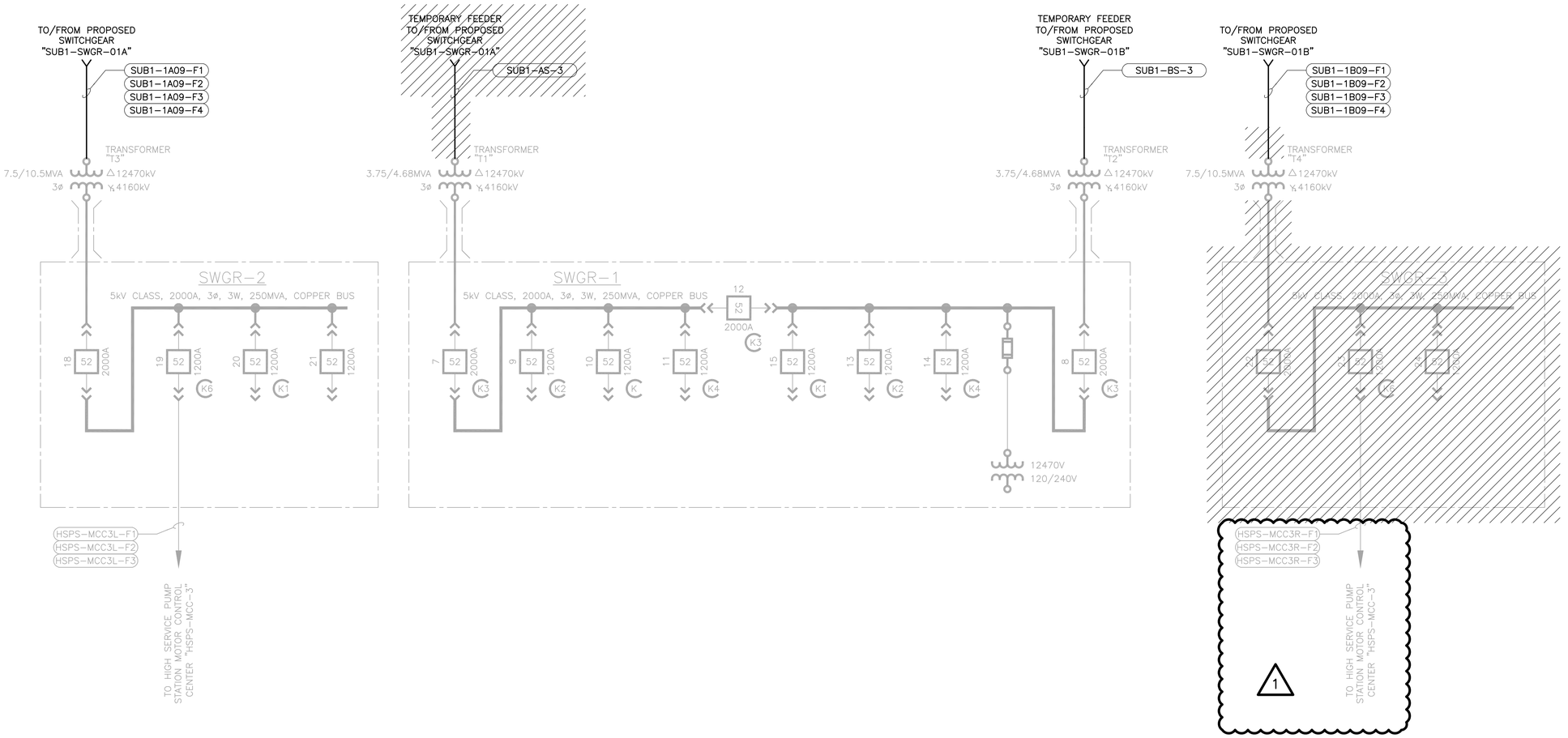
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

SEQUENCING NARRATIVE (SHEET 3 OF 3)

PROJECT NO: 2009-800 | SHT. 70 OF 854 | DWG NO. SEQ-E-003

ADDENDUM NO. 1

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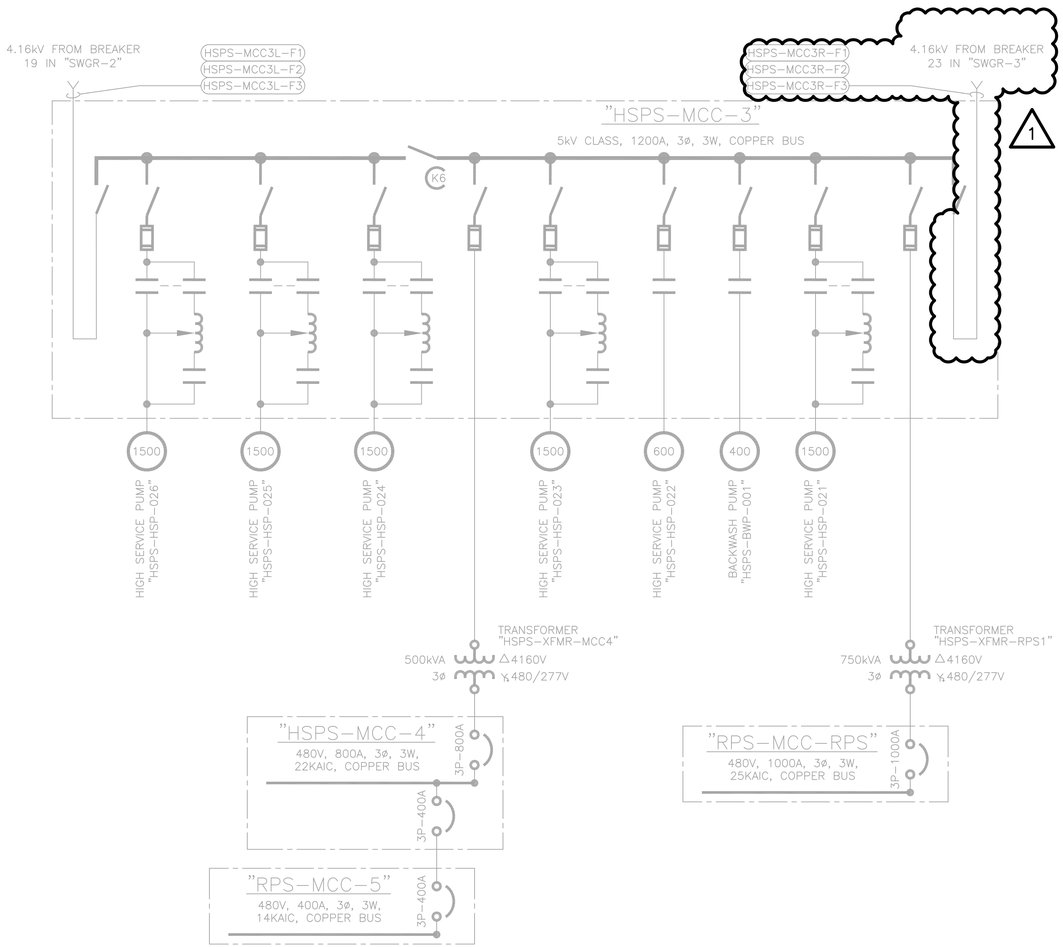
DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

# OVERALL SEQUENCE DRAWINGS ONE-LINE DIAGRAM - STAGE 5 STEP 2 (SHEET 1 OF 3)

PROJECT NO: 2009-800 | SHT. 121 OF 854 | DWG NO. SEQ-E-054

ADDENDUM NO. 1

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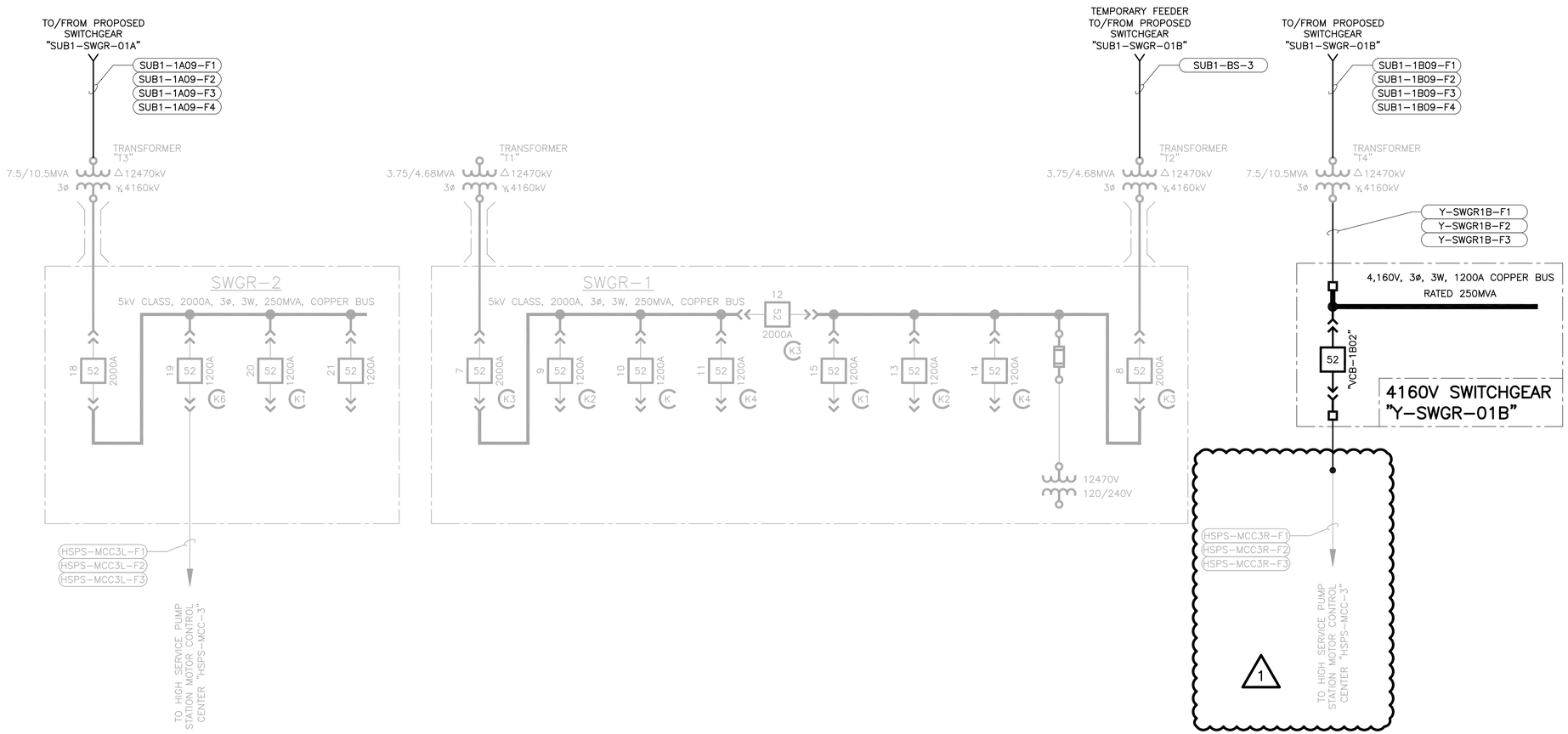
DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

# OVERALL SEQUENCE DRAWINGS ONE-LINE DIAGRAM – STAGE 5 STEP 2 (SHEET 2 OF 3)

PROJECT NO: 2009-800 | SHT. 122 OF 854 | DWG NO. SEQ-E-055

ADDENDUM NO. 1

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DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
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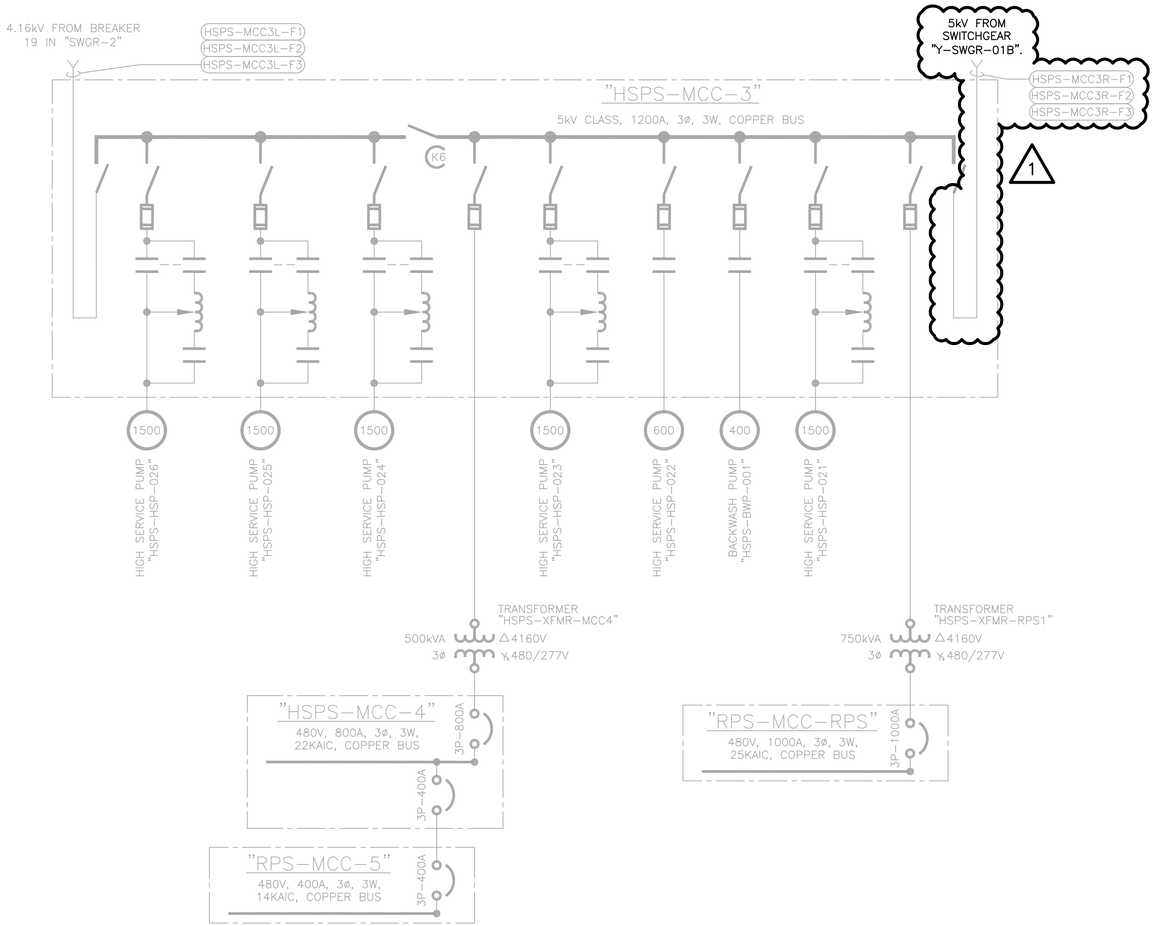
# OVERALL SEQUENCE DRAWINGS ONE-LINE DIAGRAM - STAGE 5 STEP 3 (SHEET 1 OF 2)

PROJECT NO: 2009-800 | SHT. 124 OF 854 | DWG NO. SEQ-E-057

ADDENDUM NO. 1

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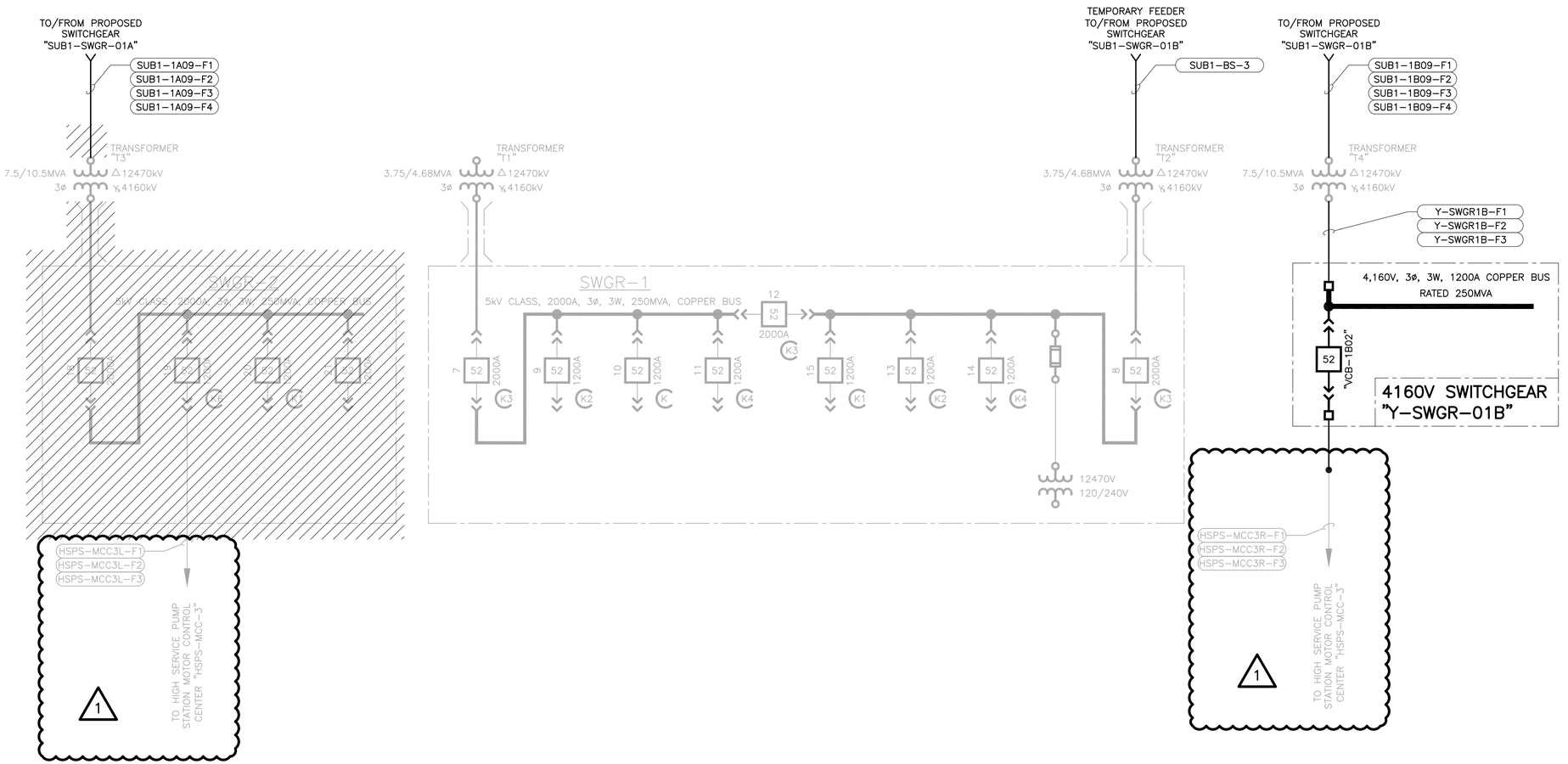
# OVERALL SEQUENCE DRAWINGS ONE-LINE DIAGRAM – STAGE 5 STEP 3 (SHEET 2 OF 2)

PROJECT NO: 2009-800 | SHT. 125 OF 854 | DWG NO. SEQ-E-058

ADDENDUM NO. 1

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DAVIS WATER TREATMENT PLANT
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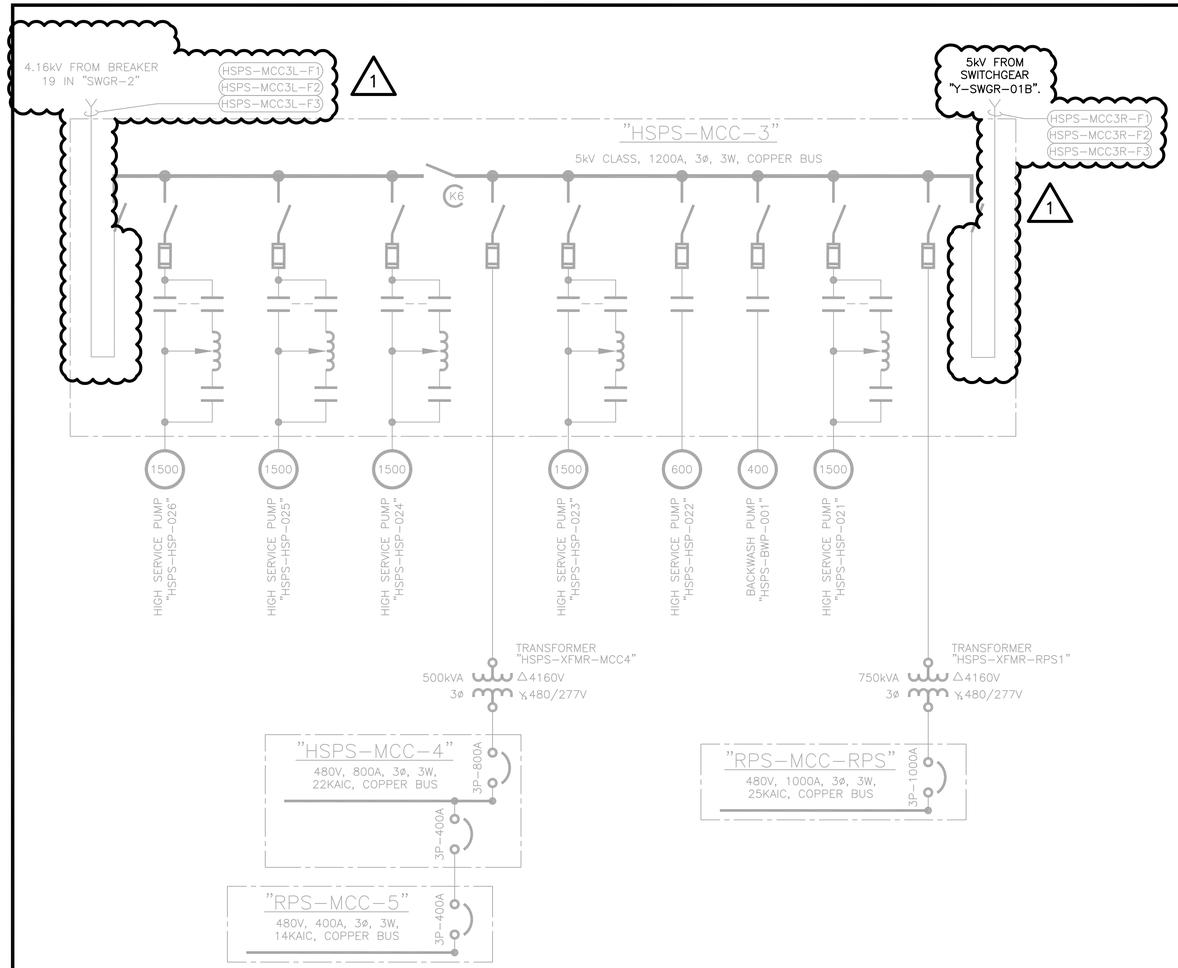
# OVERALL SEQUENCE DRAWINGS ONE-LINE DIAGRAM - STAGE 5 STEP 4 (SHEET 1 OF 2)

PROJECT NO: 2009-800 | SHT. 126 OF 854 | DWG NO. SEQ-E-059

ADDENDUM NO. 1

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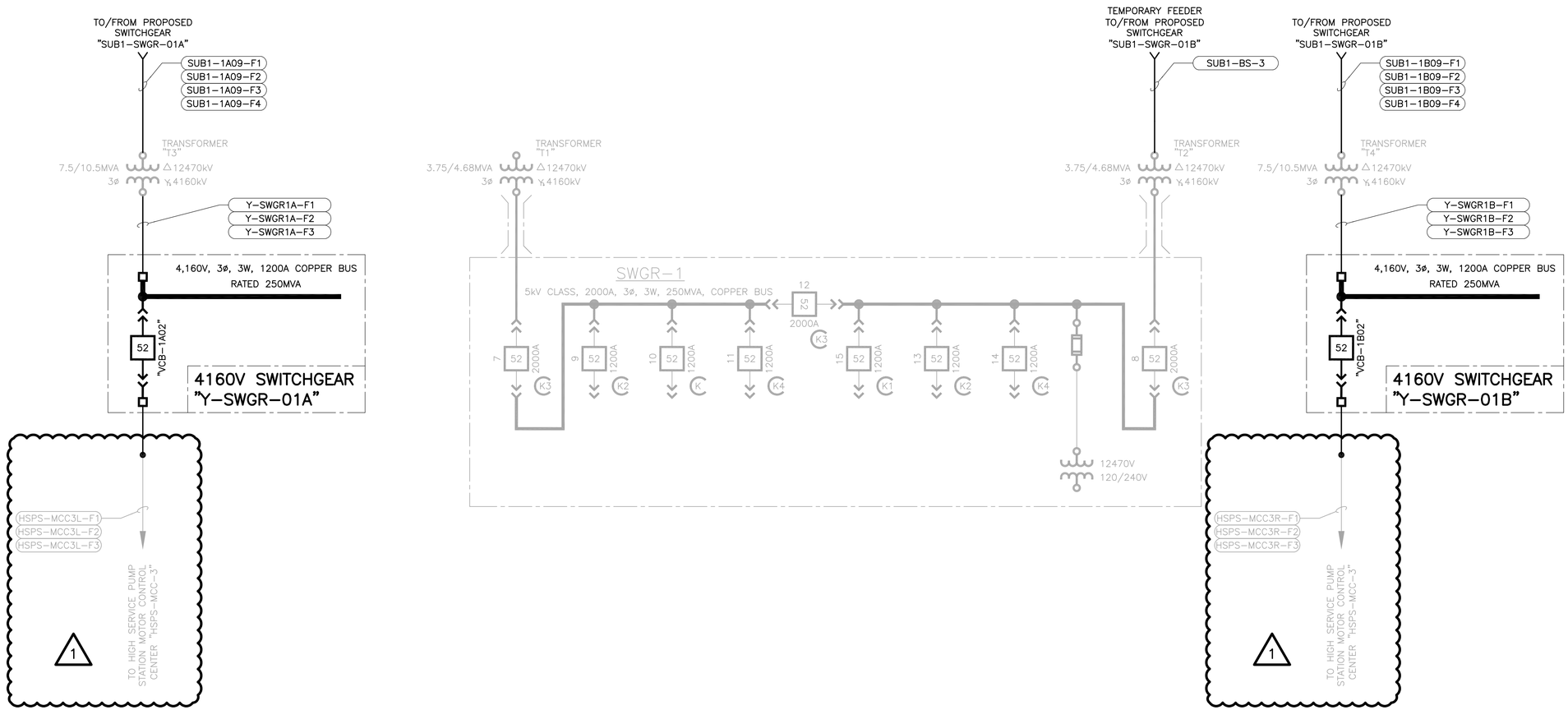
DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

# OVERALL SEQUENCE DRAWINGS ONE-LINE DIAGRAM - STAGE 5 STEP 4 (SHEET 2 OF 2)

PROJECT NO: 2009-800 | SHT. 127 OF 854 | DWG NO. SEQ-E-060

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K. A. HARUTUNIAN 59181 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS
5/1/2016

HARUTUNIAN ENGINEERING INCORPORATED
TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | HSPS FEEDERS |

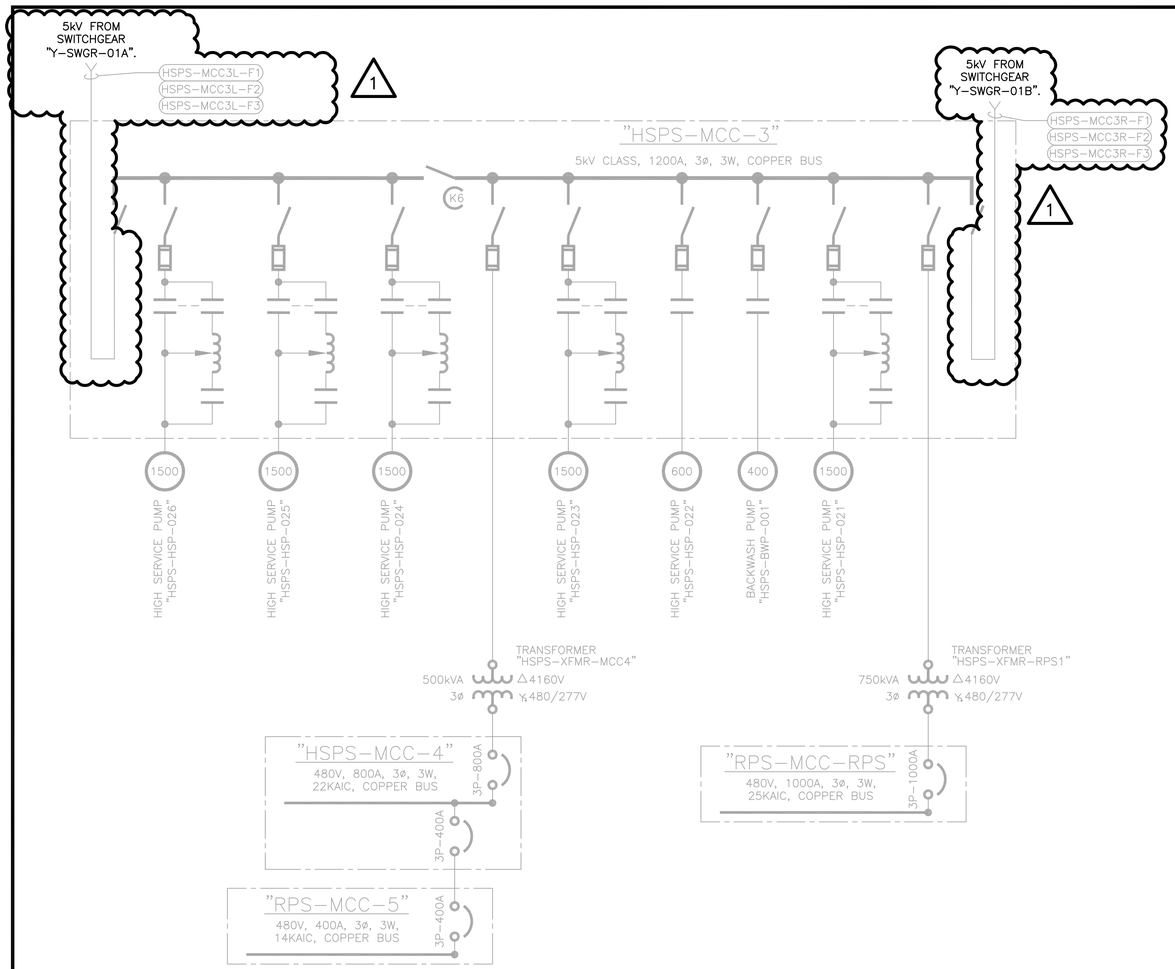
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

# OVERALL SEQUENCE DRAWINGS ONE-LINE DIAGRAM - STAGE 5 STEP 5 (SHEET 1 OF 2)

PROJECT NO: 2009-800 | SHT. 128 OF 854 | DWG NO. SEQ-E-061

ADDENDUM NO. 1

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STATE OF TEXAS
K. A. HARUTUNIAN
59181
REGISTERED
PROFESSIONAL ENGINEER
5/1/2016


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TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


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DESIGNED BY: HEI
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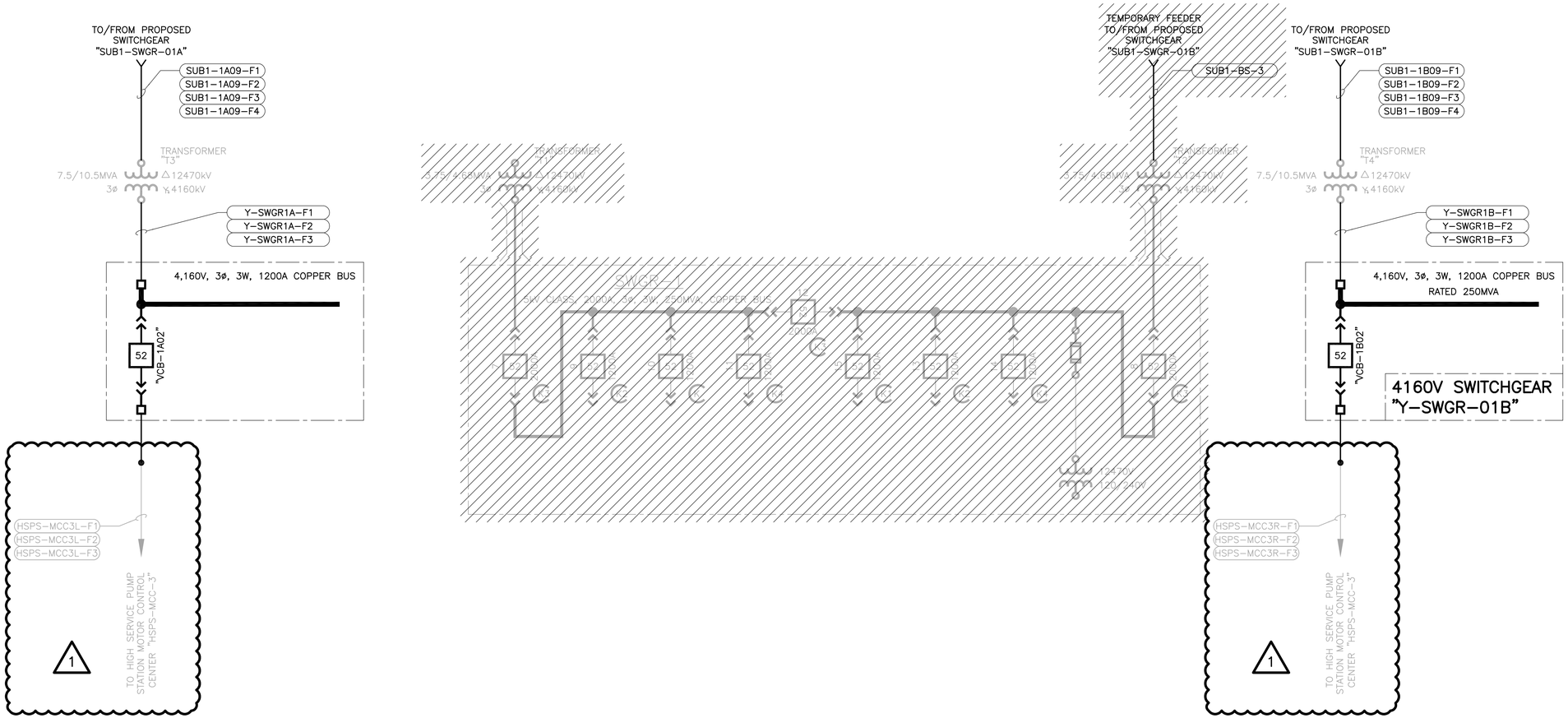
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

# OVERALL SEQUENCE DRAWINGS ONE-LINE DIAGRAM - STAGE 5 STEP 5 (SHEET 2 OF 2)

PROJECT NO: 2009-800
SHT. 129 OF 854
DWG NO. SEQ-E-062

ADDENDUM NO. 1

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K. A. HARUTUNIAN 59181 STATE OF TEXAS REGISTERED PROFESSIONAL ENGINEER 5/1/2016


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TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
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| 1 | 4/20/16 | HSPS FEEDERS |

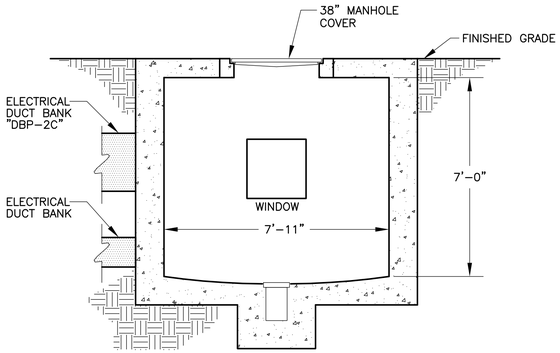
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

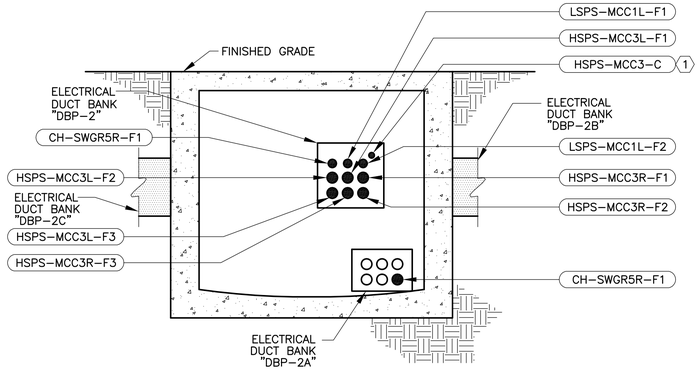
# OVERALL SEQUENCE DRAWINGS ONE-LINE DIAGRAM - STAGE 5 STEP 6 (SHEET 1 OF 2)

PROJECT NO: 2009-800 | SHT. 130 OF 854 | DWG NO. SEQ-E-063

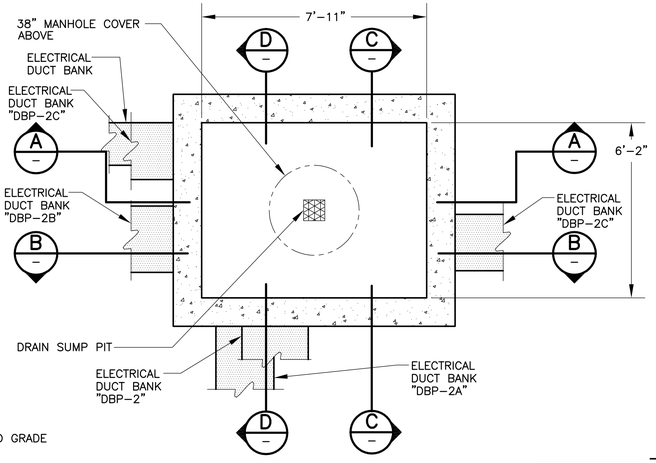
ADDENDUM NO. 1



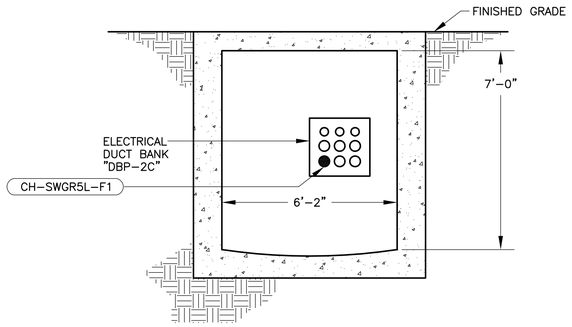

NORTH ELEVATION (A)
SCALE: N.T.S.



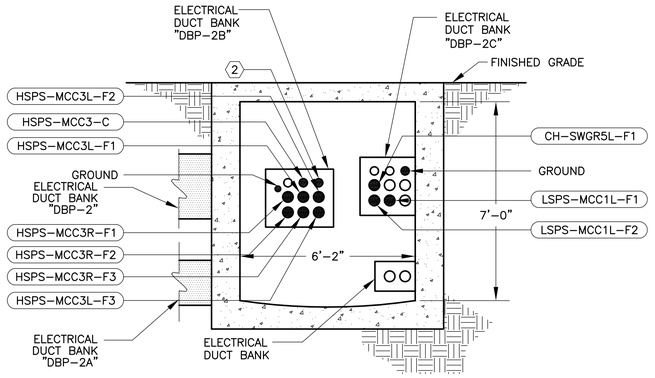

SOUTH ELEVATION (B)
SCALE: N.T.S.



PLAN VIEW (1)
SCALE: N.T.S.
[S–E–007], [S–E–014]




EAST ELEVATION (C)
SCALE: N.T.S.




WEST ELEVATION (D)
SCALE: N.T.S.

1

## KEY NOTES:

1. IN ADDITION TO THE CABLE CONTENTS SHOWN ON THE CONDUIT/WIRE SCHEDULE, THERE IS AN ADDITIONAL BARE GROUND CABLE ROUTED WITHIN THIS CONDUIT.
2. 4 #10 CABLES, DESTINATION OF CABLES WAS NOT DETERMINED DURING PRELIMINARY FIELD VISITS.

## GENERAL NOTES:

1. DARKENED CIRCLES INDICATE CONDUITS WITH EXISTING INSTALLED CONDUCTORS OR CABLES. UNDARKENED CIRCLES INDICATE EMPTY CONDUITS DESIGNATED AS "SPARE" OR FOR SERVICE TO FUTURE PROJECTS.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.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K. A. HARUTUNIAN 59181 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS
5/1/2016


HARUTUNIAN ENGINEERING INCORPORATED
TEXAS FIRM REGISTRATION NUMBER F–2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | DUCT BANK PENETRATION LOCATIONS |

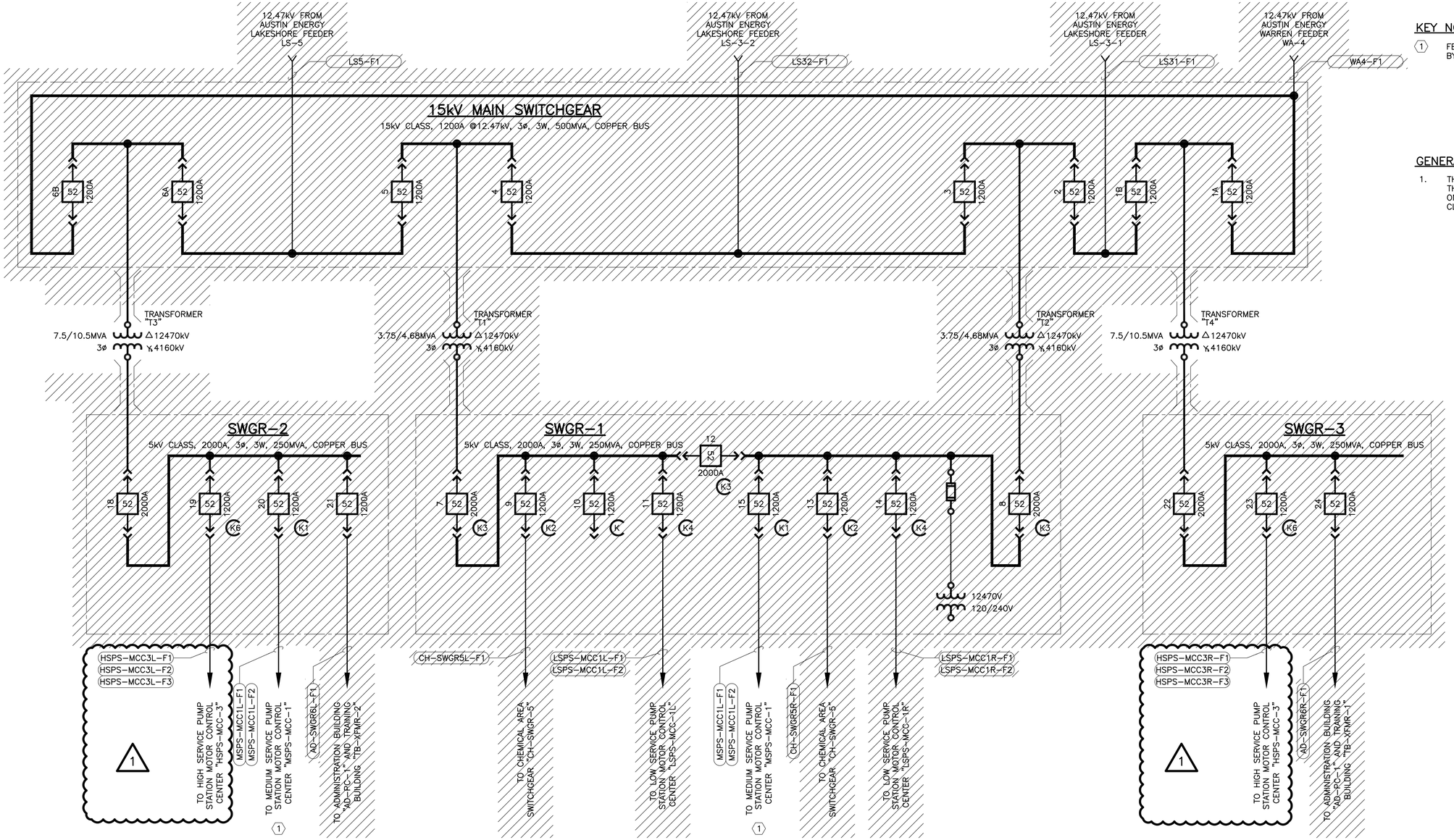
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

SITE
ELECTRICAL MAN HOLE ELEVATIONS
MH–8 – EXISTING (SHEET 8 OF 15)

PROJECT NO: 2009–800 | SHT. 333 OF 854 | DWG NO. S–E–026

ADDENDUM NO. 1




## KEY NOTES:

1. FEEDERS TO MEDIUM SERVICE PUMP STATION TO BE DEMOLISHED BY OTHERS.

## GENERAL NOTES:

1. THIS DRAWING IS INTENDED TO REPRESENT AN OVERVIEW OF THE DEMOLITION TO THE EXISTING POWER DISTRIBUTION SYSTEM. ONLY MAJOR ELECTRICAL EQUIPMENT HAS BEEN SHOWN FOR CLARITY.

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K. A. HARUTUNIAN 59181 STATE OF TEXAS REGISTERED PROFESSIONAL ENGINEER 5/1/2016


HARUTUNIAN ENGINEERING INCORPORATED

TEXAS FIRM REGISTRATION NUMBER F-2408

ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
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| 1 | 4/20/16 | HSPS FEEDERS |

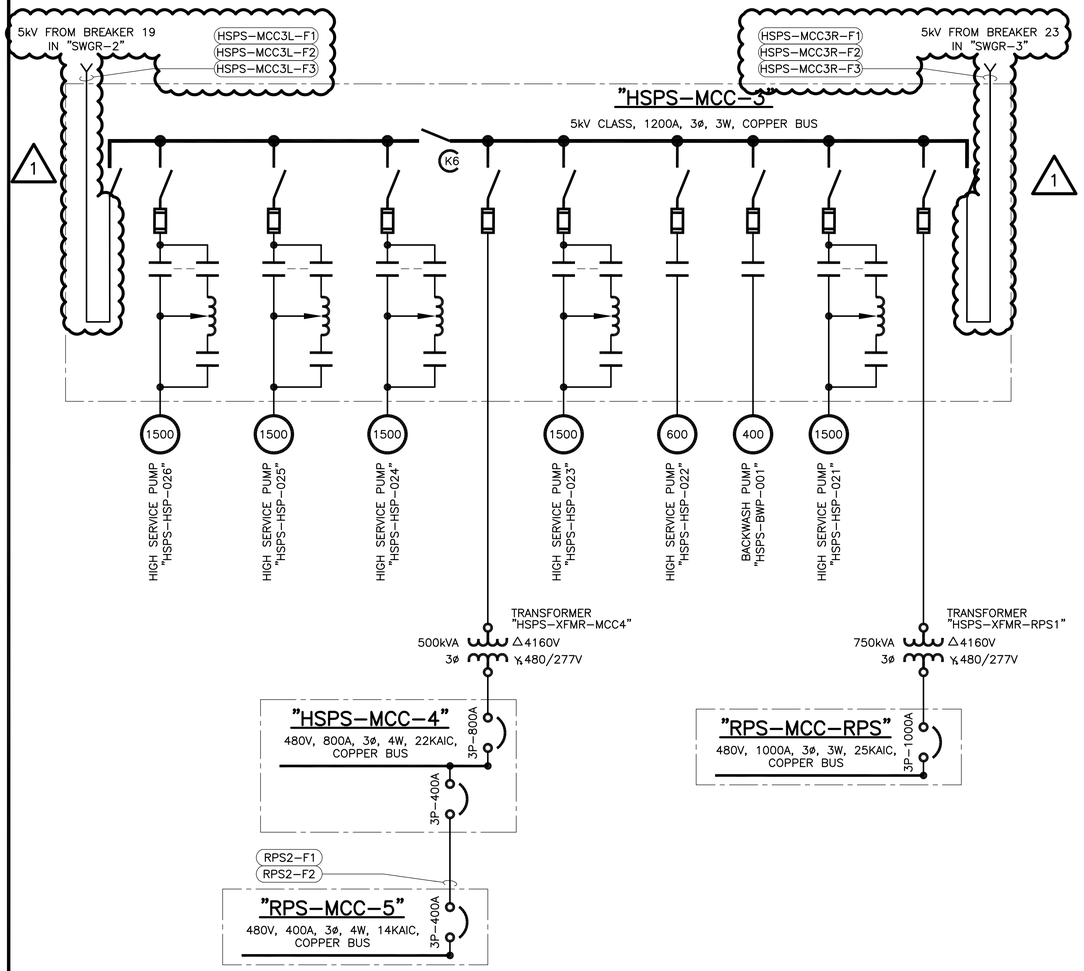
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

# OVERALL ONE-LINE DIAGRAM - DEMOLITION (SHEET 1 OF 6)

PROJECT NO: 2009-800 | SHT. 342 OF 854 | DWG NO. S-E-035

ADDENDUM NO. 1




## GENERAL NOTES:

1. THIS DRAWING IS INTENDED TO REPRESENT AN OVERVIEW OF THE DEMOLITION TO THE EXISTING POWER DISTRIBUTION SYSTEM. ONLY MAJOR ELECTRICAL EQUIPMENT HAS BEEN SHOWN FOR CLARITY.

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ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
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| 1 | 4/20/16 | HSPS FEEDERS |

DESIGNED BY: HEI
CHECKED BY: HEI
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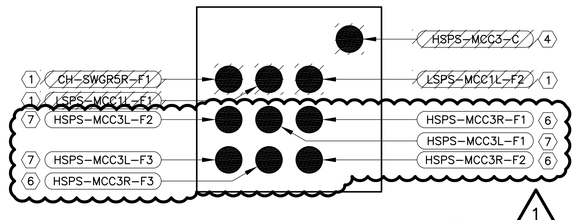
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

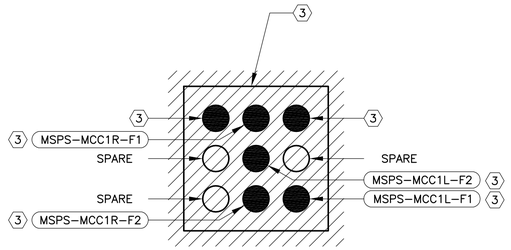
DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

# OVERALL ONE-LINE DIAGRAM - DEMOLITION (SHEET 5 OF 6)

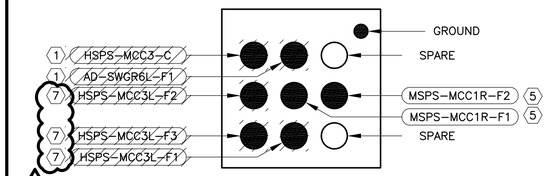
PROJECT NO: 2009-800 | SHT. 346 OF 854 | DWG NO. S-E-039




DUCT BANK SECTION "DBP-2" (L) [S-E-048]
SCALE: N.T.S.



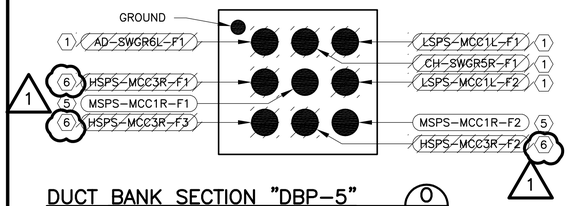

DUCT BANK SECTION "DBP-7" (M) [S-E-042], [S-E-048]
SCALE: N.T.S.



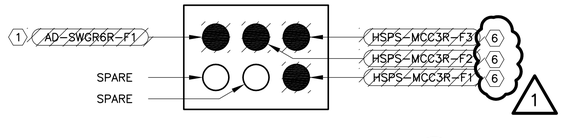

DUCT BANK SECTION "DBP-4" (N) [S-E-048]
SCALE: N.T.S.

## KEY NOTES:

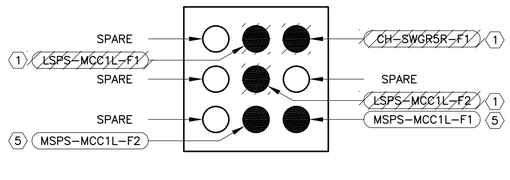
1. DISCONNECT AND REMOVE CABLE/WIRE IN ITS ENTIRETY.
2. ALL CABLE/WIRE IN THIS CONDUIT IS OWNED BY AUSTIN ENERGY. EXERCISE CAUTION SO AS NOT TO DAMAGE OR DISTURB EXISTING AUSTIN ENERGY CABLE/WIRE. THE CABLE/WIRE SHALL BE DEMOLISHED BY AUSTIN ENERGY. COORDINATE WITH AUSTIN ENERGY.
3. MEDIUM SERVICE PUMP STATION CABLES/WIRES AND PORTION OF DUCTBANK TO BE DEMOLISHED BY OTHERS. ONCE CABLES/WIRES HAVE BEEN DEMOLISHED, DEMOLISH REMAINDER OF THE DUCTBANK IN ITS ENTIRETY.
4. DISCONNECT AND REMOVE CONTROL CABLES/WIRES IN ITS ENTIRETY. TAKE CARE TO NOT DAMAGE BARE GROUND WIRE WHILE REMOVING CONTROL CABLES/WIRES.
5. MEDIUM SERVICE PUMP STATION POWER FEEDERS, INSTRUMENTATION AND CONTROLS TO BE DEMOLISHED BY OTHERS.
6. DISCONNECT CABLE/WIRE FROM 5kV SWITCHGEAR "SWGR-3". PULL CABLE/WIRE BACK TO MANHOLE "MH-7". REMAINING CABLE/WIRE TO REMAIN IN PLACE. CABLE/WIRE TO BE RE-USED DURING RENOVATION ACTIVITIES.
7. DISCONNECT CABLE/WIRE FROM 5kV SWITCHGEAR "SWGR-2". PULL CABLE/WIRE BACK TO MANHOLE "MH-8". REMAINING CABLE/WIRE TO REMAIN IN PLACE. CABLE/WIRE TO BE RE-USED DURING RENOVATION ACTIVITIES.




DUCT BANK SECTION "DBP-5" (O) [S-E-048]
SCALE: N.T.S.



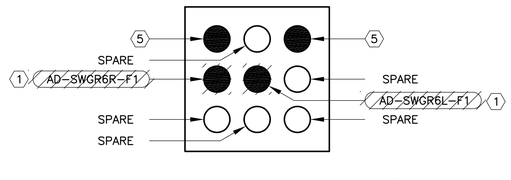

DUCT BANK SECTION "DBP-6E" (P) [S-E-048]
SCALE: N.T.S.



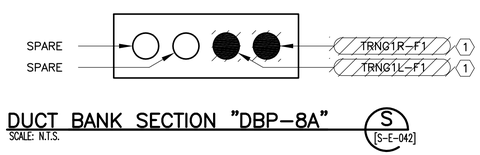

DUCT BANK SECTION "DBP-6B" (Q) [S-E-048]
SCALE: N.T.S.

## GENERAL NOTES:

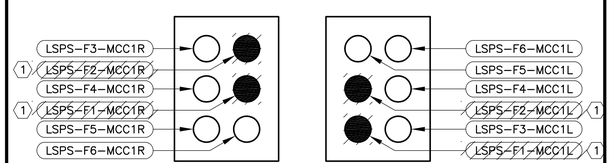
1. DARKENED CIRCLES INDICATE CONDUITS WITH EXISTING INSTALLED CONDUCTORS OR CABLES. UNDARKENED CIRCLES INDICATE EMPTY CONDUITS DESIGNATED AS "SPARE" OR FOR SERVICE TO FUTURE PROJECTS.



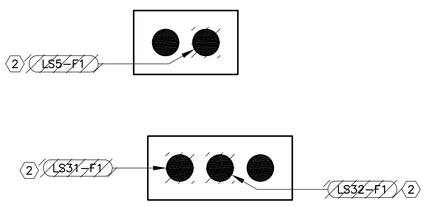

DUCT BANK SECTION "DBP-8" (R) [S-E-042], [S-E-048]
SCALE: N.T.S.




DUCT BANK SECTION "DBP-8A" (S) [S-E-042]
SCALE: N.T.S.




"DBP-MCCR" SCALE: N.T.S.
"DBP-MCCL" SCALE: N.T.S.
DUCT BANK SECTION (T) [S-E-050]




DUCT BANK SECTION "AE" (U) [S-E-050]
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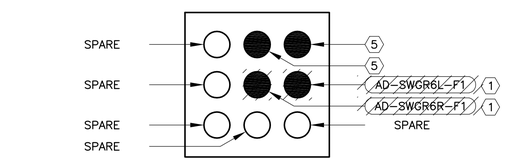


DUCT BANK SECTION "DBP-9" (V) [S-E-042]
SCALE: N.T.S.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.

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STATE OF TEXAS — K. A. HARUTUNIAN — 59181 — REGISTERED PROFESSIONAL ENGINEER — 5/1/2016


HARUTUNIAN ENGINEERING INCORPORATED
TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | HSPS FEEDERS |

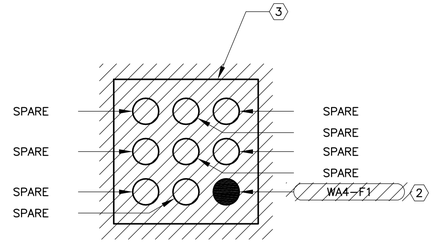
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

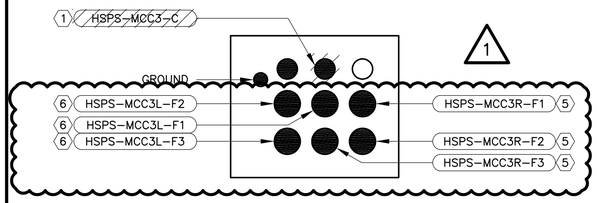
SITE
ELECTRICAL DUCTBANK SECTIONS
DEMOLITION (SHEET 2 OF 3)

PROJECT NO: 2009-800 | SHT. 359 OF 854 | DWG NO. S-E-052

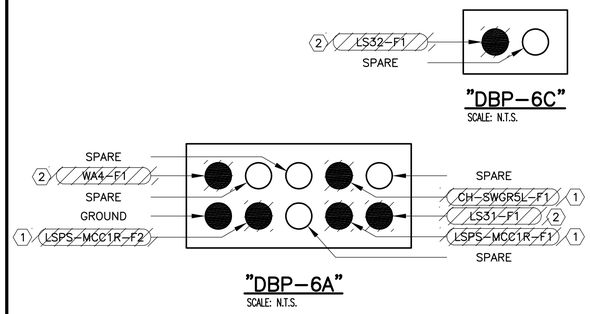
ADDENDUM NO. 1




DUCT BANK SECTION "DBP-AE" (W) [S-E-048]
SCALE: N.T.S.




DUCT BANK SECTION "DBP-2B" (X) [S-E-044], [S-E-049]
SCALE: N.T.S.




DUCT BANK SECTION (Y) [S-E-048]
SCALE: N.T.S.

## KEY NOTES:

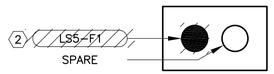
1. DISCONNECT AND REMOVE CABLE/WIRE IN ITS ENTIRETY.
2. ALL CABLE/WIRE IN THIS CONDUIT IS OWNED BY AUSTIN ENERGY. EXERCISE CAUTION SO AS NOT TO DAMAGE OR DISTURB EXISTING AUSTIN ENERGY CABLE/WIRE.THE CABLE/WIRE SHALL BE DEMOLISHED BY AUSTIN ENERGY. COORDINATE WITH AUSTIN ENERGY.
3. DUCTBANK AND CONTENTS TO BE DEMOLISHED IN ITS ENTIRETY.
4. PULL CABLES/WIRES BACK TO MANHOLE "MH-4". REFER TO DRAWING NOS. [CEB-E-008] AND [CEB-E-010].

1

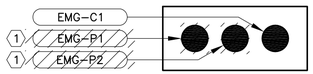
5. DISCONNECT CABLE/WIRE FROM 5kV SWITCHGEAR "SWGR-3". PULL CABLE/WIRE BACK TO MANHOLE "MH-7". REMAINING CABLE/WIRE TO REMAIN IN PLACE. CABLE/WIRE TO BE RE-USED DURING RENOVATION ACTIVITIES.
6. DISCONNECT CABLE/WIRE FROM 5kV SWITCHGEAR "SWGR-2". PULL CABLE/WIRE BACK TO MANHOLE "MH-8". REMAINING CABLE/WIRE TO REMAIN IN PLACE. CABLE/WIRE TO BE RE-USED DURING RENOVATION ACTIVITIES.

## GENERAL NOTES:

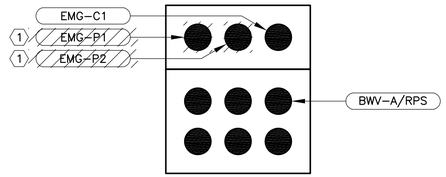
1. DARKENED CIRCLES INDICATE CONDUITS WITH EXISTING INSTALLED CONDUCTORS OR CABLES. UNDARKENED CIRCLES INDICATE EMPTY CONDUITS DESIGNATED AS "SPARE" OR FOR SERVICE TO FUTURE PROJECTS.



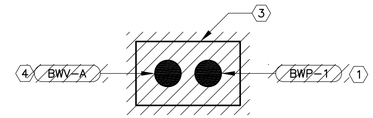

DUCT BANK SECTION "DBP-6F" (Z) [S-E-048]
SCALE: N.T.S.



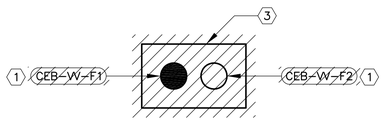

DUCT BANK SECTION "DBP-G" (AB) [S-E-044]
SCALE: N.T.S.



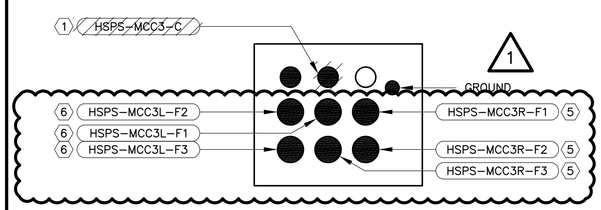

DUCT BANK SECTION "DBI-3" & "DBP-G" (AC) [S-E-042]
SCALE: N.T.S.




DUCT BANK SECTION "MH4/W" (AE) [S-E-049]
SCALE: N.T.S.




DUCT BANK SECTION "CEB/W" (AF) [S-E-049]
SCALE: N.T.S.




DUCT BANK SECTION "DBP-2B" (AG) [S-E-041], [S-E-044], [S-E-048]
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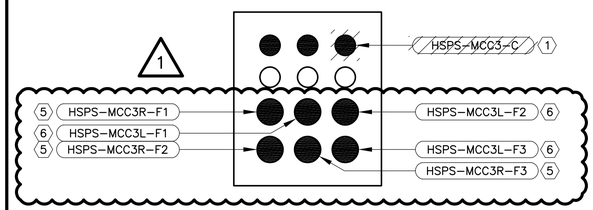


DUCT BANK SECTION "DBP-3" (AH) [S-E-044], [S-E-049]
SCALE: N.T.S.

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STATE OF TEXAS
K. A. HARUTUNIAN
59181
REGISTERED
PROFESSIONAL ENGINEER
5/1/2016


HARUTUNIAN ENGINEERING INCORPORATED
TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | HSPS FEEDERS |

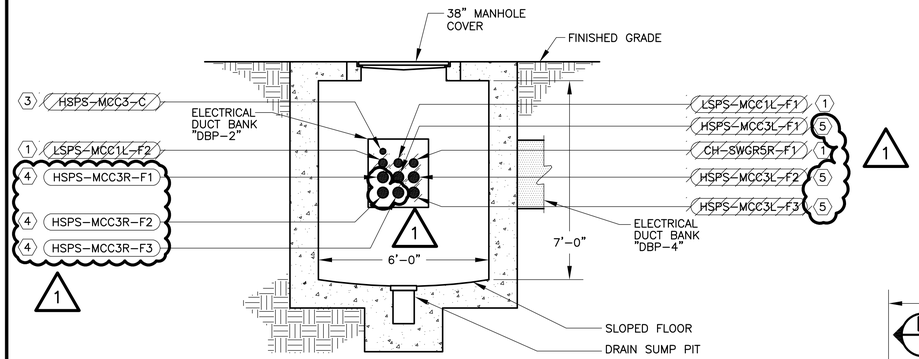
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

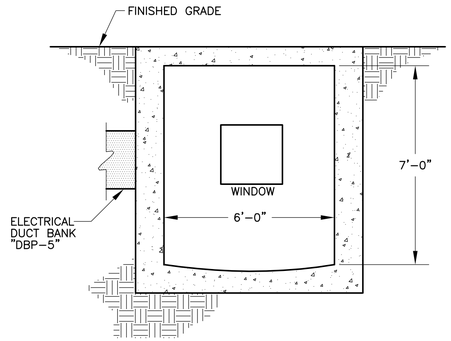
SITE
ELECTRICAL DUCTBANK SECTIONS
DEMOLITION (SHEET 3 OF 3)

PROJECT NO: 2009-800 | SHT. 360 OF 854 | DWG NO. S-E-053

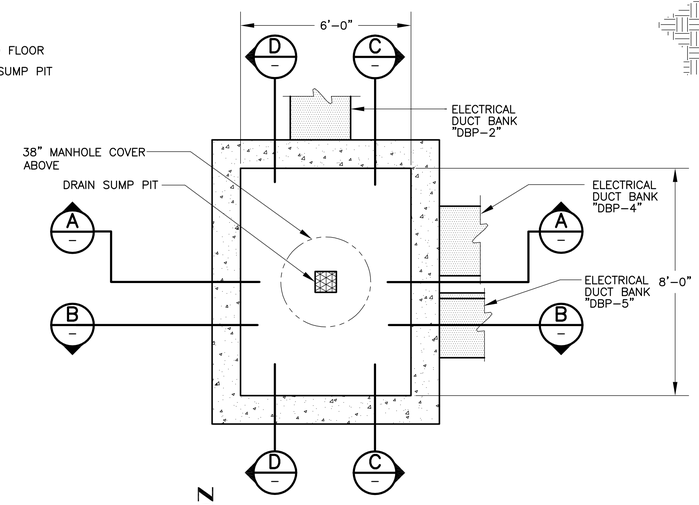
ADDENDUM NO. 1



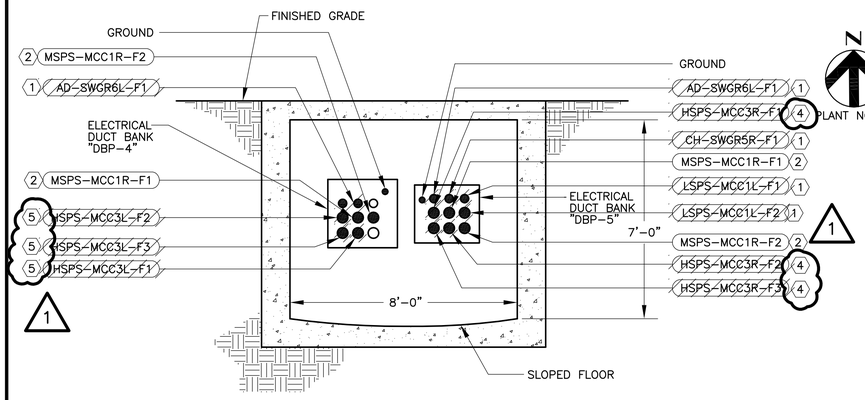

NORTH ELEVATION A
SCALE: N.T.S.



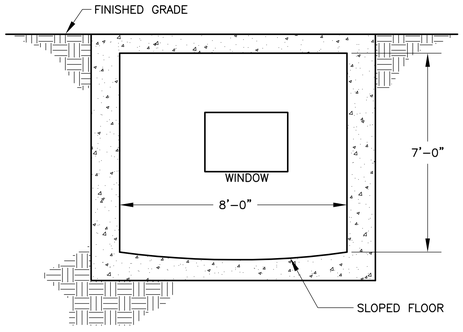

SOUTH ELEVATION B
SCALE: N.T.S.



PLAN VIEW 1
SCALE: N.T.S. [S-E-042], [S-E-048]




EAST ELEVATION C
SCALE: N.T.S.




WEST ELEVATION D
SCALE: N.T.S.

## KEY NOTES:

1. DISCONNECT AND REMOVE CABLE/WIRE IN ITS ENTIRETY.
2. MEDIUM SERVICE PUMP STATION FEEDERS TO BE DEMOLISHED BY OTHERS.
3. DISCONNECT AND REMOVE CONTROL CABLES/WIRES IN ITS ENTIRETY. TAKE CARE TO NOT DAMAGE BARE GROUND WIRE WHILE REMOVING CONTROL CABLES/WIRES.
4. DISCONNECT CABLE/WIRE FROM 5kV SWITCHGEAR "SWGR-3". PULL CABLE/WIRE BACK TO MANHOLE "MH-7". REMAINING CABLE/WIRE TO REMAIN IN PLACE. CABLE/WIRE TO BE RE-USED DURING RENOVATION ACTIVITIES.
5. DISCONNECT CABLE/WIRE FROM 5kV SWITCHGEAR "SWGR-2". PULL CABLE/WIRE BACK TO MANHOLE "MH-8". REMAINING CABLE/WIRE TO REMAIN IN PLACE. CABLE/WIRE TO BE RE-USED DURING RENOVATION ACTIVITIES.

## GENERAL NOTES:

1. DARKENED CIRCLES INDICATE CONDUITS WITH EXISTING INSTALLED CONDUCTORS OR CABLES. UNDARKENED CIRCLES INDICATE EMPTY CONDUITS DESIGNATED AS "SPARE" OR FOR SERVICE TO FUTURE PROJECTS.

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AUSTIN, TEXAS 78752

| NO. | DATE: | DESCRIPTION |
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DESIGNED BY: HEI
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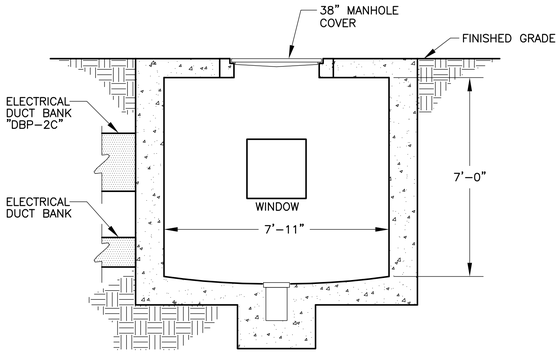
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

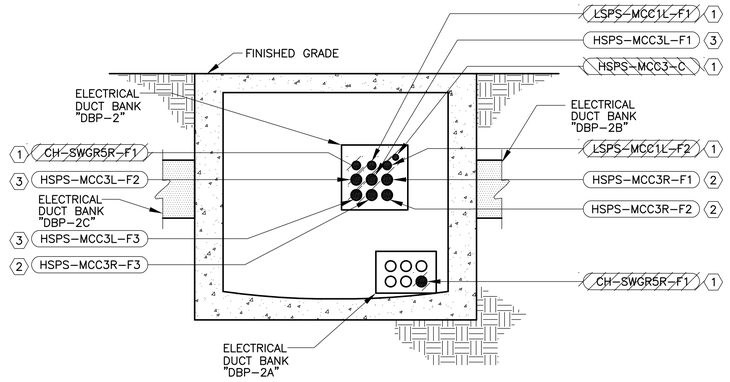
SITE
ELECTRICAL MAN HOLE ELEVATIONS
MH-7 – DEMOLITION (SHEET 7 OF 15)

PROJECT NO: 2009-800 | SHT. 367 OF 854 | DWG NO. S-E-060

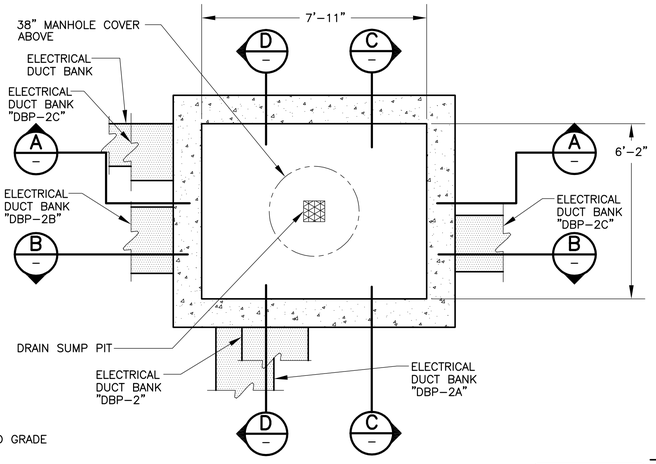
ADDENDUM NO. 1



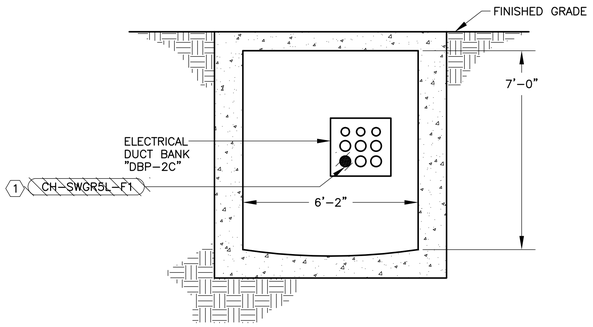

NORTH ELEVATION (A)
SCALE: N.T.S.



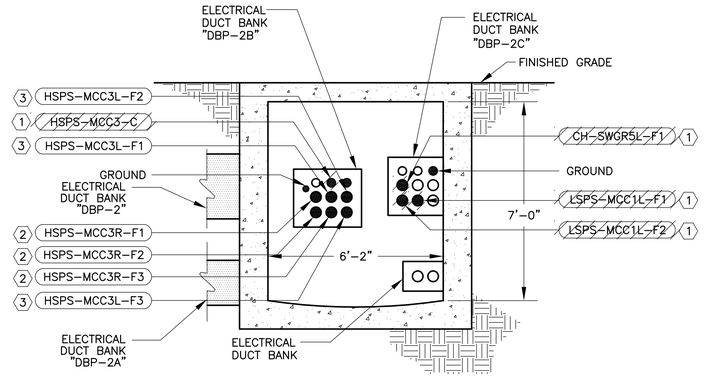

SOUTH ELEVATION (B)
SCALE: N.T.S.



PLAN VIEW (1)
SCALE: N.T.S.
[S–E–041], [S–E–048]




EAST ELEVATION (C)
SCALE: N.T.S.




WEST ELEVATION (D)
SCALE: N.T.S.

## KEY NOTES:

1. DISCONNECT AND REMOVE CABLE/WIRE IN ITS ENTIRETY.
2. DISCONNECT CABLE/WIRE FROM 5kV SWITCHGEAR "SWGR–3". PULL CABLE/WIRE BACK TO MANHOLE "MH–7". REMAINING CABLE/WIRE TO REMAIN IN PLACE. CABLE/WIRE TO BE RE–USED DURING RENOVATION ACTIVITIES.
3. DISCONNECT CABLE/WIRE FROM 5kV SWITCHGEAR "SWGR–2". PULL CABLE/WIRE BACK TO MANHOLE "MH–8". REMAINING CABLE/WIRE TO REMAIN IN PLACE. CABLE/WIRE TO BE RE–USED DURING RENOVATION ACTIVITIES.
4. EXISTING CABLE RACKING SYSTEM (NOT SHOWN) TO REMAIN AND BE REUSED.

## GENERAL NOTES:

1. DARKENED CIRCLES INDICATE CONDUITS WITH EXISTING INSTALLED CONDUCTORS OR CABLES. UNDARKENED CIRCLES INDICATE EMPTY CONDUITS DESIGNATED AS "SPARE" OR FOR SERVICE TO FUTURE PROJECTS.

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5/1/2016


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ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
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| NO. | DATE: | DESCRIPTION |
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DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

SITE
ELECTRICAL MAN HOLE ELEVATIONS
MH–8 – DEMOLITION (SHEET 8 OF 15)

PROJECT NO: 2009–800 | SHT. 368 OF 854 | DWG NO. S–E–061

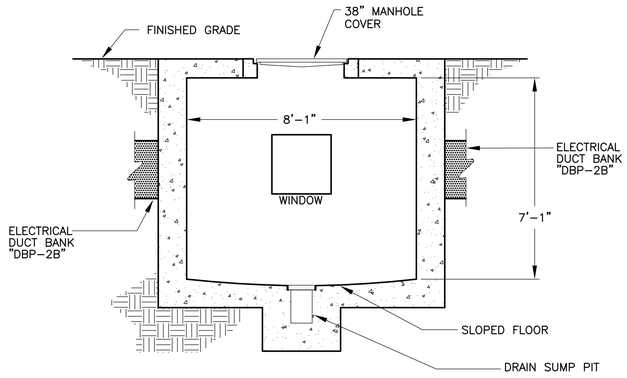
ADDENDUM NO. 1

## KEY NOTES:

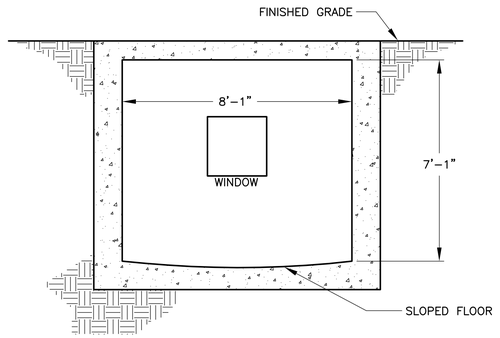
1. DISCONNECT AND REMOVE CABLE/WIRE IN ITS ENTIRETY.
2. DISCONNECT CABLE/WIRE FROM 5kV SWITCHGEAR "SWGR–3". PULL CABLE/WIRE BACK TO MANHOLE "MH–7". REMAINING CABLE/WIRE TO REMAIN IN PLACE. CABLE/WIRE TO BE RE–USED DURING RENOVATION ACTIVITIES.
3. DISCONNECT CABLE/WIRE FROM 5kV SWITCHGEAR "SWGR–2". PULL CABLE/WIRE BACK TO MANHOLE "MH–8". REMAINING CABLE/WIRE TO REMAIN IN PLACE. CABLE/WIRE TO BE RE–USED DURING RENOVATION ACTIVITIES.

## GENERAL NOTES:

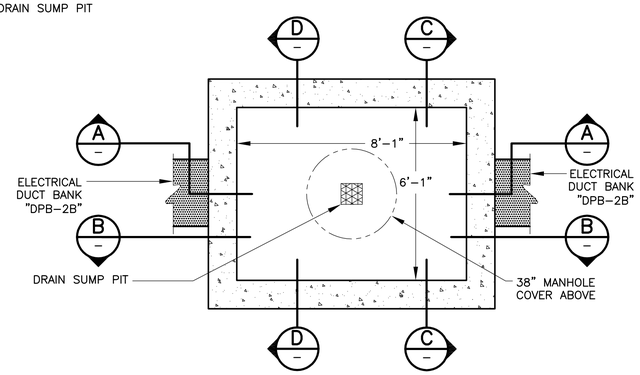
1. DARKENED CIRCLES INDICATE CONDUITS WITH EXISTING INSTALLED CONDUCTORS OR CABLES. UNDARKENED CIRCLES INDICATE EMPTY CONDUITS DESIGNATED AS "SPARE" OR FOR SERVICE TO FUTURE PROJECTS.



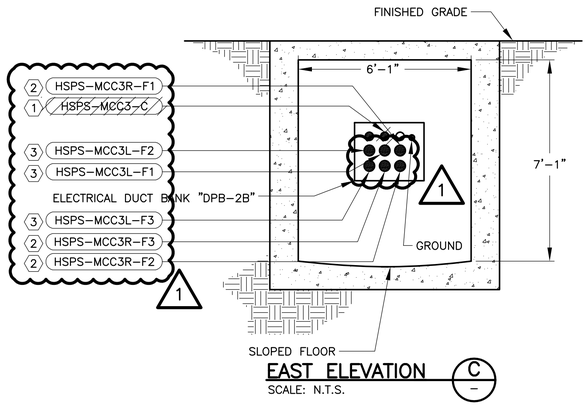

NORTH ELEVATION A
SCALE: N.T.S.



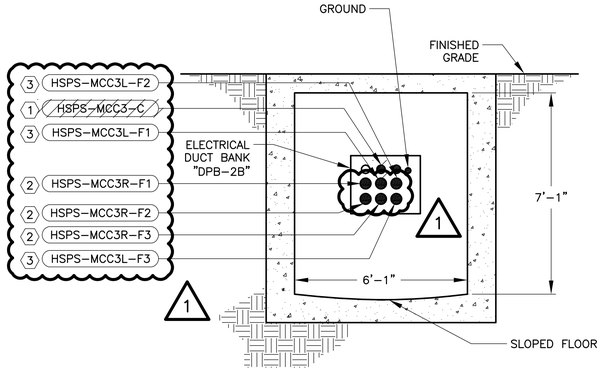

SOUTH ELEVATION B
SCALE: N.T.S.




PLAN VIEW 1 [S-E-044]
SCALE: N.T.S.




EAST ELEVATION C
SCALE: N.T.S.




WEST ELEVATION D
SCALE: N.T.S.

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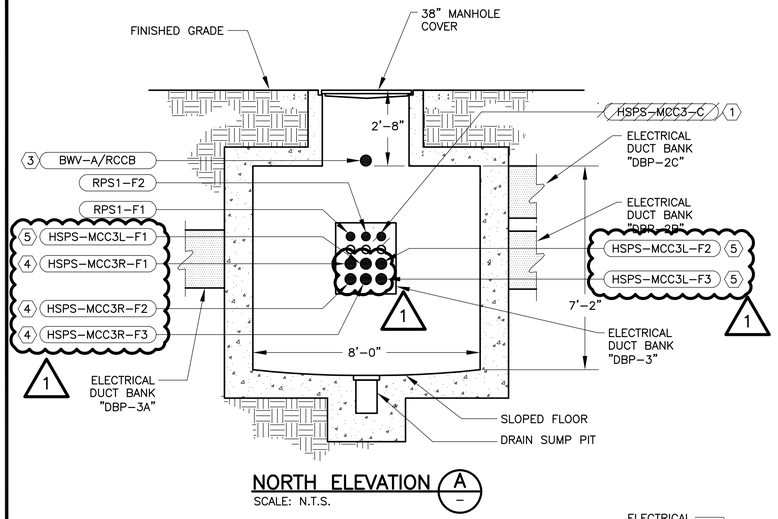
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

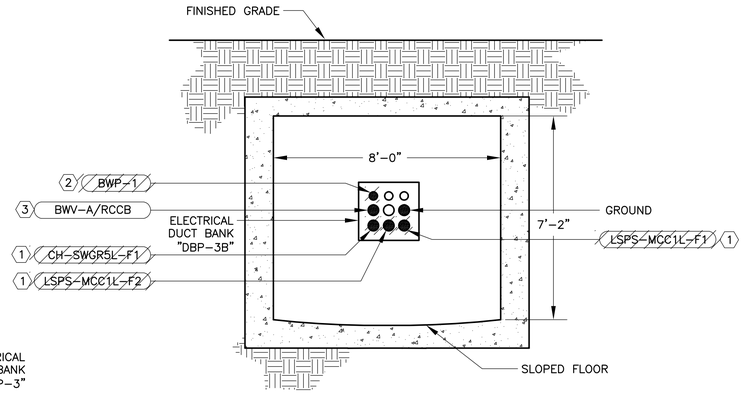
# SITE
# ELECTRICAL MAN HOLE ELEVATIONS
# MH–9 – DEMOLITION (SHEET 9 OF 15)

PROJECT NO: 2009–800 | SHT. 369 OF 854 | DWG NO. S–E–062

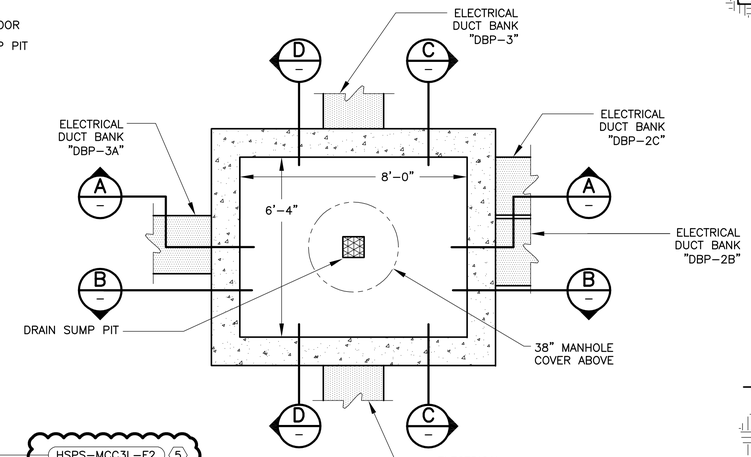
ADDENDUM NO. 1



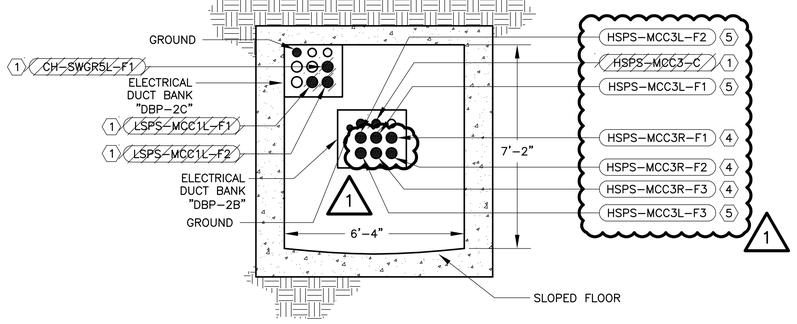

NORTH ELEVATION A
SCALE: N.T.S.




SOUTH ELEVATION B
SCALE: N.T.S.




PLAN VIEW 1
SCALE: N.T.S. [S-E-044], [S-E-049]

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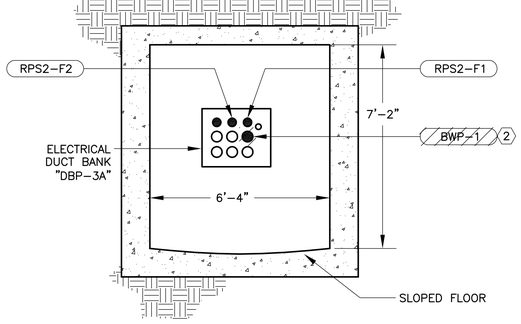
SCALE: N.T.S.




WEST ELEVATION D
SCALE: N.T.S.

PLANT NORTH

## KEY NOTES:

1. DISCONNECT AND REMOVE CABLE/WIRE IN ITS ENTIRETY.
2. DEMOLISH ABANDONED CABLE/WIRE IN ITS ENTIRETY.
3. FIELD VERIFY CABLES ROUTED TO FLOCCULATOR GALLERY, TAGGED "RCCB" HERE, ARE ABANDONED. IF CABLES ARE ABANDONED, PULL CUT CABLES/WIRES TAGGED "RCCB" INTO MANHOLE "MH-10" FROM HAND HOLE "HH-1". CUT IN MANHOLE "MH-10" LEAVING SIX FEET OF CABLE COILED ON THE MANHOLE FLOOR. REFER TO DRAWING NO. [S-E-069].
4. DISCONNECT CABLE/WIRE FROM 5kV SWITCHGEAR "SWGR-3". PULL CABLE/WIRE BACK TO MANHOLE "MH-7". REMAINING CABLE/WIRE TO REMAIN IN PLACE. CABLE/WIRE TO BE RE-USED DURING RENOVATION ACTIVITIES.
5. DISCONNECT CABLE/WIRE FROM 5kV SWITCHGEAR "SWGR-2". PULL CABLE/WIRE BACK TO MANHOLE "MH-8". REMAINING CABLE/WIRE TO REMAIN IN PLACE. CABLE/WIRE TO BE RE-USED DURING RENOVATION ACTIVITIES.

## GENERAL NOTES:

1. DARKENED CIRCLES INDICATE CONDUITS WITH EXISTING INSTALLED CONDUCTORS OR CABLES. UNDARKENED CIRCLES INDICATE EMPTY CONDUITS DESIGNATED AS "SPARE" OR FOR SERVICE TO FUTURE PROJECTS.

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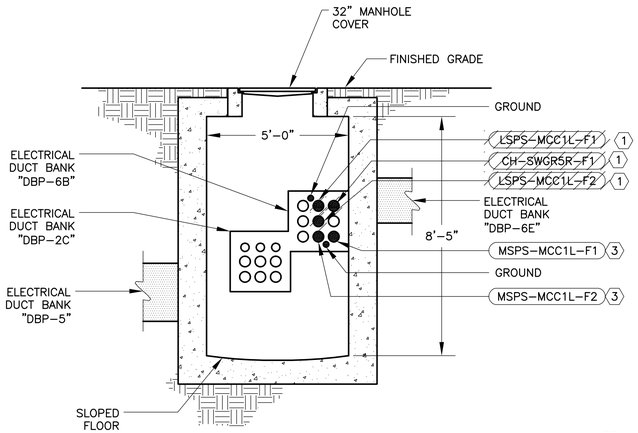
DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

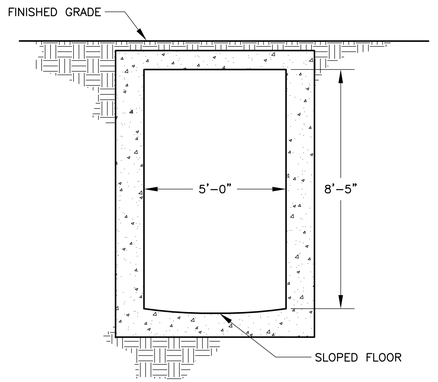
SITE
ELECTRICAL MAN HOLE ELEVATIONS
MH-10 - DEMOLITION (SHEET 10 OF 15)

PROJECT NO: 2009-800 | SHT. 370 OF 854 | DWG NO. S-E-063

ADDENDUM NO. 1




NORTH ELEVATION A
SCALE: N.T.S.




SOUTH ELEVATION B
SCALE: N.T.S.

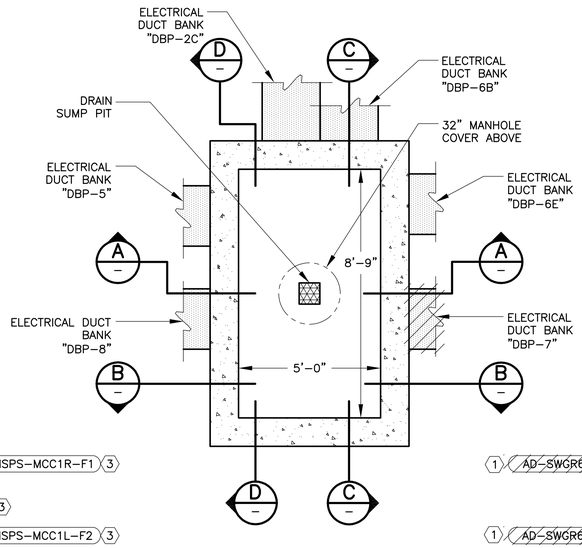
## KEY NOTES:

1. DISCONNECT AND REMOVE CABLE/WIRE IN ITS ENTIRETY.
2. DUCTBANK TO BE PARTIALLY DEMOLISHED BY OTHERS. ONCE EXISTING MEDIUM SERVICE PUMP STATION HAS BEEN DECOMMISSIONED, DEMOLISH REMAINING SEGMENT OF DUCTBANK IN ITS ENTIRETY. A PORTION OF EXISTING WINDOW TO BE RE-USED FOR PROPOSED DUCTBANK DURING RENOVATION ACTIVITIES. REFER TO DRAWING NO. [S-E-114] FOR ADDITIONAL INFORMATION.
3. MEDIUM SERVICE PUMP STATION POWER FEEDERS AND DUCT BANK, INSTRUMENTATION AND CONTROLS TO BE DEMOLISHED BY OTHERS.
4. DISCONNECT CABLE/WIRE FROM 5kV SWITCHGEAR "SWGR-3". PULL CABLE/WIRE BACK TO MANHOLE "MH-7". REMAINING CABLE/WIRE TO REMAIN IN PLACE. CABLE/WIRE TO BE RE-USED DURING RENOVATION ACTIVITIES.

1

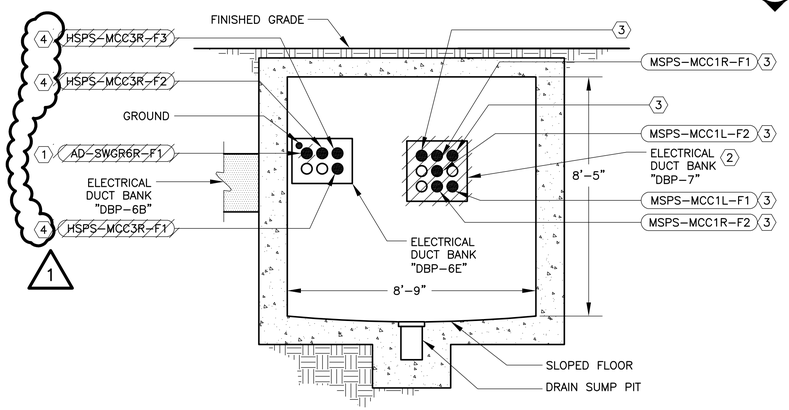
## GENERAL NOTES:

1. DARKENED CIRCLES INDICATE CONDUITS WITH EXISTING INSTALLED CONDUCTORS OR CABLES. UNDARKENED CIRCLES INDICATE EMPTY CONDUITS DESIGNATED AS "SPARE" OR FOR SERVICE TO FUTURE PROJECTS.

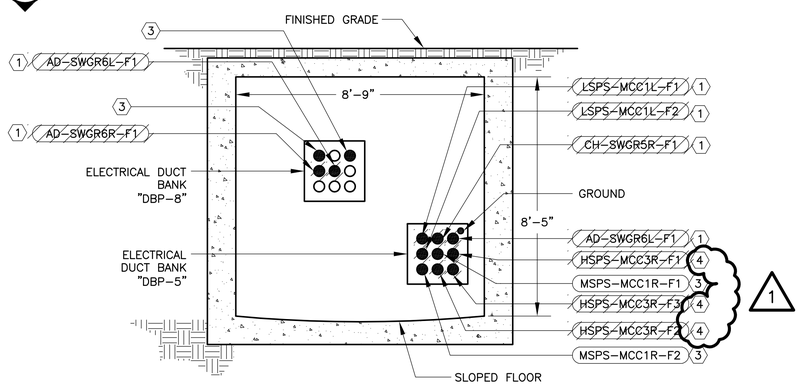



PLAN VIEW 1
SCALE: N.T.S. [S-E-042], [S-E-048]

PLANT NORTH




EAST ELEVATION C
SCALE: N.T.S.




WEST ELEVATION D
SCALE: N.T.S.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.

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K. A. HARUTUNIAN 59181 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS
5/1/2016

HARUTUNIAN ENGINEERING INCORPORATED
TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | HSPS FEEDERS |

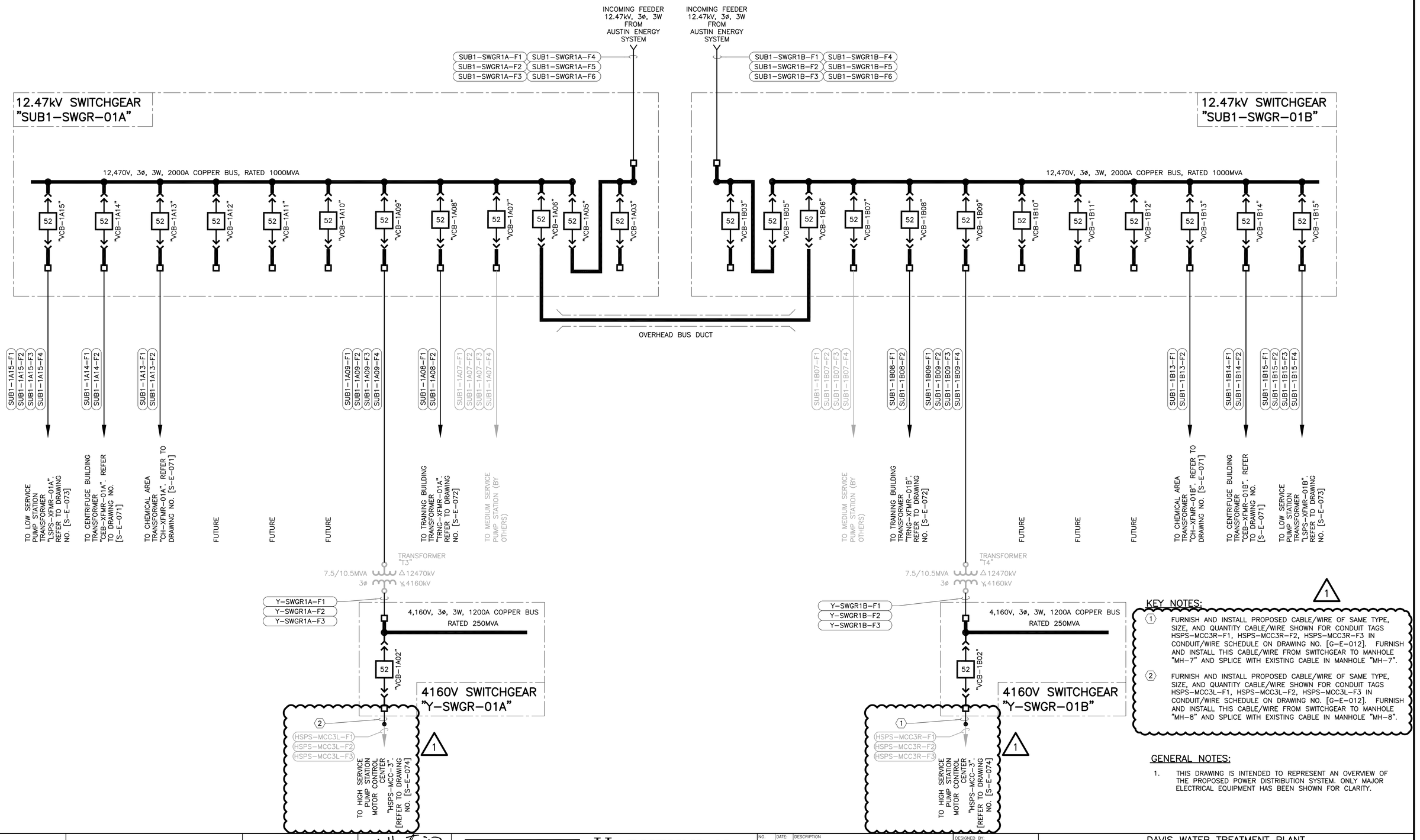
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

SITE
ELECTRICAL MAN HOLE ELEVATIONS
MH-11 - DEMOLITION (SHEET 11 OF 15)

PROJECT NO: 2009-800 | SHT. 371 OF 854 | DWG NO. S-E-064

ADDENDUM NO. 1




KEY NOTES:

1. FURNISH AND INSTALL PROPOSED CABLE/WIRE OF SAME TYPE, SIZE, AND QUANTITY CABLE/WIRE SHOWN FOR CONDUIT TAGS HSPS-MCC3R-F1, HSPS-MCC3R-F2, HSPS-MCC3R-F3 IN CONDUIT/WIRE SCHEDULE ON DRAWING NO. [G-E-012]. FURNISH AND INSTALL THIS CABLE/WIRE FROM SWITCHGEAR TO MANHOLE "MH-7" AND SPLICE WITH EXISTING CABLE IN MANHOLE "MH-7".
2. FURNISH AND INSTALL PROPOSED CABLE/WIRE OF SAME TYPE, SIZE, AND QUANTITY CABLE/WIRE SHOWN FOR CONDUIT TAGS HSPS-MCC3L-F1, HSPS-MCC3L-F2, HSPS-MCC3L-F3 IN CONDUIT/WIRE SCHEDULE ON DRAWING NO. [G-E-012]. FURNISH AND INSTALL THIS CABLE/WIRE FROM SWITCHGEAR TO MANHOLE "MH-8" AND SPLICE WITH EXISTING CABLE IN MANHOLE "MH-8".

GENERAL NOTES:

1. THIS DRAWING IS INTENDED TO REPRESENT AN OVERVIEW OF THE PROPOSED POWER DISTRIBUTION SYSTEM. ONLY MAJOR ELECTRICAL EQUIPMENT HAS BEEN SHOWN FOR CLARITY.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.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K. A. HARUTUNIAN 59181 STATE OF TEXAS REGISTERED PROFESSIONAL ENGINEER 5/1/2016


HARUTUNIAN ENGINEERING INCORPORATED

TEXAS FIRM REGISTRATION NUMBER F-2408

ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | HSPS FEEDERS |

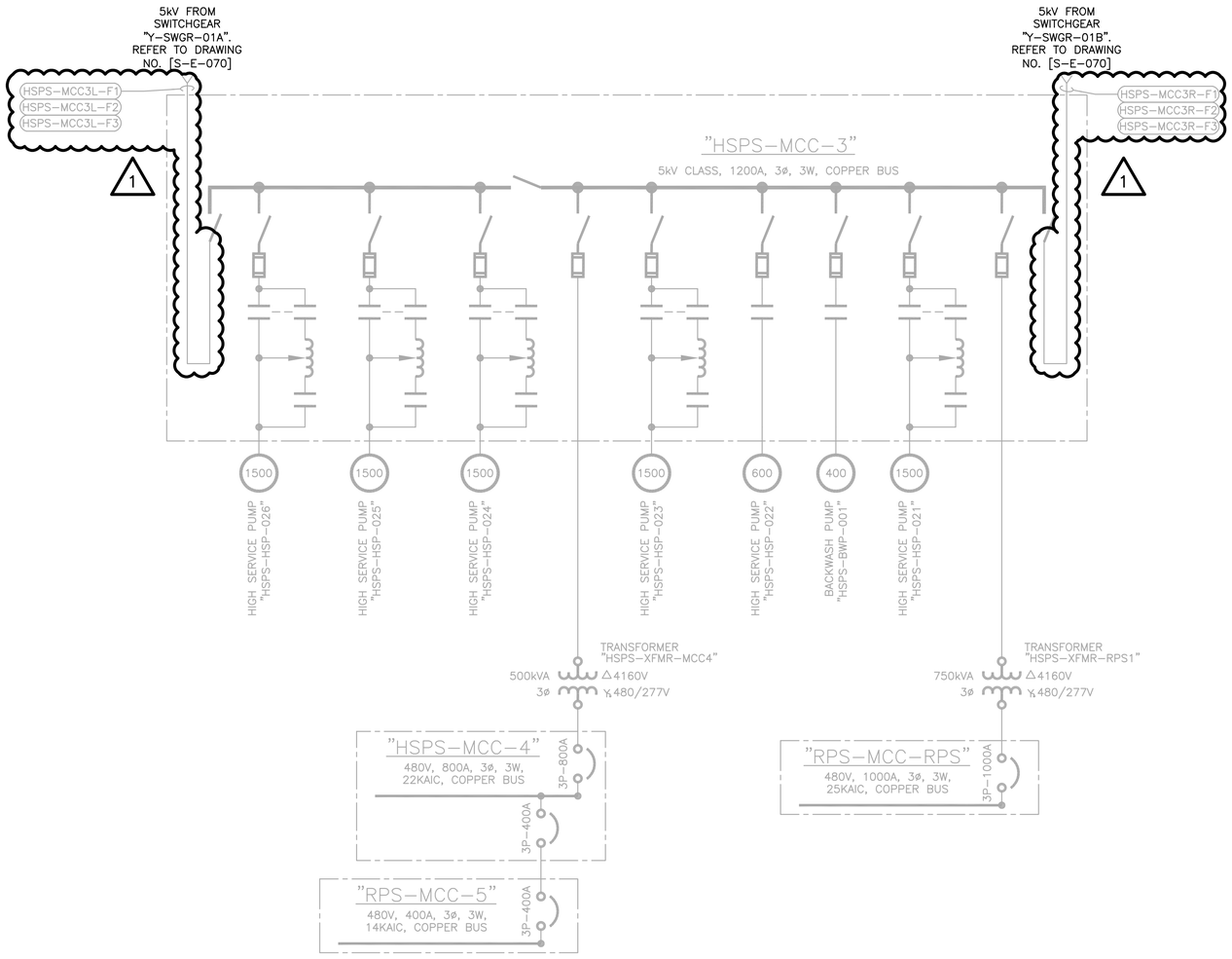
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

# OVERALL ONE-LINE DIAGRAM - RENOVATION (SHEET 1 OF 5)

PROJECT NO: 2009-800 | SHT. 377 OF 854 | DWG NO. S-E-070

ADDENDUM NO. 1




## GENERAL NOTES:

1. THIS DRAWING IS INTENDED TO REPRESENT AN OVERVIEW OF THE PROPOSED POWER DISTRIBUTION SYSTEM. ONLY MAJOR ELECTRICAL EQUIPMENT HAS BEEN SHOWN FOR CLARITY.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.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K. A. HARUTUNIAN 59181 STATE OF TEXAS REGISTERED PROFESSIONAL ENGINEER 5/1/2016


HARUTUNIAN ENGINEERING INCORPORATED

TEXAS FIRM REGISTRATION NUMBER F-2408

ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | HSPS FEEDERS |

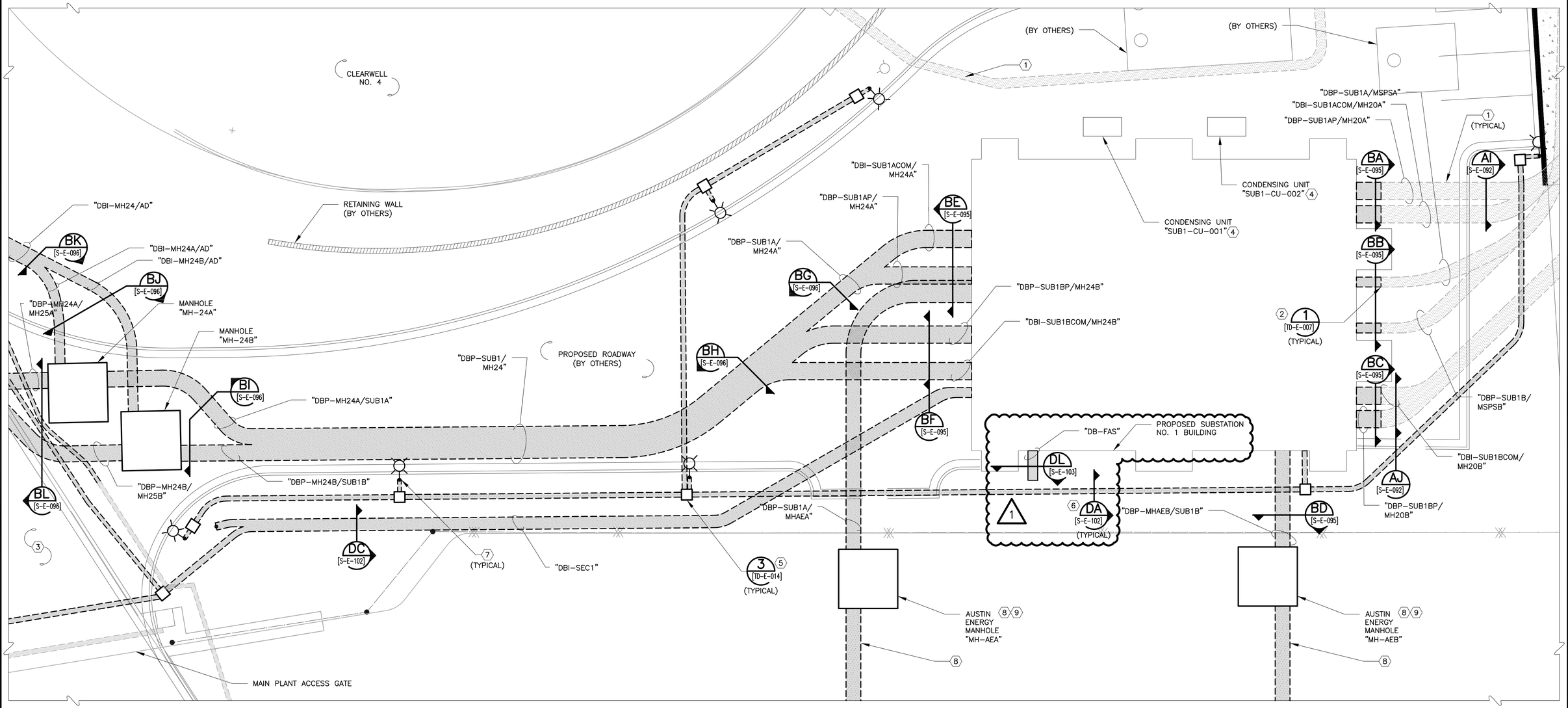
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

# OVERALL ONE-LINE DIAGRAM - RENOVATION (SHEET 5 OF 5)

PROJECT NO: 2009-800 | SHT. 381 OF 854 | DWG NO. S-E-074

ADDENDUM NO. 1




PLANT NORTH

## DUCTBANK ENLARGED PLAN 1 3 [S–E–076]

SCALE: 1" = 10'

## KEY NOTES:

1. DUCTBANK BY OTHERS
2. DUCTBANK CONSTRUCTED BY OTHERS. EXTEND EXISTING DUCTBANK PER DETAILS ON DRAWING NO. [TD–E–007].
3. NOT ALL RENOVATION ACTIVITIES IN THIS AREA ARE SHOWN HERE FOR CLARITY. REFER TO DRAWING NO. [S–E–086] FOR ADDITIONAL INFORMATION.
4. CONDENSING UNITS AND EQUIPMENT PADS SHOWN HERE FOR REFERENCE. REFER TO HVAC PLANS FOR ADDITIONAL INFORMATION.
5. FURNISH AND INSTALL SITE LIGHTING UNDERGROUND WIRING TERMINATION BOX PER DETAIL 3 ON DRAWING NO. [TD–E–014]. LOCATE TERMINATION BOX ADJACENT TO LIGHT FIXTURE. REFER TO DRAWING NO. [S–E–087] FOR ADDITIONAL INFORMATION. MAINTAIN A SPACING OF TWO FEET BETWEEN THE NEAR EDGE OF THE TERMINATION BOX AND THE NEAREST EDGE OF THE FIXTURE CONCRETE POLE/BASE. TYPICAL FOR ALL TYPE "R" POLE–MOUNTED FIXTURES.

## KEY NOTES (CONTINUED):

6. DUCTBANK SECTION TYPICAL FOR ALL SITE LIGHTING DUCTBANKS.
7. POLE MOUNTED LIGHT FIXTURE. REFER TO DRAWING NO. [S–E–087]. FIXTURE SHOWN HERE FOR REFERENCE ONLY.
8. THE DUCT BANK SEGMENT AND MANHOLE TO BE CONSTRUCTED BY AUSTIN ENERGY (AE). SPECIFICALLY, THE DUCT BANK SYSTEM CONSTRUCTED BY AE ON THE OWNER'S PROPERTY IS TO SPAN FROM 35TH STREET UP TO AND INCLUDING MANHOLES "MH–AEA" AND "MH–AEB", RESPECTIVELY. CONTRACTOR SHALL CONSTRUCT THE ENTIRETY OF THE RACEWAY SYSTEM FROM EACH SWITCHGEAR LOCATED IN PROPOSED SUBSTATION NO. 1 UP TO, BUT NOT INCLUDING, THE PROPOSED AE MANHOLES "MH–AEA" AND "MH–AEB". CONTRACTOR SHALL COORDINATE WITH AE FOR THE CONSTRUCTION OF AE DUCT BANK ON THE OWNER'S PROPERTY AND FOR THE INTERCONNECTION OF THE CONTRACTOR CONSTRUCTED DUCT BANK ONTO THE PROPOSED AE MANHOLES.

## KEY NOTES (CONTINUED):

9. CONTRACTOR SHALL BE AWARE THAT THE DUCT BANK SYSTEM AND MANHOLE SYSTEM INTERCONNECTING WITH THE AE DUCT BANK SYSTEM IS TO CONTAIN AE CABLES AND SHALL BE INSPECTED BY AE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH AE TO ASSURE THAT THE DUCT BANK AND MANHOLE SYSTEM THAT IS TO CONTAIN AE CABLES MEETS THE REQUIREMENTS OF AE AND IS CONSTRUCTED TO THE SATISFACTION OF AE AT NO ADDITIONAL COST TO THE OWNER.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.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STATE OF TEXAS · K. A. HARUTUNIAN · 59181 · REGISTERED PROFESSIONAL ENGINEER · 5/1/2016


HARUTUNIAN ENGINEERING INCORPORATED

TEXAS FIRM REGISTRATION NUMBER F–2408

ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | FIRE ALARM SYSTEM |

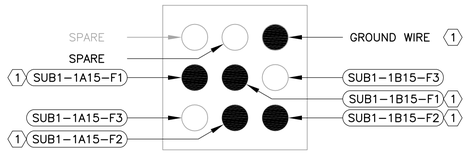
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: AS NOTED

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

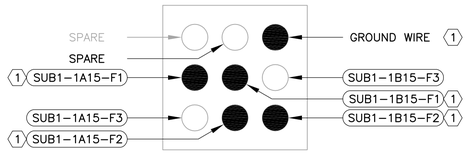
SITE
DUCTBANK ENLARGED PLAN
RENOVATION (SHEET 4 OF 5)

PROJECT NO: 2009–800 | SHT. 392 OF 854 | DWG NO. S–E–085

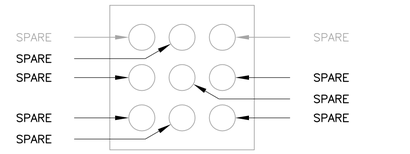
ADDENDUM NO. 1




DUCT BANK SECTION "DBP-1" A
SCALE: N.T.S. [S-E-081], [S-E-083]




DUCT BANK SECTION "DBP-1" B
SCALE: N.T.S. [S-E-078], [S-E-081]



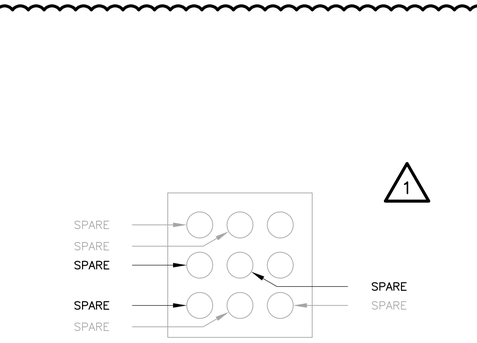

DUCT BANK SECTION "DBP-1" C
SCALE: N.T.S. [S-E-078], [S-E-083]

## KEY NOTES:

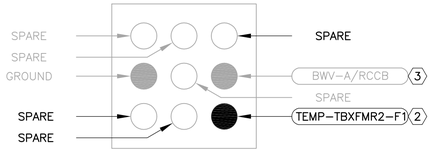
1. PRIOR TO PULLING PROPOSED CABLE/WIRE THROUGH EXISTING DUCT BANK, THOROUGHLY INSPECT CONDITION OF CONDUIT AND CLEAN PER SPECIFICATIONS.
2. FEEDER IS USED TO SERVE TEMPORARILY RELOCATED TRANSFORMER "TB-XFMR-2" IN THE CHEMICAL AREA. FEEDER SHALL BE DISCONNECTED AND REMOVED ONCE FINAL DISTRIBUTION SYSTEM IS IN PLACE. REFER TO DRAWINGS [SEQ-E-029], [SEQ-E-030] AND [SEQ-E-084] FOR ADDITIONAL INFORMATION.
3. SOME CABLE/WIRE IS ABANDONED IN PLACE, REFER TO DRAWING NO. [S-E-051] FOR ADDITIONAL INFORMATION.

## GENERAL NOTES:

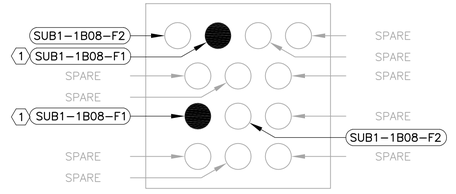
1. DARKENED CIRCLES INDICATE CONDUITS WITH EXISTING INSTALLED CONDUCTORS OR CABLES. UNDARKENED CIRCLES INDICATE EMPTY CONDUITS DESIGNATED AS "SPARE" OR FOR SERVICE TO FUTURE PROJECTS.



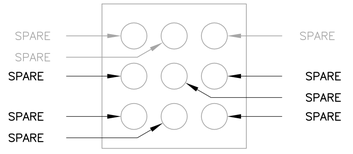

DUCT BANK SECTION "DBP-1B" D
SCALE: N.T.S. [S-E-079], [S-E-083]



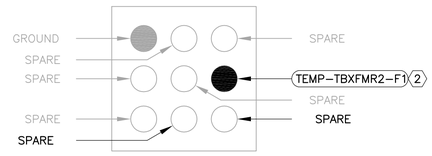

DUCT BANK SECTION "DBP-3B" E
SCALE: N.T.S. [S-E-083]



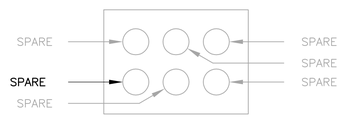

DUCT BANK SECTION "DBP-8/8A" F
SCALE: N.T.S. [S-E-076]



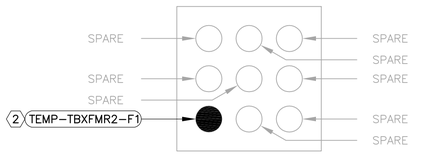

DUCT BANK SECTION "DBP-1C" G
SCALE: N.T.S. [S-E-075], [S-E-078], [S-E-082], [S-E-083]



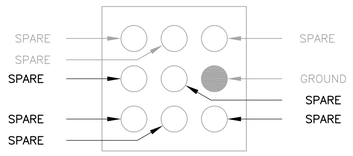

DUCT BANK SECTION "DBP-2C" H
SCALE: N.T.S. [S-E-075], [S-E-078], [S-E-082]




DUCT BANK SECTION "DBP-2A" I
SCALE: N.T.S. [S-E-082]




DUCT BANK SECTION "DBP-2C" J
SCALE: N.T.S. [S-E-082]




DUCT BANK SECTION "DBP-1D" K
SCALE: N.T.S. [S-E-082]

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.

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5/1/2016


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TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | CH TEMP FEEDER |

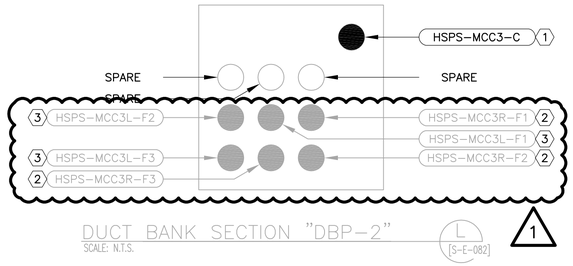
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

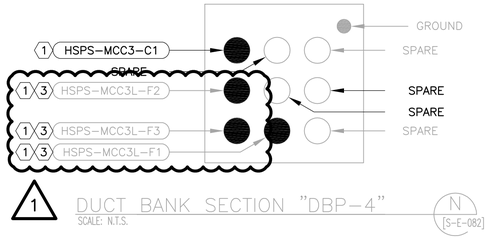
SITE
ELECTRICAL DUCTBANK SECTIONS
RENOVATION (SHEET 1 OF 6)

PROJECT NO: 2009-800 | SHT. 396 OF 854 | DWG NO. S-E-089

ADDENDUM NO. 1




DUCT BANK SECTION "DBP-2"
SCALE: N.T.S.
L [S-E-082]




DUCT BANK SECTION "DBP-4"
SCALE: N.T.S.
N [S-E-082]

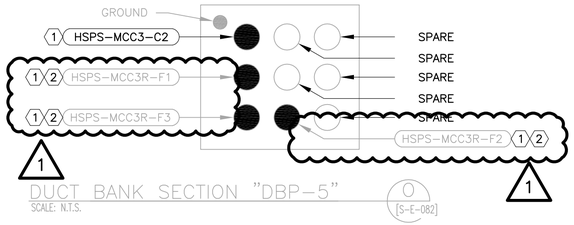
## KEY NOTES:

1. PRIOR TO PULLING PROPOSED CABLE/WIRE THROUGH EXISTING DUCT BANK, THOROUGHLY INSPECT CONDITION OF CONDUIT AND CLEAN PER SPECIFICATIONS.
2. SPLICE PROPOSED CABLE/WIRE TO EXISTING CABLE/WIRE IN MANHOLE "MH-7". TERMINATE PROPOSED CABLE/WIRE ON PROPOSED 5kV SWITCHGEAR. REFER TO DRAWING NO. [S-E-070] FOR ADDITIONAL INFORMATION.
3. SPLICE PROPOSED CABLE/WIRE TO EXISTING CABLE/WIRE IN MANHOLE "MH-8". TERMINATE PROPOSED CABLE/WIRE ON PROPOSED 5kV SWITCHGEAR. REFER TO DRAWING NO. [S-E-070] FOR ADDITIONAL INFORMATION.

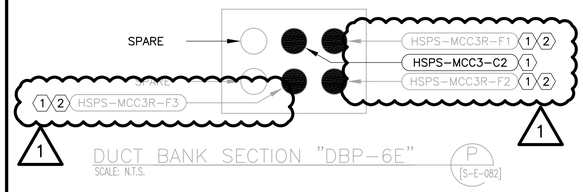
1

## GENERAL NOTES:

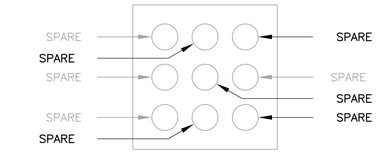
1. DARKENED CIRCLES INDICATE CONDUITS WITH EXISTING INSTALLED CONDUCTORS OR CABLES. UNDARKENED CIRCLES INDICATE EMPTY CONDUITS DESIGNATED AS "SPARE" OR FOR SERVICE TO FUTURE PROJECTS.



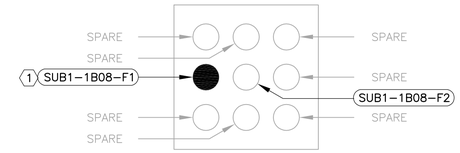

DUCT BANK SECTION "DBP-5"
SCALE: N.T.S.
O [S-E-082]



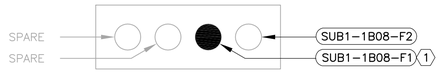

DUCT BANK SECTION "DBP-6E"
SCALE: N.T.S.
P [S-E-082]



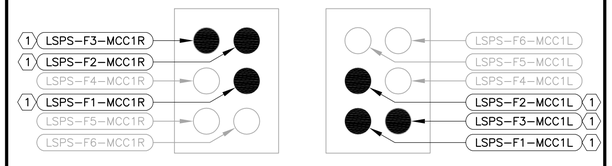

DUCT BANK SECTION "DBP-6B"
SCALE: N.T.S.
Q [S-E-082]




DUCT BANK SECTION "DBP-8"
SCALE: N.T.S.
R [S-E-082]




DUCT BANK SECTION "DBP-8A"
SCALE: N.T.S.
S [S-E-076]

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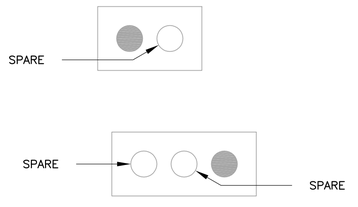
SCALE: N.T.S.

DUCT BANK SECTION
SCALE: N.T.S.
T [S-E-083]

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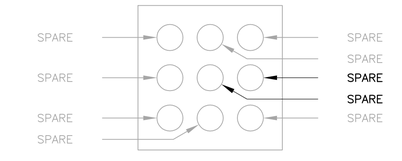
U [S-E-083]




DUCT BANK SECTION "DBP-9"
SCALE: N.T.S.
V [S-E-076]

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.

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K. A. HARUTUNIAN
STATE OF TEXAS
59181
REGISTERED
PROFESSIONAL ENGINEER
5/1/2016


HARUTUNIAN ENGINEERING INCORPORATED
TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | HSPS FEEDERS |

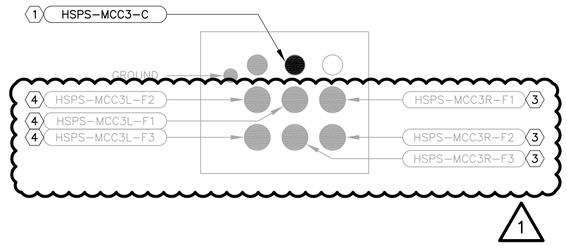
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

SITE
ELECTRICAL DUCTBANK SECTIONS
RENOVATION (SHEET 2 OF 6)

PROJECT NO: 2009-800 | SHT. 397 OF 854 | DWG NO. S-E-090

ADDENDUM NO. 1

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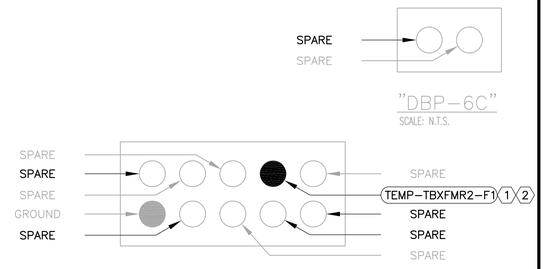
SCALE: N.T.S.
X [S–E–078]




DUCT BANK SECTION
SCALE: N.T.S.
Y [S–E–082]

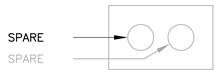
## KEY NOTES:

1. PRIOR TO PULLING PROPOSED CABLE/WIRE THROUGH EXISTING DUCT BANK, THOROUGHLY INSPECT CONDITION OF CONDUIT AND CLEAN PER SPECIFICATIONS.
2. FEEDER IS USED TO SERVE TEMPORARILY RELOCATED TRANSFORMER "TB–XFMR–2" IN THE CHEMICAL AREA. FEEDER SHALL BE DISCONNECTED AND REMOVED ONCE FINAL DISTRIBUTION SYSTEM IS IN PLACE. REFER TO DRAWINGS [SEQ–E–029], [SEQ–E–030] AND [SEQ–E–084] FOR ADDITIONAL INFORMATION.
3. SPLICE PROPOSED CABLE/WIRE TO EXISTING CABLE/WIRE IN MANHOLE "MH–7". TERMINATE PROPOSED CABLE/WIRE ON PROPOSED 5kV SWITCHGEAR. REFER TO DRAWING NO. [S–E–070] FOR ADDITIONAL INFORMATION.
4. SPLICE PROPOSED CABLE/WIRE TO EXISTING CABLE/WIRE IN MANHOLE "MH–8". TERMINATE PROPOSED CABLE/WIRE ON PROPOSED 5kV SWITCHGEAR. REFER TO DRAWING NO. [S–E–070] FOR ADDITIONAL INFORMATION.

1

## GENERAL NOTES:

1. DARKENED CIRCLES INDICATE CONDUITS WITH EXISTING INSTALLED CONDUCTORS OR CABLES. UNDARKENED CIRCLES INDICATE EMPTY CONDUITS DESIGNATED AS "SPARE" OR FOR SERVICE TO FUTURE PROJECTS.

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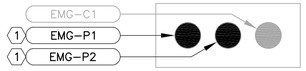
Z [S–E–082]

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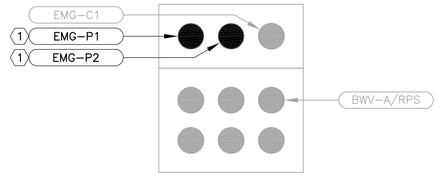
AB [S–E–078]




DUCT BANK SECTION "DBI–3" & "DBP–G"
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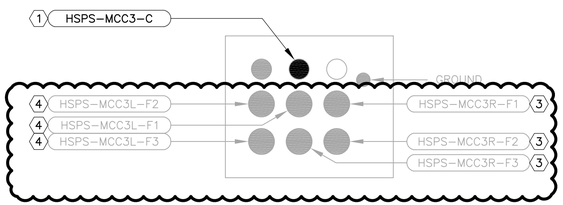
AC [S–E–076]




DUCT BANK SECTION "DBP–2B"
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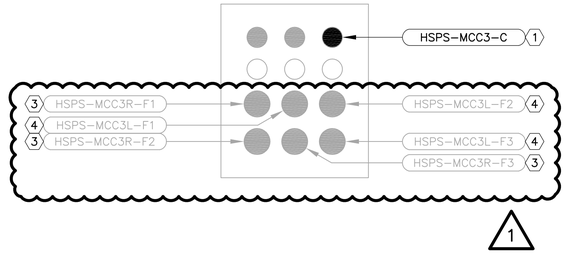
AG [S–E–075], [S–E–078], [S–E–082]




DUCT BANK SECTION "DBP–3"
SCALE: N.T.S.
AH [S–E–078]

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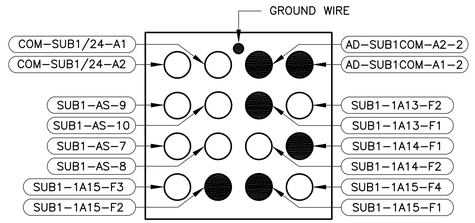
DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

SITE
ELECTRICAL DUCTBANK SECTIONS
RENOVATION (SHEET 3 OF 6)

PROJECT NO: 2009–800 | SHT. 398 OF 854 | DWG NO. S–E–091

ADDENDUM NO. 1

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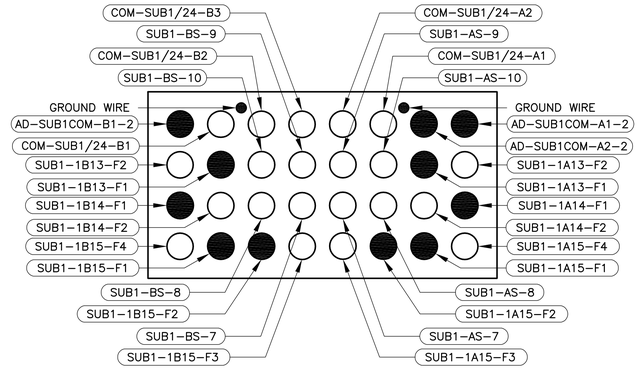
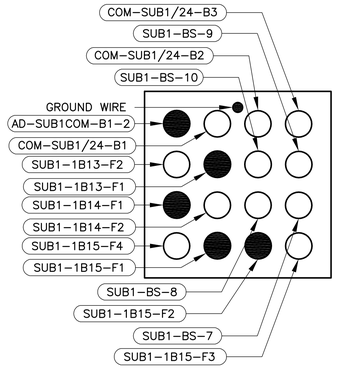



## SECTION "DBP-SUB1/MH24" (BH) [S-E-085]
SCALE: N.T.S.

## GENERAL NOTES:

1. DARKENED CIRCLES INDICATE CONDUITS WITH INSTALLED CONDUCTORS OR CABLES. UNDARKENED CIRCLES INDICATE EMPTY CONDUITS DESIGNATED AS "SPARE" OR FOR SERVICE TO FUTURE PROJECTS.

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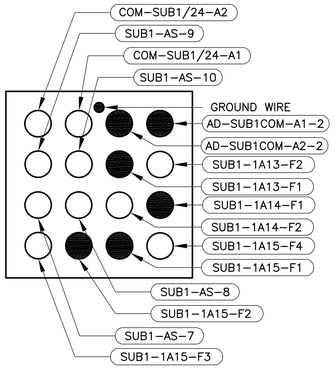


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## DUCT BANK SECTION (BI) [S-E-085]
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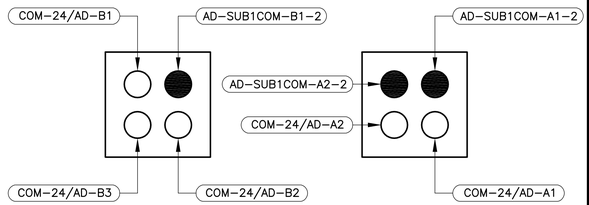


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## SECTION "DBI-MH24B/AD"
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## SECTION "DBI-MH24A/AD"
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## DUCT BANK SECTION (BJ) [S-E-085]
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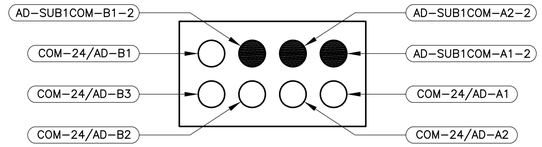


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## DUCT BANK SECTION (BK) [S-E-076], [S-E-085]
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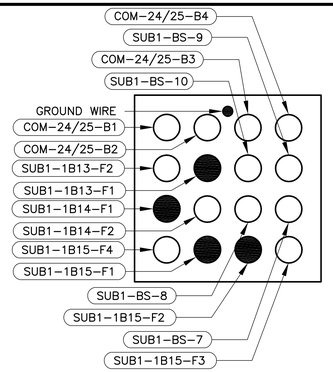


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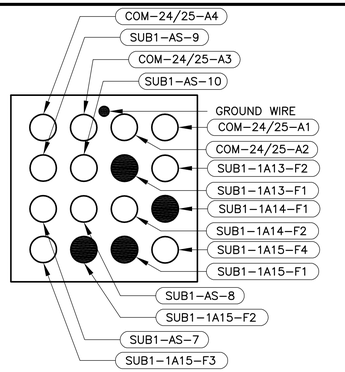


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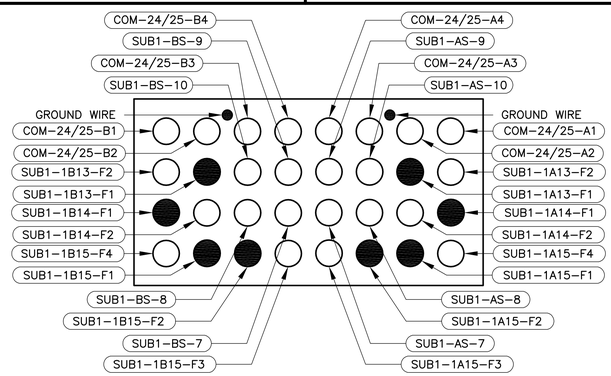


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SCALE: N.T.S.

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305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
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| 1 | 4/20/16 | CONDUIT TAGS |

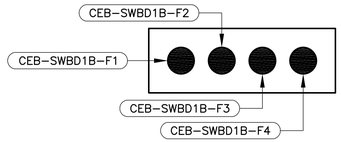
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

SITE
ELECTRICAL DUCTBANK SECTIONS
PROPOSED (SHEET 2 OF 9)

PROJECT NO: 2009-800 | SHT. 403 OF 854 | DWG NO. S-E-096

ADDENDUM NO. 1

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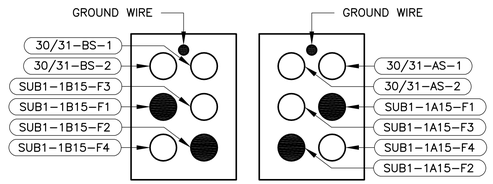


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SCALE: N.T.S.

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DUCT BANK SECTION CM [S-E-078], [S-E-083]
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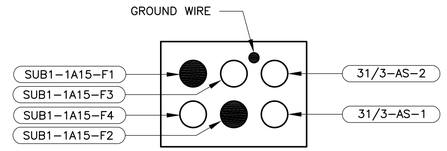


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SCALE: N.T.S.

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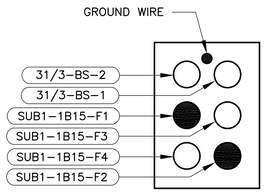


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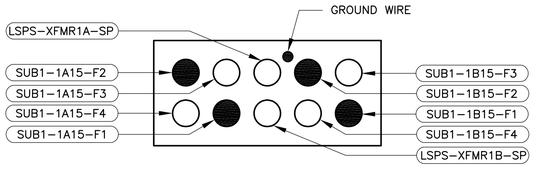
SCALE: N.T.S.

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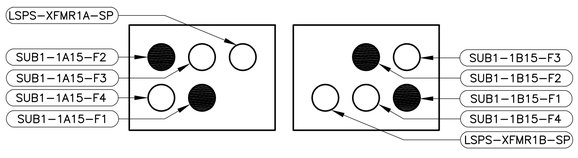


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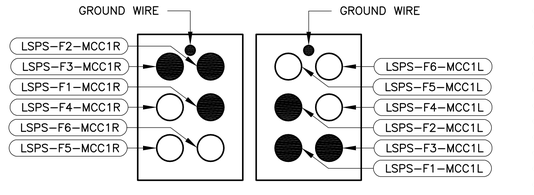
DUCT BANK SECTION CQ [S-E-083]
SCALE: N.T.S.

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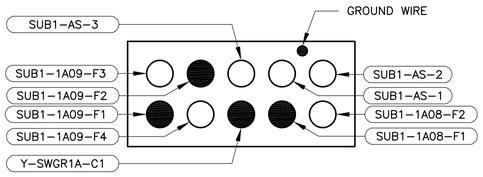
SECTION "DBP-LSPSXFMR1B/LSPSMCC1R"
SCALE: N.T.S.

SECTION "DBP-LSPSXFMR1A/LSPSMCC1L"
SCALE: N.T.S.

DUCT BANK SECTION CR [S-E-083]
SCALE: N.T.S.

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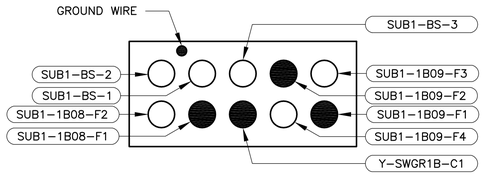


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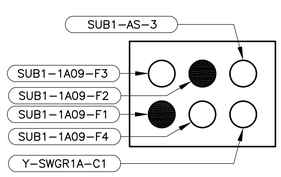


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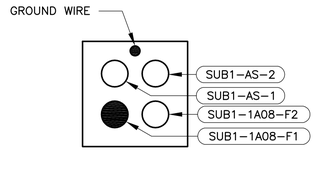
SCALE: N.T.S.




SECTION "DBP-MH6/MH23A"
SCALE: N.T.S.

DUCT BANK SECTION CU [S-E-082]
SCALE: N.T.S.

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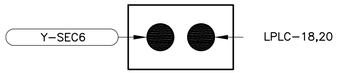
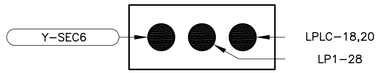
SITE
ELECTRICAL DUCTBANK SECTIONS
PROPOSED (SHEET 7 OF 9)

PROJECT NO: 2009-800 | SHT. 408 OF 854 | DWG NO. S-E-101

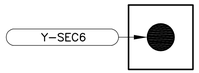
ADDENDUM NO. 1




SITE LIGHTING DUCTBANK SECTION (DF) [S-E-084]
SCALE: N.T.S.




SITE LIGHTING DUCTBANK SECTION (DG) [S-E-084]
SCALE: N.T.S.




SITE LIGHTING DUCTBANK SECTION (DH) [S-E-084]
SCALE: N.T.S.

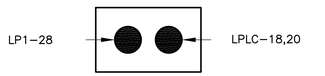
KEY NOTES:

(1) FEEDER IS USED TO SERVE TEMPORARILY RELOCATED TRANSFORMER "TB-XFMR-2" IN THE CHEMICAL AREA. FEEDER SHALL BE DISCONNECTED AND REMOVED ONCE FINAL DISTRIBUTION SYSTEM IS IN PLACE. REFER TO DRAWINGS [SEQ-E-029], [SEQ-E-030] AND [SEQ-E-084] FOR ADDITIONAL INFORMATION.

(2) CABLE/WIRE TO BE INSTALLED BY OTHERS. COORDINATE WITH OWNER.

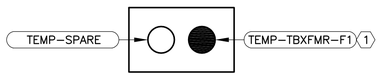
GENERAL NOTES:

1. DARKENED CIRCLES INDICATE CONDUITS WITH INSTALLED CONDUCTORS OR CABLES. UNDARKENED CIRCLES INDICATE EMPTY CONDUITS DESIGNATED AS "SPARE" OR FOR SERVICE TO FUTURE PROJECTS.

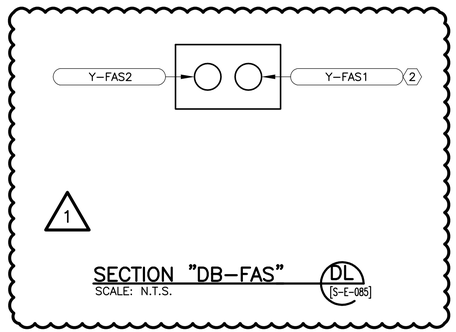



SITE LIGHTING DUCTBANK SECTION (DI) [S-E-084]
SCALE: N.T.S.

SITE LIGHTING DUCTBANK SECTION (DJ) [S-E-084]
SCALE: N.T.S.




SECTION "DBP-29A/TEMPXFMR" (DK) [S-E-079], [S-E-084]
SCALE: N.T.S.




SECTION "DB-FAS" (DL) [S-E-085]
SCALE: N.T.S.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.

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STATE OF TEXAS
K. A. HARUTUNIAN
59181
REGISTERED
PROFESSIONAL ENGINEER
5/1/2016

HARUTUNIAN ENGINEERING INCORPORATED
TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | FIRE ALARM SYSTEM |

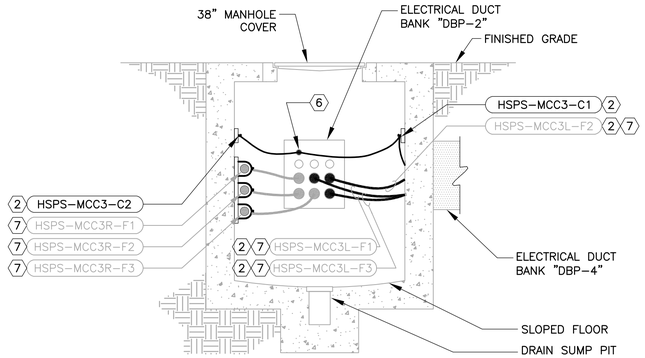
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

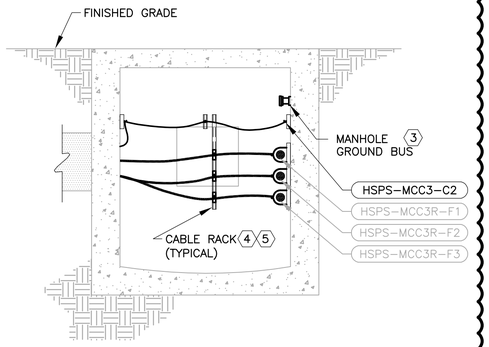
SITE
ELECTRICAL DUCTBANK SECTIONS
PROPOSED (SHEET 9 OF 9)

PROJECT NO: 2009-800 | SHT. 410 OF 854 | DWG NO. S-E-103

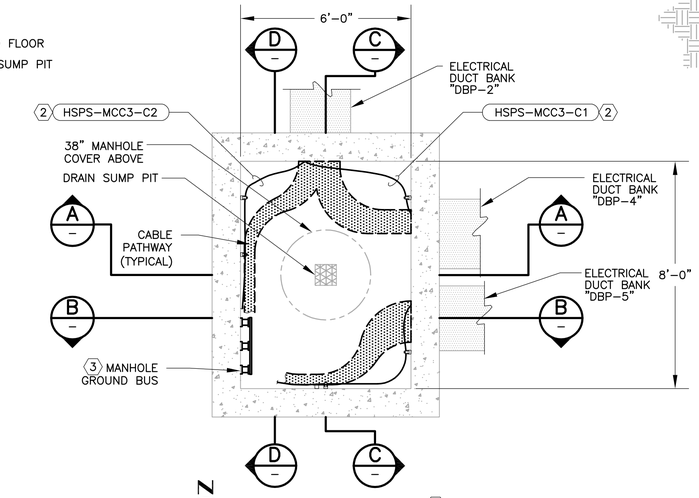
ADDENDUM NO. 1



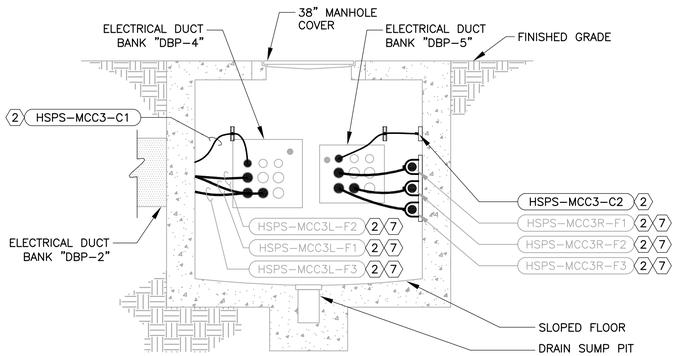

NORTH ELEVATION A
SCALE: N.T.S.



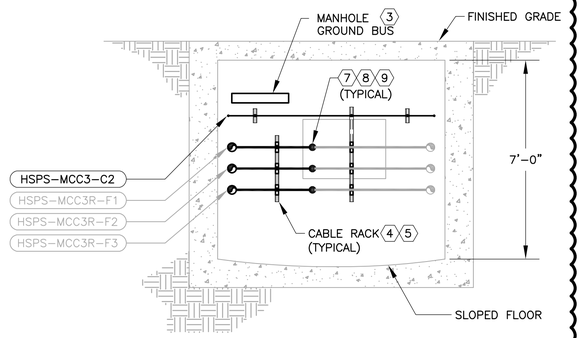

SOUTH ELEVATION B
SCALE: N.T.S.




PLAN VIEW 1 (1)
SCALE: N.T.S.
[S-E-076], [S-E-082]




EAST ELEVATION C
SCALE: N.T.S.




WEST ELEVATION D
SCALE: N.T.S.

## KEY NOTES:

1. DISCONNECT SPLICES MADE IN MANHOLE TO EXISTING GROUNDING CONDUCTORS. TERMINATE EACH EXISTING GROUNDING CONDUCTOR TO THE GROUND BAR. SHOULD GROUND CONDUCTOR BE OF INSUFFICIENT LENGTH, CAD WELD A SINGLE BARE COPPER 250KCMIL CABLE TO EXISTING CABLE AND TERMINATE AT GROUND BAR.
2. ROUTE PROPOSED CABLE/WIRE IN EXISTING DUCTBANK. THOROUGHLY SWAB AND CLEAN EXISTING CONDUIT PRIOR TO PULLING CABLE/WIRE.
3. REFER TO DETAIL NO. 3 ON DRAWING NO. [TD-E-013].
4. THE LENGTH OF SUPPORT CHANNEL SHALL BE ENOUGH TO FULLY INSTALL ALL 15KV PORCELAIN CLAMPS (6-1/8" WIDE) SHOWN FOR PROPOSED AND FOR FUTURE. REFER TO MANHOLE CABLE RACK DETAILS ON DRAWING [TD-E-005] FOR ADDITIONAL DIMENSIONAL INFORMATION TO DERIVE THE LENGTH OF CHANNEL AND PLACEMENT OF CABLE CLAMPS.
5. THOUGH NOT SHOWN HERE, BOND CABLE SUPPORT RACK AND CLAMPS TO PROPOSED MANHOLE GROUND BAR. REFER TO GROUNDING DETAILS ON DRAWING NO. [TD-E-013].
6. CONTENTS OF CONDUITS "HSPS-MCC-C1" AND "HSPS-MCC-C2" COMBINE IN "HSPS-MCC-C" AND CONTINUE IN DUCTBANK "DBP-2".
7. PROPOSED 5kV CONDUCTORS SHALL SPLICE WITH EXISTING 5kV CONDUCTORS IN MANHOLE "MH-7". FURNISH AND INSTALL CONDUCTOR SPLICE ASSEMBLIES BY RAYCHEM MODEL HVS OR APPROVED EQUAL, AND AS ALSO RECOMMENDED BY THE MEDIUM VOLTAGE CABLE MANUFACTURER. A LETTER OF APPROVAL MUST BE ISSUED BY THE CABLE MANUFACTURER WHICH SHALL ACCEPT AND APPROVE THE USE OF THE SELECTED CONDUCTOR SPLICE ASSEMBLY. REFER TO DRAWING NO. [S-E-070] FOR ADDITIONAL INFORMATION.
8. FURNISH AND INSTALL COMPRESSION TYPE, LONG BARREL CABLE SPLICE ASSEMBLY FOR COPPER CONDUCTORS FOR GROUNDING CONDUCTOR SPLICE. COMPRESSION SPLICE SHALL BE MANUFACTURED FROM ELECTRO-TIN PLATED HIGH CONDUCTIVITY ELCTROLYTIC COPPER AND RATED 600VAC. COMPRESSION SPLICE SHALL BE TYPE YS AS MANUFACTURED BY BURNDY OR APPROVED EQUAL. SUBMIT SHOP DRAWINGS FOR THE COMPRESSION SPLICE IN COMPLIANCE WITH SPECIFICATION SECTIONS 01300 AND 16200. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
9. FURNISH AND INSTALL CROSSLINKED POLYOLEFIN SHRINKABLE INSULATING SLEEVE RATED 1000VAC WITH SEALANT STRIP AND STAINLESS STEEL CHANNEL CLOSURE FOR INSULATING PROPOSED EQUIPMENT GROUNDING CONDUCTOR SPLICE. INSULATING SLEEVE ASSEMBLY SHALL BE MODEL CRSM AS MANUFACTURED BY RAYCHEM OR APPROVED EQUAL. SUBMIT SHOP DRAWINGS FOR THE COMPRESSION SPLICE AND REDUCING ADAPTOR ASSEMBLY IN COMPLIANCE WITH SPECIFICATION SECTIONS 01300 AND 16200. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

1

## GENERAL NOTES:

1. FOR SAKE OF CLARITY THE GROUNDING SYSTEM INSIDE/OUTSIDE OF MANHOLE IS NOT SHOWN. REFER TO MANHOLE GROUNDING DETAILS ON DRAWING NOS. [TD-E-013].
2. EXTREME CARE MUST BE TAKEN FOR THE INSTALLATION OF THE ELECTRICAL DUCT BANK SINCE THERE ARE NO AVAILABLE AS BUILT RECORDS OF PROFILES IDENTIFYING LOCATION AND INVERT ELEVATIONS OF EXISTING UNDERGROUND MECHANICAL PIPING. ROUTING OF THE PROPOSED DUCT BANK SHOWN IS BASED ON SCHEMATIC KNOWLEDGE OF THE SIZE OF MECHANICAL PIPING AND THEIR APPROXIMATE AND/OR ASSUMED ROUTING AREA AND/OR LOCATION. REFER TO THE SITE MECHANICAL PIPING DRAWING. NO DATA IS AVAILABLE PERTAINING TO EXISTING UNDERGROUND ELECTRICAL DUCT BANK SYSTEM AND ITS COORDINATION WITH THE UNDERGROUND MECHANICAL SYSTEM. THE CONTRACTOR IS TO EXERCISE EXTREME CARE, VERIFY LOCATION/ROUTING/ELEVATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING FULL SCALE INSTALLATION PROCESS OF THE PROPOSED DUCT BANK SYSTEM. FOLLOWING THE DISCOVERY VERIFICATION OF EXISTING UNDERGROUND UTILITIES, SHOULD ADJUSTMENT/MODIFICATIONS BECOME A NECESSITY TO EITHER THE EXISTING OR PROPOSED SYSTEM (AS APPLICABLE). THE EXISTING DISCOVERED FIELD CONDITIONS MUST BE BROUGHT TO THE ENGINEERS ATTENTION FOR THE EXECUTION OF THE NECESSARY ADJUSTMENTS/MODIFICATIONS.
3. THE DISTANCES FROM THE FLOOR OF THE MANHOLE TO THE BOTTOM EDGE OF ALL DUCT BANK ENTRIES INTO THE MANHOLE SHALL NOT BE LESS THAN 18". FOR AN EXACT HEIGHT OF THE DUCT BANK ENTRY INTO THE MANHOLE REFER TO THE (DUCT BANK/MANHOLE) PROFILE DRAWINGS.
4. SPACE AND ENCASE UNDERGROUND DUCT/CONDUIT BANKS IN REINFORCED CONCRETE PER DETAILS AS SHOWN ON DRAWING NO. [TD-E-008].
5. INTERFACE PROPOSED DUCT BANK WITH STRUCTURAL WALL OF MANHOLE PER THE STRUCTURAL DRAWINGS/SPECIFICATIONS. COORDINATE WITH THE STRUCTURAL DRAWINGS/SPECIFICATIONS.
6. CONDUCTORS/CABLES ROUTED THROUGH MANHOLE SHALL BE TAGGED/LABELED IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS.
7. COORDINATE/VERIFY ALL POINTS OF CONNECTION PRIOR TO COMMENCING INSTALLATION ACTIVITIES.
8. LOCATE ALL PROPOSED CABLE CLAMPS WITH CONDUCTORS AT RACK LOCATIONS SHOWN ON DRAWING.
9. IT IS EXTREMELY IMPORTANT THAT ALL PROPOSED CONDUCTORS/CABLES ARE INSTALLED IN THE CONDUITS INDICATED ON THIS DRAWING. THE SYSTEM HAS BEEN DESIGNED TO MINIMIZE HEAT BUILD UP BETWEEN CONDUCTORS/CABLES AND MAXIMIZE ENERGY EFFICIENCY. SHOULD IT BECOME NECESSARY TO ADJUST/MODIFY THE CONDUIT(S) IN WHICH THE PROPOSED CONDUCTORS/CABLES ARE TO BE INSTALLED, THE DISCOVERED FIELD CONDITIONS MUST BE BROUGHT TO ENGINEER'S ATTENTION FOR EXECUTION/APPROVAL OF THE NECESSARY ADJUSTMENTS/MODIFICATIONS.
10. ALSO REFER TO SITE ELECTRICAL DUCT BANK PROFILES PRIOR TO COMMENCING UNDERGROUND CONDUIT/DUCT BANK AND MANHOLE INSTALLATION.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.

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K. A. HARUTUNIAN 59181 STATE OF TEXAS REGISTERED PROFESSIONAL ENGINEER 5/1/2016

HARUTUNIAN ENGINEERING INCORPORATED
TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | HSPS FEEDERS |

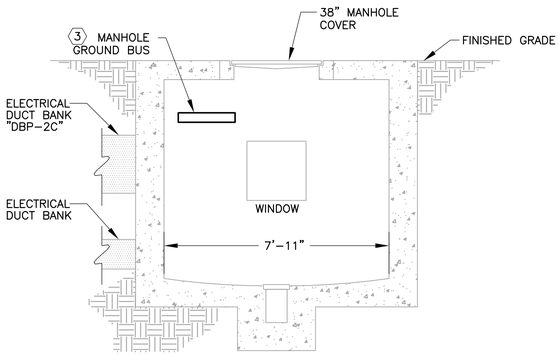
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

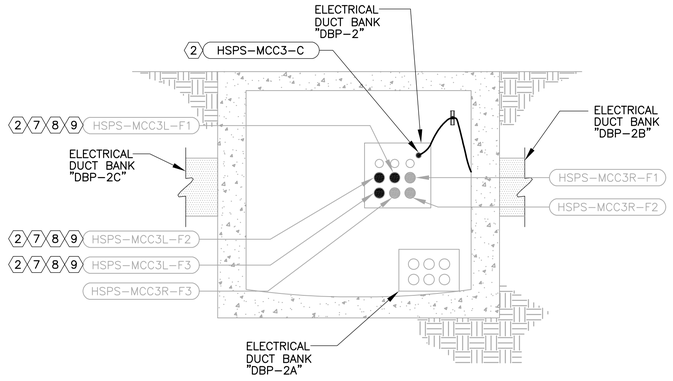
SITE
ELECTRICAL MAN HOLE ELEVATIONS
MH-7 – RENOVATION (SHEET 7 OF 22)

PROJECT NO: 2009-800 | SHT. 417 OF 854 | DWG NO. S-E-110

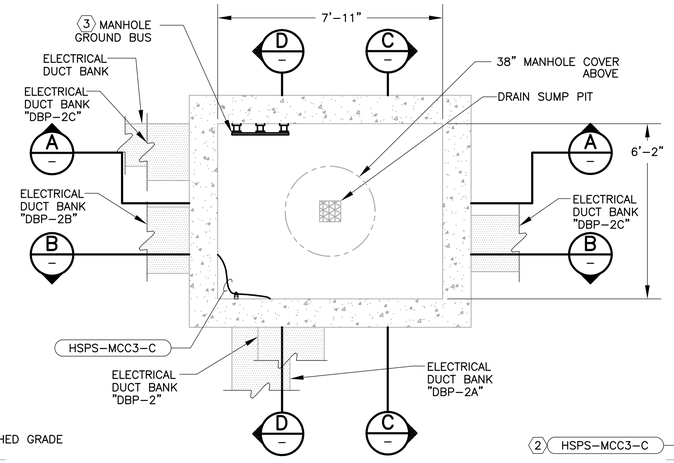
ADDENDUM NO. 1

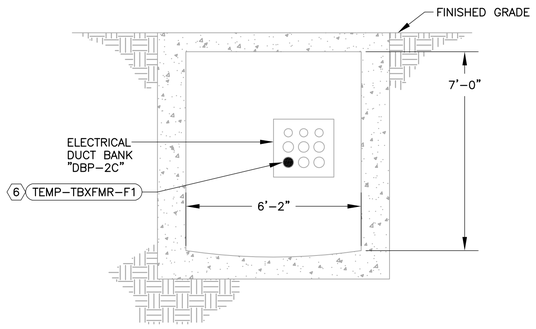



NORTH ELEVATION A
SCALE: N.T.S.




SOUTH ELEVATION B
SCALE: N.T.S.



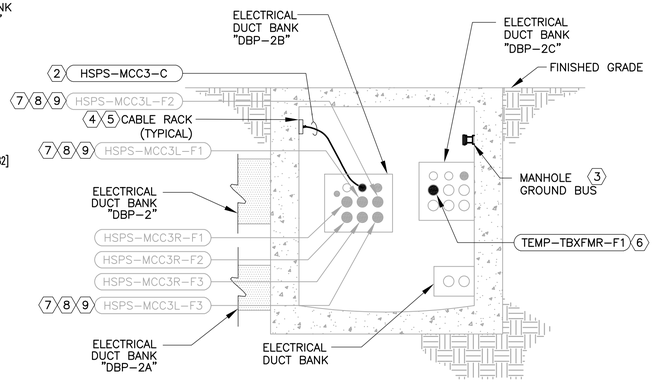




EAST ELEVATION C
SCALE: N.T.S.

N
PLANT NORTH

PLAN VIEW 1 (1)(10)
SCALE: N.T.S. [S-E-075], [S-E-082]

1




WEST ELEVATION D
SCALE: N.T.S.

## KEY NOTES:

1. DISCONNECT SPLICES MADE IN MANHOLE TO EXISTING GROUNDING CONDUCTORS. TERMINATE EACH EXISTING GROUNDING CONDUCTOR TO THE GROUND BAR. SHOULD GROUND CONDUCTOR BE OF INSUFFICIENT LENGTH, CAD WELD A SINGLE BARE COPPER 250KCMIL CABLE TO EXISTING CABLE AND TERMINATE AT GROUND BAR.
2. ROUTE PROPOSED CABLE/WIRE IN EXISTING DUCTBANK. THOROUGHLY SWAB AND CLEAN EXISTING CONDUIT PRIOR TO PULLING CABLE/WIRE.
3. REFER TO DETAIL NO. 3 ON DRAWING NO. [TD-E-013].
4. THE LENGTH OF SUPPORT CHANNEL SHALL BE ENOUGH TO FULLY INSTALL ALL 15KV PORCELAIN CLAMPS (6-1/8" WIDE) SHOWN FOR PROPOSED AND FOR FUTURE. REFER TO MANHOLE CABLE RACK DETAILS ON DRAWING [TD-E-005] FOR ADDITIONAL DIMENSIONAL INFORMATION TO DERIVE THE LENGTH OF CHANNEL AND PLACEMENT OF CABLE CLAMPS.
5. THOUGH NOT SHOWN HERE, BOND CABLE SUPPORT RACK AND CLAMPS TO PROPOSED MANHOLE GROUND BAR. REFER TO GROUNDING DETAILS ON DRAWING NO. [TD-E-013].
6. FEEDER IS USED TO SERVE TEMPORARILY RELOCATED TRANSFORMER "TB-XFMR-2" IN THE CHEMICAL AREA. FEEDER SHALL BE DISCONNECTED AND REMOVED ONCE FINAL DISTRIBUTION SYSTEM IS IN PLACE. REFER TO DRAWINGS [SEQ-E-029], [SEQ-E-030] AND [SEQ-E-084] FOR ADDITIONAL INFORMATION.
7. PROPOSED 5kV CONDUCTORS SHALL SPLICE WITH EXISTING 5kV CONDUCTORS IN MANHOLE "MH-8". FURNISH AND INSTALL CONDUCTOR SPLICE ASSEMBLIES BY RAYCHEM MODEL HVS OR APPROVED EQUAL, AND AS ALSO RECOMMENDED BY THE MEDIUM VOLTAGE CABLE MANUFACTURER. A LETTER OF APPROVAL MUST BE ISSUED BY THE CABLE MANUFACTURER WHICH SHALL ACCEPT AND APPROVE THE USE OF THE SELECTED CONDUCTOR SPLICE ASSEMBLY. REFER TO DRAWING NO. [S-E-070] FOR ADDITIONAL INFORMATION.
8. FURNISH AND INSTALL COMPRESSION TYPE, LONG BARREL CABLE SPLICE ASSEMBLY FOR COPPER CONDUCTORS FOR GROUNDING CONDUCTOR SPLICE. COMPRESSION SPLICE SHALL BE MANUFACTURED FROM ELECTRO-TIN PLATED HIGH CONDUCTIVITY ELCTROLYTIC COPPER AND RATED 600VAC. COMPRESSION SPLICE SHALL BE TYPE YS AS MANUFACTURED BY BURNDY OR APPROVED EQUAL. SUBMIT SHOP DRAWINGS FOR THE COMPRESSION SPLICE IN COMPLIANCE WITH SPECIFICATION SECTIONS 01300 AND 16200. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
9. FURNISH AND INSTALL CROSSLINKED POLYOLEFIN SHRINKABLE INSULATING SLEEVE RATED 1000VAC WITH SEALANT STRIP AND STAINLESS STEEL CHANNEL CLOSURE FOR INSULATING PROPOSED EQUIPMENT GROUNDING CONDUCTOR SPLICE. INSULATING SLEEVE ASSEMBLY SHALL BE MODEL CRSM AS MANUFACTURED BY RAYCHEM OR APPROVED EQUAL. SUBMIT SHOP DRAWINGS FOR THE COMPRESSION SPLICE AND REDUCING ADAPTOR ASSEMBLY IN COMPLIANCE WITH SPECIFICATION SECTIONS 01300 AND 16200. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
10. RACK PROPOSED CABLE ON EXISTING CABLE RACKING SYSTEM. GROUND EXISTING CABLE RACKING SYSTEM PER DETAIL 4 ON DRAWING NO. [TD-E-013].

1

## GENERAL NOTES:

1. FOR SAKE OF CLARITY THE GROUNDING SYSTEM INSIDE/OUTSIDE OF MANHOLE IS NOT SHOWN. REFER TO MANHOLE GROUNDING DETAILS ON DRAWING NOS. [TD-E-013].
2. EXTREME CARE MUST BE TAKEN FOR THE INSTALLATION OF THE ELECTRICAL DUCT BANK SINCE THERE ARE NO AVAILABLE AS BUILT RECORDS OF PROFILES IDENTIFYING LOCATION AND INVERT ELEVATIONS OF EXISTING UNDERGROUND MECHANICAL PIPING. ROUTING OF THE PROPOSED DUCT BANK SHOWN IS BASED ON SCHEMATIC KNOWLEDGE OF THE SIZE OF MECHANICAL PIPING AND THEIR APPROXIMATE AND/OR ASSUMED ROUTING AREA AND/OR LOCATION. REFER TO THE SITE MECHANICAL PIPING DRAWING. NO DATA IS AVAILABLE PERTAINING TO EXISTING UNDERGROUND ELECTRICAL DUCT BANK SYSTEM AND ITS COORDINATION WITH THE UNDERGROUND MECHANICAL SYSTEM. THE CONTRACTOR IS TO EXERCISE EXTREME CARE, VERIFY LOCATION/ROUTING/ELEVATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING FULL SCALE INSTALLATION PROCESS OF THE PROPOSED DUCT BANK SYSTEM. FOLLOWING THE DISCOVERY VERIFICATION OF EXISTING UNDERGROUND UTILITIES, SHOULD ADJUSTMENT/MODIFICATIONS BECOME A NECESSITY TO EITHER THE EXISTING OR PROPOSED SYSTEM (AS APPLICABLE). THE EXISTING DISCOVERED FIELD CONDITIONS MUST BE BROUGHT TO THE ENGINEERS ATTENTION FOR THE EXECUTION OF THE NECESSARY ADJUSTMENTS/MODIFICATIONS.
3. THE DISTANCES FROM THE FLOOR OF THE MANHOLE TO THE BOTTOM EDGE OF ALL DUCT BANK ENTRIES INTO THE MANHOLE SHALL NOT BE LESS THAN 18". FOR AN EXACT HEIGHT OF THE DUCT BANK ENTRY INTO THE MANHOLE REFER TO THE (DUCT BANK/MANHOLE) PROFILE DRAWINGS.
4. SPACE AND ENCASE UNDERGROUND DUCT/CONDUIT BANKS IN REINFORCED CONCRETE PER DETAILS AS SHOWN ON DRAWING NO. [TD-E-008].
5. INTERFACE PROPOSED DUCT BANK WITH STRUCTURAL WALL OF MANHOLE PER THE STRUCTURAL DRAWINGS/SPECIFICATIONS. COORDINATE WITH THE STRUCTURAL DRAWINGS/SPECIFICATIONS.
6. CONDUCTORS/CABLES ROUTED THROUGH MANHOLE SHALL BE TAGGED/LABELED IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS.
7. COORDINATE/VERIFY ALL POINTS OF CONNECTION PRIOR TO COMMENCING INSTALLATION ACTIVITIES.
8. LOCATE ALL PROPOSED CABLE CLAMPS WITH CONDUCTORS AT RACK LOCATIONS SHOWN ON DRAWING.
9. IT IS EXTREMELY IMPORTANT THAT ALL PROPOSED CONDUCTORS/CABLES ARE INSTALLED IN THE CONDUITS INDICATED ON THIS DRAWING. THE SYSTEM HAS BEEN DESIGNED TO MINIMIZE HEAT BUILD UP BETWEEN CONDUCTORS/CABLES AND MAXIMIZE ENERGY EFFICIENCY. SHOULD IT BECOME NECESSARY TO ADJUST/MODIFY THE CONDUIT(S) IN WHICH THE PROPOSED CONDUCTORS/CABLES ARE TO BE INSTALLED, THE DISCOVERED FIELD CONDITIONS MUST BE BROUGHT TO ENGINEER'S ATTENTION FOR EXECUTION/APPROVAL OF THE NECESSARY ADJUSTMENTS/MODIFICATIONS.
10. ALSO REFER TO SITE ELECTRICAL DUCT BANK PROFILES PRIOR TO COMMENCING UNDERGROUND CONDUIT/DUCT BANK AND MANHOLE INSTALLATION.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.

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K. A. HARUTUNIAN 59181 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS
5/1/2016

HARUTUNIAN ENGINEERING INCORPORATED
TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | HSPS FEEDERS |

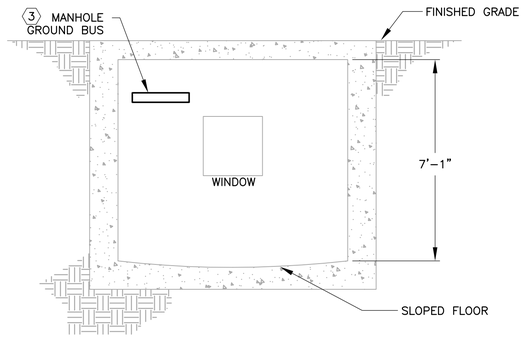
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

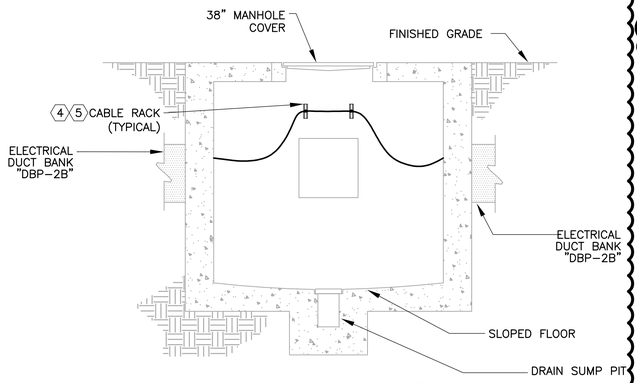
SITE
ELECTRICAL MAN HOLE ELEVATIONS
MH-8 – RENOVATION (SHEET 8 OF 22)

PROJECT NO: 2009-800 | SHT. 418 OF 854 | DWG NO. S-E-111

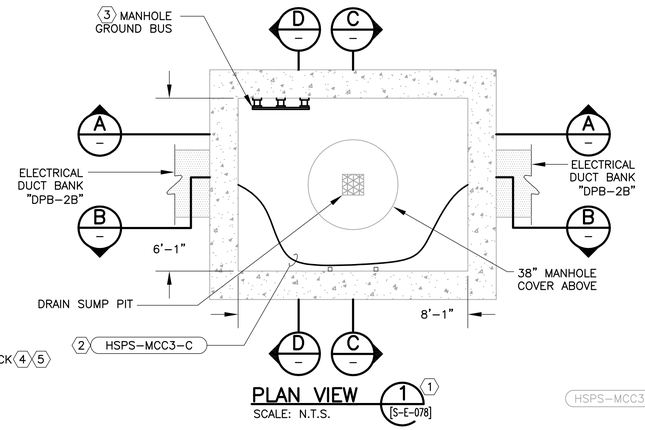
ADDENDUM NO. 1



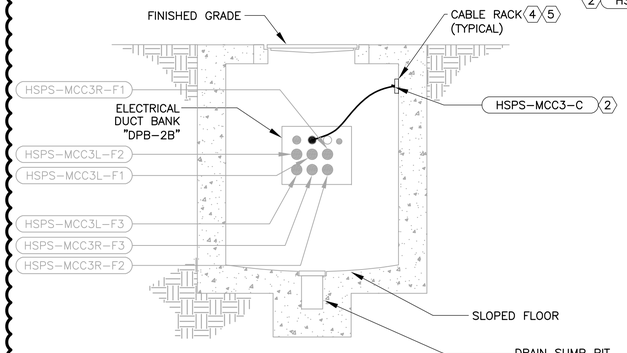

NORTH ELEVATION A
SCALE: N.T.S.



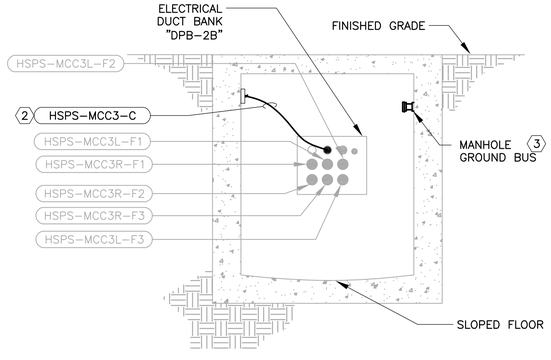

SOUTH ELEVATION B
SCALE: N.T.S.




PLAN VIEW 1 [1 S-E-078]
SCALE: N.T.S.




EAST ELEVATION C
SCALE: N.T.S.




WEST ELEVATION D
SCALE: N.T.S.

## KEY NOTES:

1. DISCONNECT SPLICES MADE IN MANHOLE TO EXISTING GROUNDING CONDUCTORS. TERMINATE EACH EXISTING GROUNDING CONDUCTOR TO THE GROUND BAR. SHOULD GROUND CONDUCTOR BE OF INSUFFICIENT LENGTH, CAD WELD A SINGLE BARE COPPER 250KCMIL CABLE TO EXISTING CABLE AND TERMINATE AT GROUND BAR.
2. ROUTE PROPOSED CABLE/WIRE IN EXISTING DUCTBANK. THOROUGHLY SWAB AND CLEAN EXISTING CONDUIT PRIOR TO PULLING CABLE/WIRE.
3. REFER TO DETAIL NO. 3 ON DRAWING NO. [TD-E-013].
4. THE LENGTH OF SUPPORT CHANNEL SHALL BE ENOUGH TO FULLY INSTALL ALL CABLE CLAMPS SHOWN FOR PROPOSED AND FOR FUTURE. REFER TO MANHOLE CABLE RACK DETAILS ON DRAWING [TD-E-005] FOR ADDITIONAL DIMENSIONAL INFORMATION TO DERIVE THE LENGTH OF CHANNEL AND PLACEMENT OF CABLE CLAMPS.
5. THOUGH NOT SHOWN HERE, BOND CABLE SUPPORT RACK AND CLAMPS TO PROPOSED MANHOLE GROUND BAR. REFER TO GROUNDING DETAILS ON DRAWING NO. [TD-E-013].

## GENERAL NOTES:

1. FOR SAKE OF CLARITY THE GROUNDING SYSTEM INSIDE/OUTSIDE OF MANHOLE IS NOT SHOWN. REFER TO MANHOLE GROUNDING DETAILS ON DRAWING NOS. [TD-E-013].
2. EXTREME CARE MUST BE TAKEN FOR THE INSTALLATION OF THE ELECTRICAL DUCT BANK SINCE THERE ARE NO AVAILABLE AS BUILT RECORDS OF PROFILES IDENTIFYING LOCATION AND INVERT ELEVATIONS OF EXISTING UNDERGROUND MECHANICAL PIPING. ROUTING OF THE PROPOSED DUCT BANK SHOWN IS BASED ON SCHEMATIC KNOWLEDGE OF THE SIZE OF MECHANICAL PIPING AND THEIR APPROXIMATE AND/OR ASSUMED ROUTING AREA AND/OR LOCATION. REFER TO THE SITE MECHANICAL PIPING DRAWING. NO DATA IS AVAILABLE PERTAINING TO EXISTING UNDERGROUND ELECTRICAL DUCT BANK SYSTEM AND ITS COORDINATION WITH THE UNDERGROUND MECHANICAL SYSTEM. THE CONTRACTOR IS TO EXERCISE EXTREME CARE, VERIFY LOCATION/ROUTING/ELEVATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING FULL SCALE INSTALLATION PROCESS OF THE PROPOSED DUCT BANK SYSTEM. FOLLOWING THE DISCOVERY VERIFICATION OF EXISTING UNDERGROUND UTILITIES, SHOULD ADJUSTMENT/MODIFICATIONS BECOME A NECESSITY TO EITHER THE EXISTING OR PROPOSED SYSTEM (AS APPLICABLE). THE EXISTING DISCOVERED FIELD CONDITIONS MUST BE BROUGHT TO THE ENGINEERS ATTENTION FOR THE EXECUTION OF THE NECESSARY ADJUSTMENTS/MODIFICATIONS.
3. THE DISTANCES FROM THE FLOOR OF THE MANHOLE TO THE BOTTOM EDGE OF ALL DUCT BANK ENTRIES INTO THE MANHOLE SHALL NOT BE LESS THAN 18". FOR AN EXACT HEIGHT OF THE DUCT BANK ENTRY INTO THE MANHOLE REFER TO THE (DUCT BANK/MANHOLE) PROFILE DRAWINGS.
4. SPACE AND ENCASE UNDERGROUND DUCT/CONDUIT BANKS IN REINFORCED CONCRETE PER DETAILS AS SHOWN ON DRAWING NO. [TD-E-008].
5. INTERFACE PROPOSED DUCT BANK WITH STRUCTURAL WALL OF MANHOLE PER THE STRUCTURAL DRAWINGS/SPECIFICATIONS. COORDINATE WITH THE STRUCTURAL DRAWINGS/SPECIFICATIONS.
6. CONDUCTORS/CABLES ROUTED THROUGH MANHOLE SHALL BE TAGGED/LABELED IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS.
7. COORDINATE/VERIFY ALL POINTS OF CONNECTION PRIOR TO COMMENCING INSTALLATION ACTIVITIES.
8. LOCATE ALL PROPOSED CABLE CLAMPS WITH CONDUCTORS AT RACK LOCATIONS SHOWN ON DRAWING.
9. IT IS EXTREMELY IMPORTANT THAT ALL PROPOSED CONDUCTORS/CABLES ARE INSTALLED IN THE CONDUITS INDICATED ON THIS DRAWING. THE SYSTEM HAS BEEN DESIGNED TO MINIMIZE HEAT BUILD UP BETWEEN CONDUCTORS/CABLES AND MAXIMIZE ENERGY EFFICIENCY. SHOULD IT BECOME NECESSARY TO ADJUST/MODIFY THE CONDUIT(S) IN WHICH THE PROPOSED CONDUCTORS/CABLES ARE TO BE INSTALLED, THE DISCOVERED FIELD CONDITIONS MUST BE BROUGHT TO ENGINEER'S ATTENTION FOR EXECUTION/APPROVAL OF THE NECESSARY ADJUSTMENTS/MODIFICATIONS.
10. ALSO REFER TO SITE ELECTRICAL DUCT BANK PROFILES PRIOR TO COMMENCING UNDERGROUND CONDUIT/DUCT BANK AND MANHOLE INSTALLATION.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.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K. A. HARUTUNIAN 59181 STATE OF TEXAS REGISTERED PROFESSIONAL ENGINEER 5/1/2016


HARUTUNIAN ENGINEERING INCORPORATED
TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | HSPS FEEDERS |

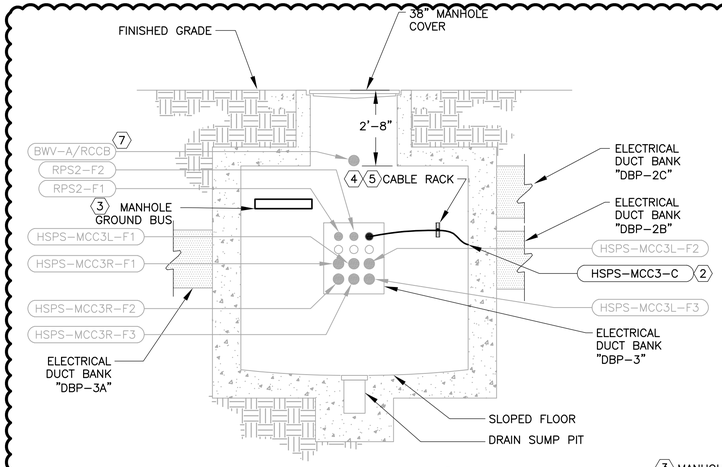
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

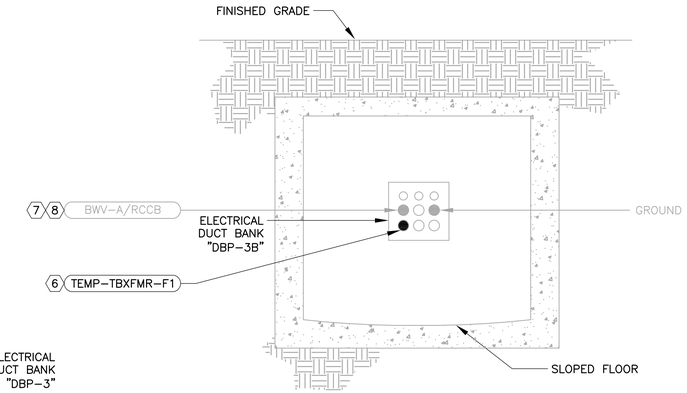
SITE
ELECTRICAL MAN HOLE ELEVATIONS
MH-9 – RENOVATION (SHEET 9 OF 22)

PROJECT NO: 2009-800 | SHT. 419 OF 854 | DWG NO. S-E-112

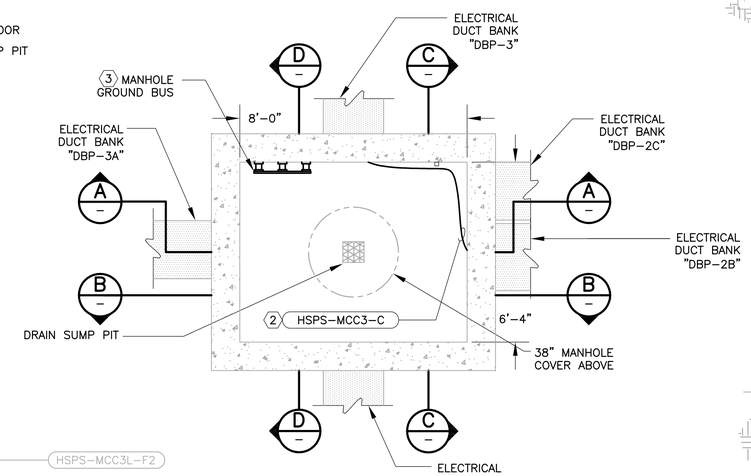
ADDENDUM NO. 1



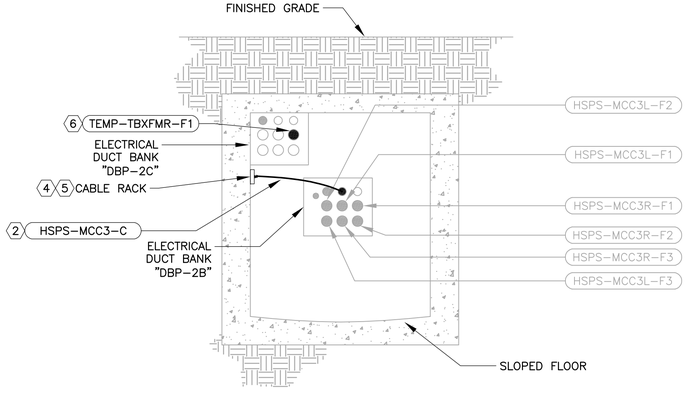

NORTH ELEVATION A
SCALE: N.T.S.




SOUTH ELEVATION B
SCALE: N.T.S.




PLAN VIEW 1 [S-E-078]
SCALE: N.T.S.

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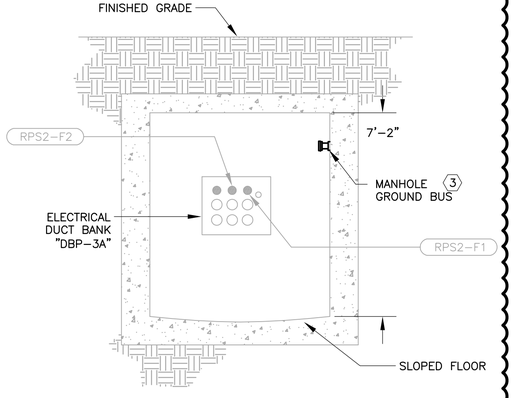
SCALE: N.T.S.




WEST ELEVATION D
SCALE: N.T.S.

PLANT NORTH

1

## KEY NOTES:

1. DISCONNECT SPLICES MADE IN MANHOLE TO EXISTING GROUNDING CONDUCTORS. TERMINATE EACH EXISTING GROUNDING CONDUCTOR TO THE GROUND BAR. SHOULD GROUND CONDUCTOR BE OF INSUFFICIENT LENGTH, CAD WELD A SINGLE BARE COPPER 250KCMIL CABLE TO EXISTING CABLE AND TERMINATE AT GROUND BAR.
2. ROUTE PROPOSED CABLE/WIRE IN EXISTING DUCTBANK. THOROUGHLY SWAB AND CLEAN EXISTING CONDUIT PRIOR TO PULLING CABLE/WIRE.
3. REFER TO DETAIL 3 ON DRAWING NO. [TD-E-013].
4. THE LENGTH OF SUPPORT CHANNEL SHALL BE ENOUGH TO FULLY INSTALL ALL CABLE CLAMPS SHOWN FOR PROPOSED AND FOR FUTURE. REFER TO MANHOLE CABLE RACK DETAILS ON DRAWING [TD-E-005] FOR ADDITIONAL DIMENSIONAL INFORMATION TO DERIVE THE LENGTH OF CHANNEL AND PLACEMENT OF CABLE CLAMPS.
5. THOUGH NOT SHOWN HERE, BOND CABLE SUPPORT RACK AND CLAMPS TO PROPOSED MANHOLE GROUND BAR. REFER TO GROUNDING DETAILS ON DRAWING NO. [TD-E-013].
6. FEEDER IS USED TO SERVE TEMPORARILY RELOCATED TRANSFORMER "TB-XFMR-2" IN THE CHEMICAL AREA. FEEDER SHALL BE DISCONNECTED AND REMOVED ONCE FINAL DISTRIBUTION SYSTEM IS IN PLACE. REFER TO DRAWINGS [SEQ-E-029], [SEQ-E-030] AND [SEQ-E-084] FOR ADDITIONAL INFORMATION.
7. CONDUIT CONTAINS CABLE/WIRES REMAINING FROM DEMOLITION ROUTED TO PROPOSED JUNCTION BOX "CEB-JBOX-VV1" AT MANHOLE "MH-4".
8. CONDUIT CONTAINS ABANDONED "RCCB" CABLES. REFER TO DRAWING NO. [S-E-063].

## GENERAL NOTES:

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4. SPACE AND ENCASE UNDERGROUND DUCT/CONDUIT BANKS IN REINFORCED CONCRETE PER DETAILS AS SHOWN ON DRAWING NO. [TD-E-008].
5. INTERFACE PROPOSED DUCT BANK WITH STRUCTURAL WALL OF MANHOLE PER THE STRUCTURAL DRAWINGS/SPECIFICATIONS. COORDINATE WITH THE STRUCTURAL DRAWINGS/SPECIFICATIONS.
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DESIGNED BY: HEI
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SUBMITTAL DATE: JANUARY 2016
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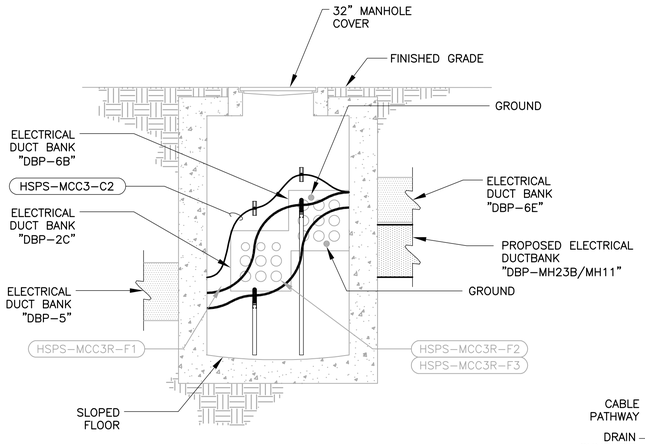
DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

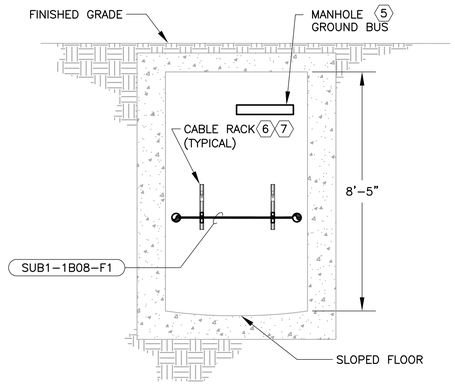
SITE
ELECTRICAL MAN HOLE ELEVATIONS
MH-10 – RENOVATION (SHEET 10 OF 22)

PROJECT NO: 2009-800 | SHT. 420 OF 854 | DWG NO. S-E-113

ADDENDUM NO. 1




NORTH ELEVATION A
SCALE: N.T.S.

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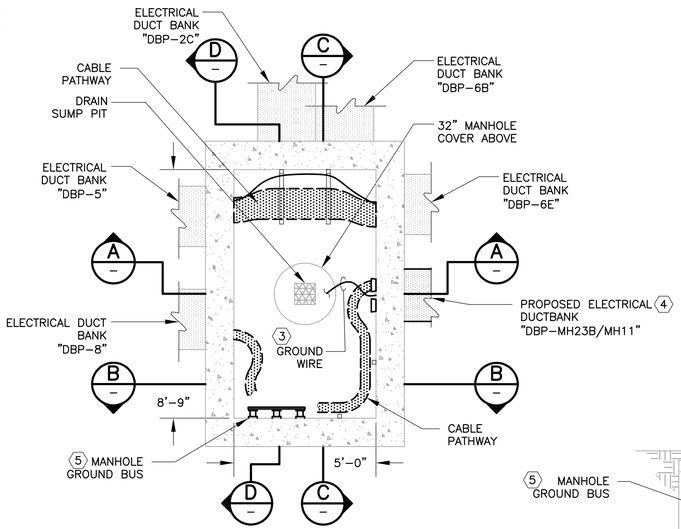
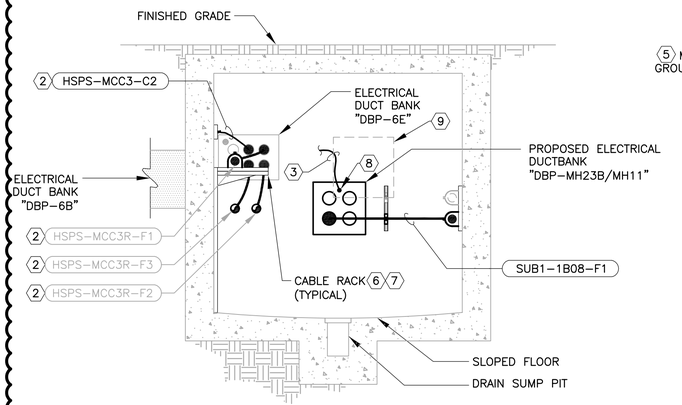



PLAN VIEW 1 1
SCALE: N.T.S. [S-E-076], [S-E-082]

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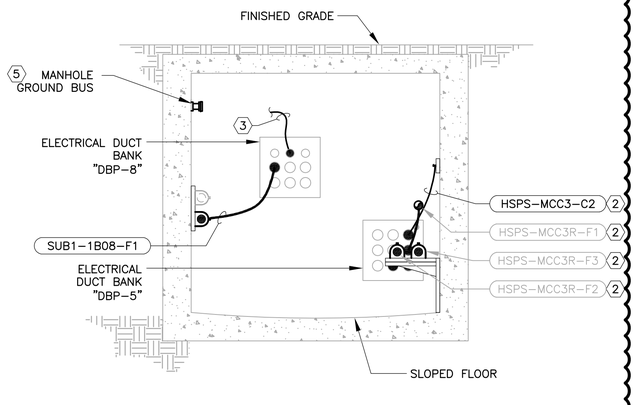


WEST ELEVATION D
SCALE: N.T.S.

## KEY NOTES:

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2. ROUTE PROPOSED CABLE/WIRE IN EXISTING DUCTBANK. THOROUGHLY SWAB AND CLEAN EXISTING CONDUIT PRIOR TO PULLING CABLE/WIRE.
3. ROUTE AND SECURE GROUND WIRE UP ALONG WALL AND AROUND DUCT BANK ENTRY TO 6" INCHES FROM MANHOLE CEILING, TURN TO CONTINUE TO MANHOLE GROUND BUS AND CONNECT.
4. REFER TO OVERALL ELECTRICAL SITE PLANS DRAWING NOS. [S-E-075] THROUGH [S-E-081] FOR LENGTH AND ROUTE OF DUCT BANK.
5. REFER TO DETAIL NO. 3 ON DRAWING NO. [TD-E-013].
6. THE LENGTH OF SUPPORT CHANNEL SHALL BE ENOUGH TO FULLY INSTALL ALL 15KV PORCELAIN CLAMPS (6-1/8" WIDE) SHOWN FOR PROPOSED AND FOR FUTURE. REFER TO MANHOLE CABLE RACK DETAILS ON DRAWING [TD-E-005] FOR ADDITIONAL DIMENSIONAL INFORMATION TO DERIVE THE LENGTH OF CHANNEL AND PLACEMENT OF CABLE CLAMPS.
7. THOUGH NOT SHOWN HERE, BOND CABLE SUPPORT RACK AND CLAMPS TO PROPOSED MANHOLE GROUND BAR. REFER TO GROUNDING DETAILS ON DRAWING NO. [TD-E-013].
8. DUCT BANK GROUNDING SYSTEM CONDUIT.
9. EXTENTS OF DEMOLISHED DUCT BANK WINDOW. EXPAND WINDOW FOR PROPOSED DUCT BANK ENTRY. TIE IN PROPOSED DUCT BANK WITH EXISTING STRUCTURAL STEEL AND FULLY FILL EXISTING OPENING TO FORM WATER TIGHT SEAL. REFER TO STRUCTURAL AND CIVIL.

## GENERAL NOTES:

1. FOR SAKE OF CLARITY THE GROUNDING SYSTEM INSIDE/OUTSIDE OF MANHOLE IS NOT SHOWN. REFER TO MANHOLE GROUNDING DETAILS ON DRAWING NOS. [TD-E-013].
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3. THE DISTANCES FROM THE FLOOR OF THE MANHOLE TO THE BOTTOM EDGE OF ALL DUCT BANK ENTRIES INTO THE MANHOLE SHALL NOT BE LESS THAN 18". FOR AN EXACT HEIGHT OF THE DUCT BANK ENTRY INTO THE MANHOLE REFER TO THE (DUCT BANK/MANHOLE) PROFILE DRAWINGS.
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DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
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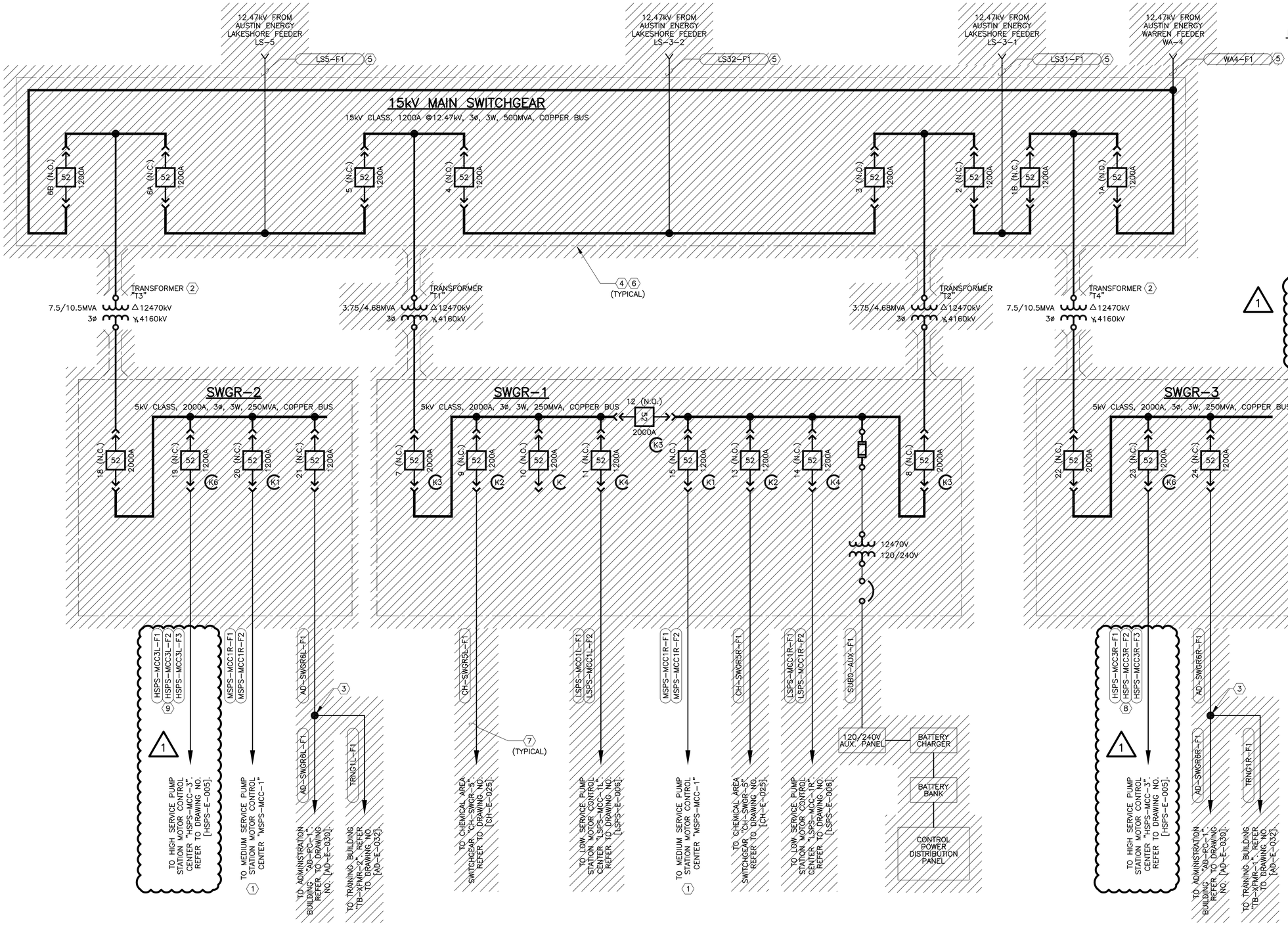
SITE
ELECTRICAL MAN HOLE ELEVATIONS
MH-11 - RENOVATION (SHEET 11 OF 22)

PROJECT NO: 2009-800 | SHT. 421 OF 854 | DWG NO. S-E-114

ADDENDUM NO. 1




## KEY NOTES:

1. MEDIUM SERVICE PUMP STATION FEEDERS TO BE DEMOLISHED BY OTHERS.
2. TRANSFORMER TO REMAIN AND BE RE-USED DURING RENOVATION ACTIVITIES.
3. CABLE SPLICE LOCATED IN MANHOLE "MH-12".
4. SWITCHGEAR, TRANSFORMERS, FEEDERS, ETC... CANNOT BE DEMOLISHED UNTIL PROPOSED MEDIUM SERVICE PUMP STATION, BY OTHERS, IS OPERATIONAL AND EXISTING MEDIUM SERVICE PUMP STATION IS IN DEMOLITION, BY OTHERS. COORDINATE WITH OWNER.
5. CABLE/WIRE IS OWNED AND SHALL BE DEMOLISHED BY AUSTIN ENERGY. COORDINATE WITH AUSTIN ENERGY.
6. DISCONNECT AND REMOVE EXISTING ELECTRICAL EQUIPMENT, IN ITS ENTIRETY UNLESS NOTED OTHERWISE. DEMOLISH EQUIPMENTS ENTIRE CONTENTS (I.E. TRANSFERS SWITCHES, BREAKERS, TERMINAL BLOCKS, RELAY, AMMETERS, VOLTMETERS, ETC.) AND ALL RELATED CONDUIT/WIRE MOUNTING HARDWARE.
7. DISCONNECT AND REMOVE CABLE.WIRE IN ITS ENTIRETY. CONDUIT AND DUCTBANK SYSTEM MAY ONLY BE PARTIALLY DEMOLISHED. REFER TO PLAN DRAWINGS FOR PORTIONS OF CONDUIT AND DUCTBANK SYSTEM TO BE DEMOLISHED.

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8. DISCONNECT FEEDER CABLE/WIRE FROM SWITCHGEAR AND PULL CABLE/WIRE BACK TO MANHOLE "MH-7". CABLE/WIRE TO RE-USED DURING RENOVATION ACTIVITIES, REFER TO DRAWING NO. [SUB0-E-012].
9. DISCONNECT FEEDER CABLE/WIRE FROM SWITCHGEAR AND PULL CABLE/WIRE BACK TO MANHOLE "MH-8". CABLE/WIRE TO RE-USED DURING RENOVATION ACTIVITIES, REFER TO DRAWING NO. [SUB0-E-011].

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.

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K. A. HARUTUNIAN 59181 STATE OF TEXAS REGISTERED PROFESSIONAL ENGINEER 5/1/2016


HARUTUNIAN ENGINEERING INCORPORATED
TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | HSPS FEEDERS |

DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: NTS

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

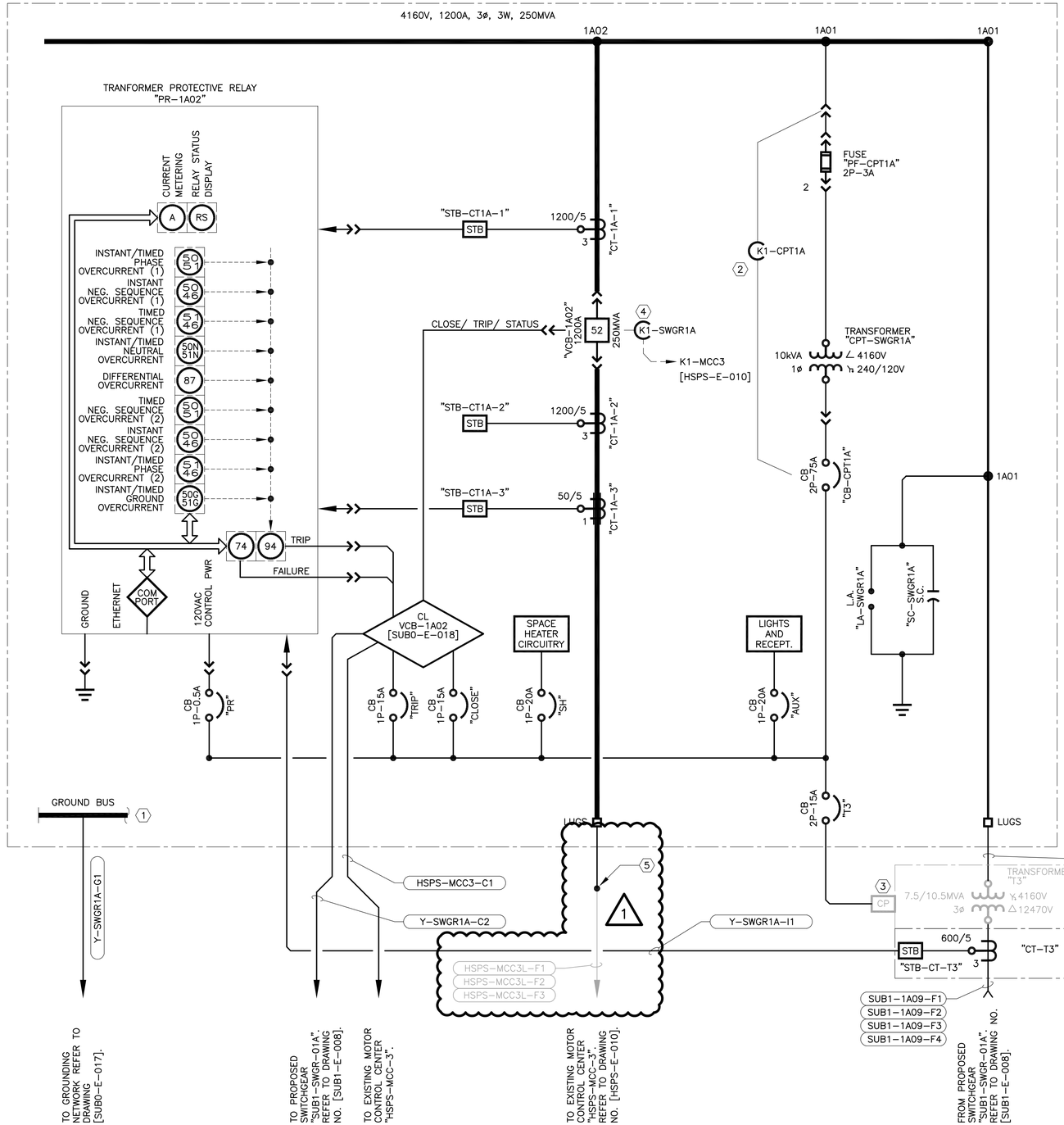
# EXISTING SUBSTATION ONE-LINE DIAGRAM - DEMOLITION

PROJECT NO: 2009-800 | SHT. 643 OF 854 | DWG NO. SUB0-E-006

ADDENDUM NO. 1

# PROPOSED 4,160V SWITCHGEAR "Y-SWGR-01A"

4160V, 1200A, 3ø, 3W, 250MVA




## KEY NOTES:

1. THE GROUND BUS SHALL EXTEND THE ENTIRE LENGTH OF THE SWITCHGEAR.
2. FURNISH AND INSTALL KEY INTERLOCK SUCH THAT CPT SECONDARY CIRCUIT BREAKER MUST BE OPENED BEFORE CPT DRAWER CAN BE OPENED.
3. TRANSFORMER AUXILIARY FORCED AIR COOLING SYSTEM CONTROL PANEL. COORDINATE AND MAKE ALL FINAL CONNECTIONS.
4. FURNISH AND INSTALL KEY INTERLOCK. REFER TO DRAWING NO. [HSPS-E-010].
5. EXISTING FEEDER CABLE/WIRE WAS PULLED BACK TO MANHOLE "MH-8" DURING DEMOLITION ACTIVITIES, REFER TO DRAWING NO. [SUBO-E-006]. CUT EXISTING CABLE/WIRE IN MANHOLE "MH-8". FURNISH, INSTALL, AND TERMINATE PROPOSED CABLE/WIRE FROM PROPOSED SWITCHGEAR "Y-SWGR-01A" TO MANHOLE "MH-8" AND SPLICE TO EXISTING CABLE/WIRE IN MANHOLE "MH-8".

1

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AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
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| 1 | 4/20/16 | HSPS FEEDERS |

DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: NTS

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

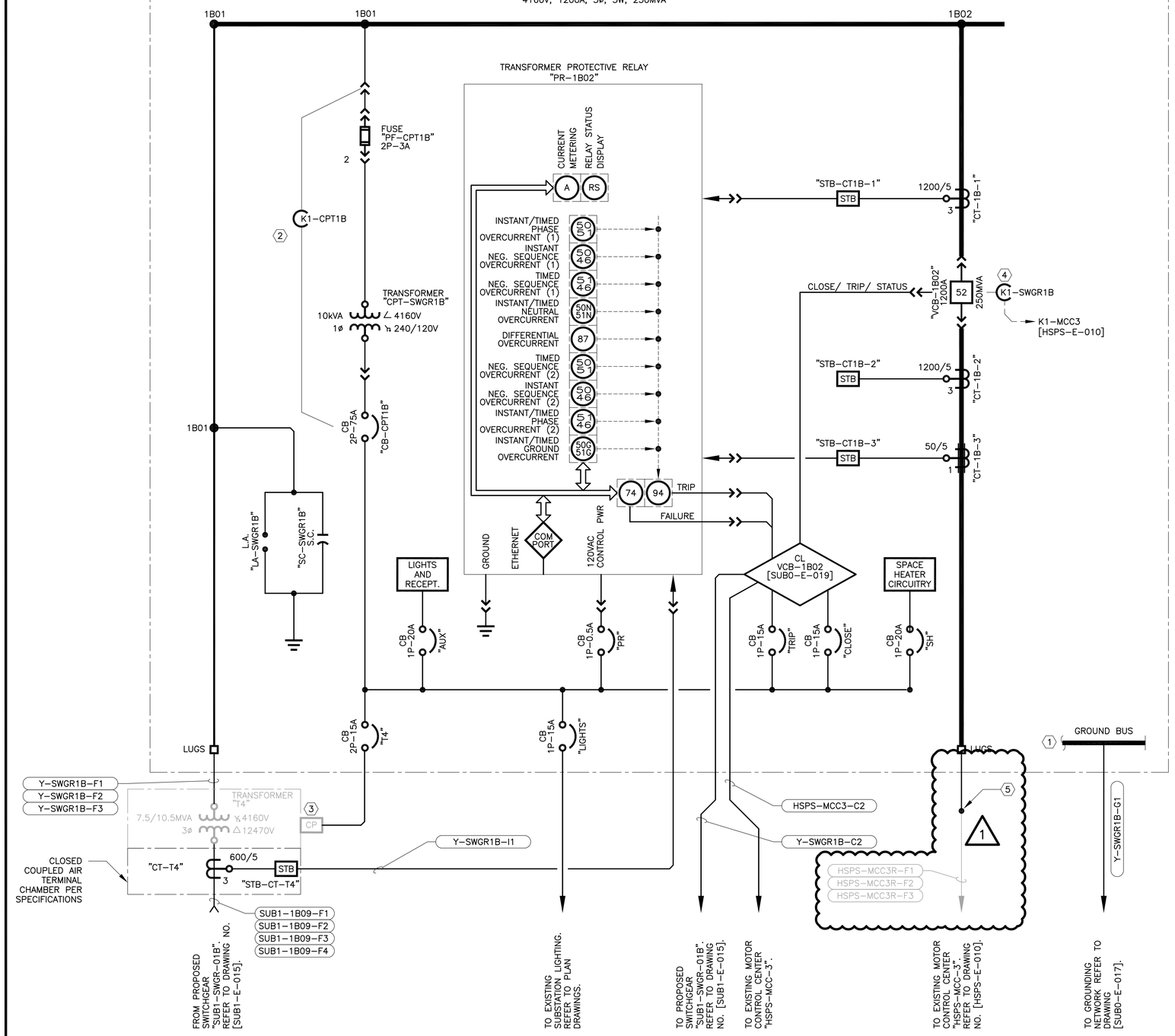
# EXISTING SUBSTATION DETAILED ONE-LINE DIAGRAM - RENOVATION (SHEET 1 OF 2)

PROJECT NO: 2009-800 | SHT. 648 OF 854 | DWG NO. SUB0-E-011

ADDENDUM NO. 1

# PROPOSED 4,160V SWITCHGEAR "Y-SWGR-01B"

4160V, 1200A, 3ø, 3W, 250MVA




## KEY NOTES:

1. THE GROUND BUS SHALL EXTEND THE ENTIRE LENGTH OF THE SWITCHGEAR.
2. FURNISH AND INSTALL KEY INTERLOCK SUCH THAT CPT SECONDARY CIRCUIT BREAKER MUST BE OPENED BEFORE CPT DRAWER CAN BE OPENED.
3. TRANSFORMER AUXILIARY FORCED AIR COOLING SYSTEM CONTROL PANEL. COORDINATE AND MAKE ALL FINAL CONNECTIONS.
4. FURNISH AND INSTALL KEY INTERLOCK. REFER TO DRAWING NO. [HSPS-E-010].
5. EXISTING FEEDER CABLE/WIRE WAS PULLED BACK TO MANHOLE "MH-7" DURING DEMOLITION ACTIVITIES, REFER TO DRAWING NO. [SUBO-E-006]. CUT EXISTING CABLE/WIRE IN MANHOLE "MH-7". FURNISH, INSTALL, AND TERMINATE PROPOSED CABLE/WIRE FROM PROPOSED SWITCHGEAR "Y-SWGR-01B" TO MANHOLE "MH-7" AND SPLICE TO EXISTING CABLE/WIRE IN MANHOLE "MH-7".

1

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STATE OF TEXAS
K. A. HARUTUNIAN
59181
REGISTERED
PROFESSIONAL ENGINEER
5/1/2016


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TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

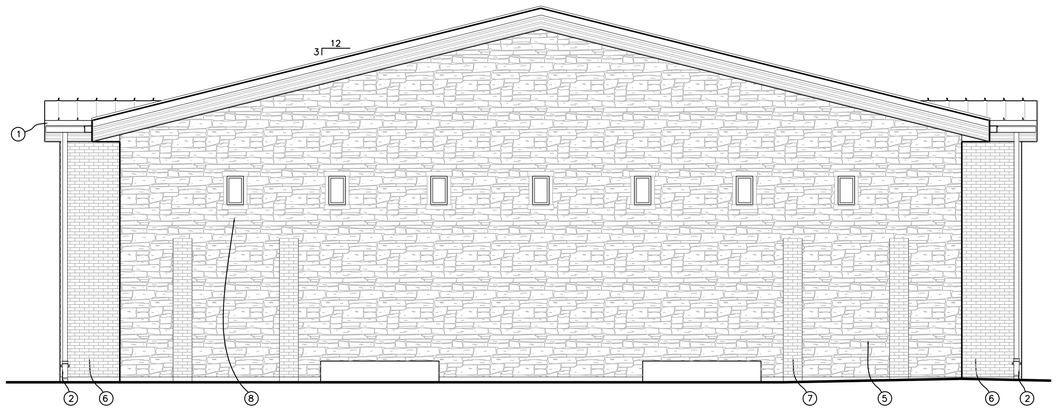

| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | HSPS FEEDERS |

DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: NTS

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

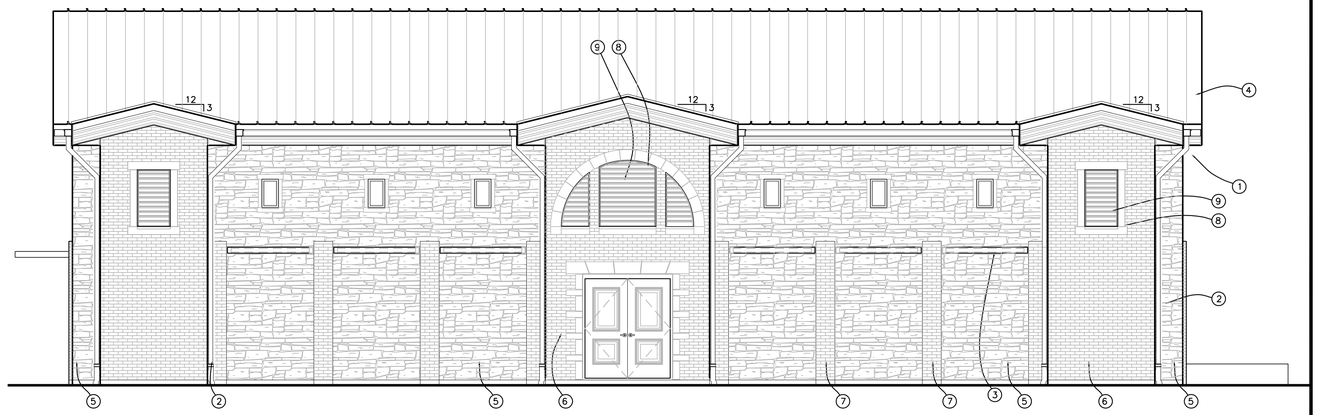
# EXISTING SUBSTATION DETAILED ONE-LINE DIAGRAM - RENOVATION (SHEET 2 OF 2)

PROJECT NO: 2009-800 | SHT. 649 OF 854 | DWG NO. SUB0-E-012



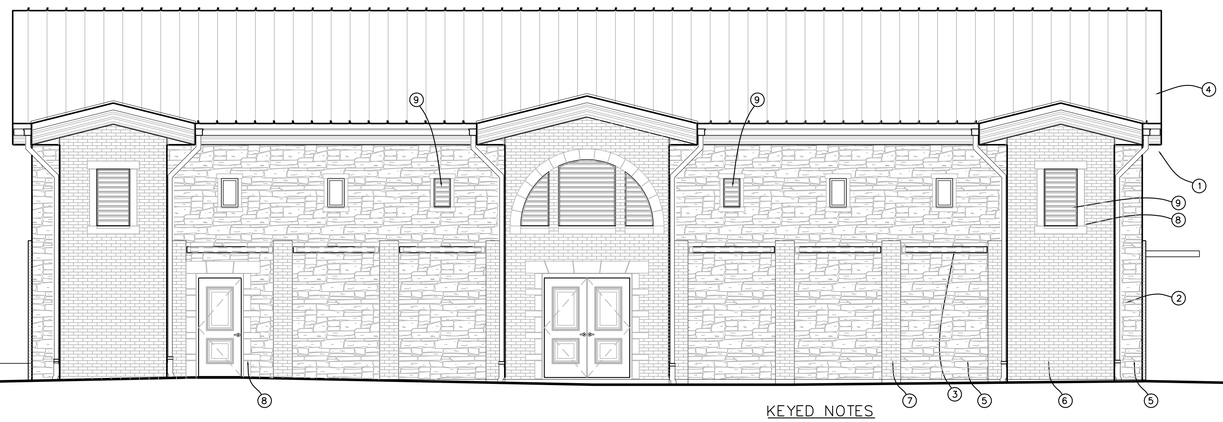

1 A-020 **EAST ELEVATION**

3/16" = 1'-0"



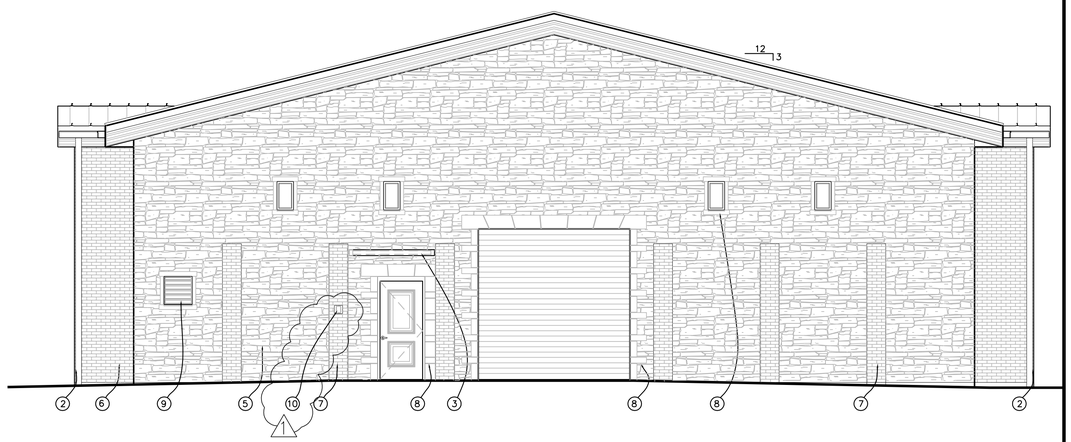

2 A-020 **SOUTH ELEVATION**

3/16" = 1'-0"




3 A-020 **NORTH ELEVATION**

3/16" = 1'-0"




4 A-020 **WEST ELEVATION**

3/16" = 1'-0"

## KEYED NOTES

1. BOX GUTTER BY ROOF PANEL MANUFACTURER: TYPICAL.
2. 4" DIA. DOWNSPOUT WITH CAST IRON BOOT (ZURN Z191-RD OR EQUAL): TYPICAL.
3. ALUMINUM EGGCRATE BLADE SUNSHADE (RUSKIN SSEGH OR APPROVED EQUAL) WITH 5" TUBE OUTRIGGERS, 5" PLATE FASCIA, AND 6"x6"x3" DEEP GRID: TYPICAL.
4. METAL PANEL ROOF: TYPICAL.
5. LEDGE SANDSTONE VENEER: TYPICAL. COLOR TO MATCH EXISTING PLANT BUILDINGS.
6. BRICK VENEER: TYPICAL.
7. BRICK PILASTER: TYPICAL.
8. SAWN SANDSTONE CASING AT DOOR, WINDOW, AND LOUVER OPENINGS: TYPICAL.
9. FIXED ALUMINUM LOUVER: TYPICAL.
10. (1) INSTALL KNOX 3200-SERIES RECESSED MOUNT KEY BOX IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND USING MANUFACTURER'S RECESSED-MOUNTING KIT. MOUNT BOX 5' ABOVE GRADE PER AFD INSTRUCTIONS.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.

mwm DesignGroup
305 E. Huntland Drive
Suite 200
Austin, Texas 78752
p: 512.453.0767
f: 512.453.1734
MWM No. 197-03

REGISTERED ARCHITECT
STATE OF TEXAS
18346

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TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/29/16 | ADDITION OF KNOX BOX |

DESIGNED BY:
CHECKED BY: MWM
APPROVED BY: MWM
SUBMITTAL DATE: 1 April 2016
SCALE:

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

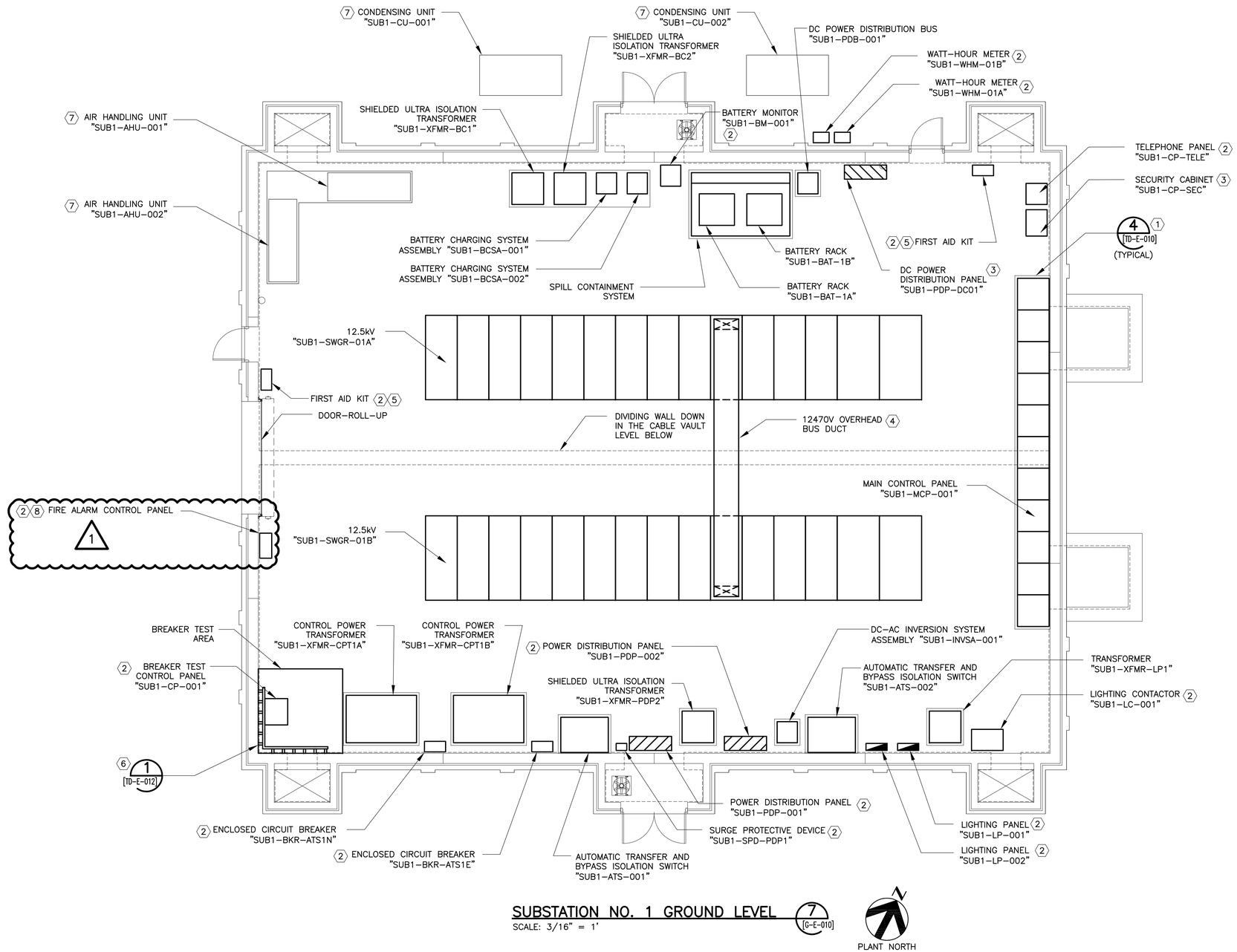
# SUBSTATION NO. 1 ELEVATIONS – PROPOSED

PROJECT NO:



DWG NO. SUB1-A-020

ADDENDUM NO. 1




## SUBSTATION NO. 1 GROUND LEVEL 7 [G-E-010]

SCALE: 3/16" = 1'

PLANT NORTH

## KEY NOTES:

1. FURNISH AND INSTALL INDOOR EQUIPMENT PAD PER DETAIL 4 ON DRAWING NO. [TD-E-010].
2. SURFACE MOUNT TO WALL PER DETAILS ON DRAWING NO. [TD-E-010].
3. CONTROL PANEL FURNISHED BY SECURITY CONTRACTOR. COORDINATE REQUIREMENTS WITH THE OWNER/SECURITY CONTRACTOR.
4. FURNISH AND INSTALL SUPPORTS TO SUSPEND BUS DUCT FROM CEILING SIMILAR TO DETAILS ON DRAWING NO. [TD-E-004]. MODIFICATION TO THE DETAIL MAY BE NECESSARY. CONTRACTOR TO COORDINATE THE NECESSARY SUPPORT QUANTITY, LOCATION, AND ATTACHMENT WITH THE SWITCHGEAR MANUFACTURER, ADJUST THE DETAIL ACCORDINGLY, AND FURNISH AND INSTALL THE REQUIRED SUPPORTS FOR A SECURE INSTALLATION, AND MAKE ALL FINAL CONNECTIONS AT NO ADDITIONAL COST TO THE OWNER. BOTTOM OF THE HORIZONTAL BUS DUCT SPANNING PERSONNEL AISLE SHALL BE NO LOWER THAN 13'-6" ABOVE THE FINISHED FLOOR.
5. FIRE EXTINGUISHER TO BE MOUNTED BELOW FIRST AID KIT. MOUNT FIRE EXTINGUISHER AND FIRST AID KIT SUCH THAT THE BOTTOM OF FIRE EXTINGUISHER IS MINIMUM 8" ABOVE FINISHED FLOOR, AND TOP OF FIRST AID KIT IS NO MORE THAN 72" ABOVE FINISHED FLOOR. PROVIDE SUFFICIENT CLEARANCE BETWEEN FIRST AID KIT AND FIRE EXTINGUISHER TO ALLOW FOR EASY, UNOBSTRUCTED ACCESS TO FIRE EXTINGUISHER.
6. FURNISH AND INSTALL GROUNDING BUS PER DETAIL 1 ON DRAWING NO. [TD-E-012].
7. NOT ALL CONDUIT/RACEWAY FOR HVAC SYSTEM IS SHOWN ON DRAWINGS. FURNISH AND INSTALL CONUIT/RACEWAY REQUIRED FOR A COMPLETE AND OPERATIONAL HVAC SYSTEM. COORDINATE WITH HVAC.

1

8. FURNISH AND INSTALL FIRE ALARM CONTROL PANEL PER SPECIFICATIONS. FURNISH AND INSTALL FIRE ALARM SYSTEM IN THE SUBSTATION NO. 1 BUILDING PER SPECIFICATIONS.

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K. A. HARUTUNIAN 59181 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS 5/1/2016


HARUTUNIAN ENGINEERING INCORPORATED

TEXAS FIRM REGISTRATION NUMBER F-2408

ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

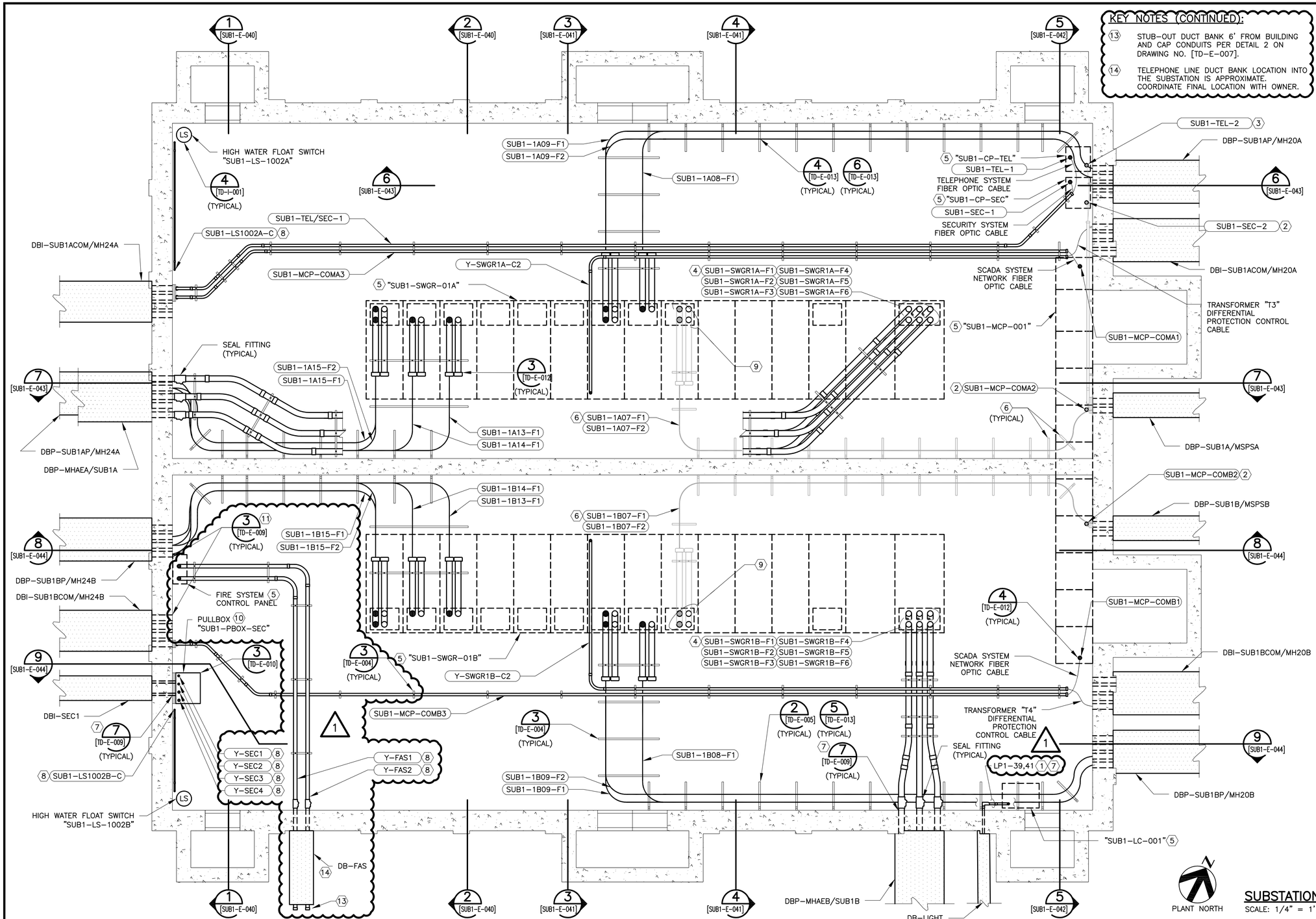

| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | FIRE ALARM SYSTEM |

DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: AS NOTED

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

SUBSTATION NO. 1
GROUND LEVEL EQUIPMENT ARRANGEMENT
PLAN – PROPOSED

PROJECT NO: 2009-800 | SHT. 731 OF 854 | DWG NO. SUB1-E-033




## KEY NOTES (CONTINUED):

13. STUB-OUT DUCT BANK 6' FROM BUILDING AND CAP CONDUITS PER DETAIL 2 ON DRAWING NO. [TD-E-007].
14. TELEPHONE LINE DUCT BANK LOCATION INTO THE SUBSTATION IS APPROXIMATE. COORDINATE FINAL LOCATION WITH OWNER.

## 1 KEY NOTES:

1. CONDUIT TURNS UP INTO SUBSTATION GROUND LEVEL. FURNISH AND INSTALL SEAL FITTING MINIMUM OF 2" ABOVE GROUND LEVEL FINISHED FLOOR. CONDUIT ENTERS LIGHTING CONTACTOR "SUB1-LC-001" FROM BELOW. STUB UP LOCATION IS APPROXIMATE, COORDINATE CONDUIT ENTRANCE WITH EQUIPMENT MANUFACTURER.
2. EMPTY CONDUIT FOR FUTURE USE TURNS UP INTO SUBSTATION GROUND LEVEL PER DETAIL 4 ON DRAWING NO. [TD-E-012]. SEAL EMPTY SPARE CONDUIT ON EACH END WITH 99.0% COPPER-FREE ALUMINUM ALL-SOLID WASHER SIZED TO FIT TRADE SIZE OF CONDUIT.
3. EMPTY CONDUIT FOR FUTURE USE TURNS UP INTO SUBSTATION GROUND LEVEL PER DETAIL 5 ON DRAWING NO. [TD-E-012]. SEAL EMPTY SPARE CONDUIT ON EACH END WITH 99.0% COPPER-FREE ALUMINUM ALL-SOLID WASHER SIZED TO FIT TRADE SIZE OF CONDUIT.
4. INCOMING FEEDER CONDUITS FROM AUSTIN ENERGY SHALL BE TERMINATED IN BOTTOM OF SWITCHGEAR INCOMING LINE SECTION ON THE FLOOR ABOVE AS PER DETAIL 4 ON DRAWING NO. [TD-E-011].
5. EQUIPMENT LOCATED ON FIRST FLOOR, SHOWN HERE FOR CONDUIT/CABLE STUB-UP LOCATION REFERENCE.
6. CABLE, CABLE CLAMPS AND ASSOCIATED EQUIPMENT INSTALLED BY OTHERS.
7. FURNISH AND INSTALL MECHANICAL LINK-TYPE SEAL PER DETAIL 7 ON DRAWING NO. [TD-E-009]. REFER TO STRUCTURAL FOR CONDUIT PENETRATION DETAILS. TYPICAL FOR ALL UNDERGROUND DUCT BANK RACEWAYS PENETRATING LOWER LEVEL WALL AND CONTINUING IN EXPOSED CONDUIT.
8. CONDUIT TURNS UP INTO SUBSTATION GROUND LEVEL. FURNISH AND INSTALL SEAL FITTING MINIMUM OF 2" ABOVE GROUND LEVEL FINISHED FLOOR. REFER TO DRAWING NO. [SUB1-E-036] FOR CONTINUATION.
9. FURNISH AND INSTALL CONDUIT PENETRATION SIMILAR TO DETAIL 3 ON DRAWING NO. [TD-E-012]. CAP CONDUIT STUB-DOWN FOR FUTURE USE. CONDUIT ELBOW, BUSHING, AND SUPPORT TO BE INSTALLED BY OTHERS.
10. FURNISH AND INSTALL PULLBOX MINIMALLY SIZED 36"H x 30"W x 24"D AND PER THE NATIONAL ELECTRICAL CODE (N.E.C.).
11. FURNISH AND INSTALL BELL END FLUSH WITH WALL PER DETAIL 7 ON DRAWING NO. [TD-E-009]. REFER TO STRUCTURAL FOR DUCT BANK PENETRATION DETAILS. SEAL AND PACK/FILL ENDS OF ALL RACEWAYS AT WALL WITH FLAME-RETARDANT SEALANT. TYPICAL FOR ALL UNDERGROUND DUCT BANK RACEWAYS PENETRATING LOWER LEVEL WALL UNLESS NOTED OTHERWISE.
12. GROUNDING JUNCTION BOXES AND CONDUIT/WIRE NOT SHOWN FOR CLARITY. REFER TO DRAWING NO. [SUB1-E-045].

## GENERAL NOTES:

1. REFERENCE SUBSTATION NO. 1 EQUIPMENT ARRANGEMENT PLAN ON DRAWING NO. [SUB1-E-033] FOR EQUIPMENT IDENTIFICATION.
2. ALL UNDERGROUND DUCT BANK RACEWAYS PENETRATING SUBSTATION NO. 1 ELECTRICAL BUILDING LOWER LEVEL WALL ARE 5" (UNLESS INDICATED OTHERWISE ON THIS DRAWING OR ON CONDUIT/WIRE SCHEDULE). CONDUITS SHALL PENETRATE LOWER LEVEL WALL PER DETAIL 3 OR 7 ON DRAWING NO. [TD-E-009] AS APPLICABLE. REFER TO STRUCTURAL FOR DUCT BANK PENETRATION DETAILS.
3. 15KV CONDUCTORS AND 600V INSULATED GROUNDING CONDUCTOR SHALL BE GROUPED AND WRAPPED WITH FIRE TAPE COATING OVER THEIR ENTIRE EXPOSED LENGTH PER SPECIFICATIONS. GROUPED CONDUCTORS SHALL ROUTE TO/FROM SWITCHGEAR THROUGH SUBSTATION NO. 1 ELECTRICAL BUILDING LOWER LEVEL AND TO/FROM DUCTBANKS ENTERING/EXITING SUBSTATION NO. 1 ELECTRICAL BUILDING LOWER LEVEL.

## SUBSTATION NO. 1 CABLE VAULT LEVEL 7 12 [G-E-010]

SCALE: 1/4" = 1'

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5/1/2016


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TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | FIRE ALARM SYSTEM |

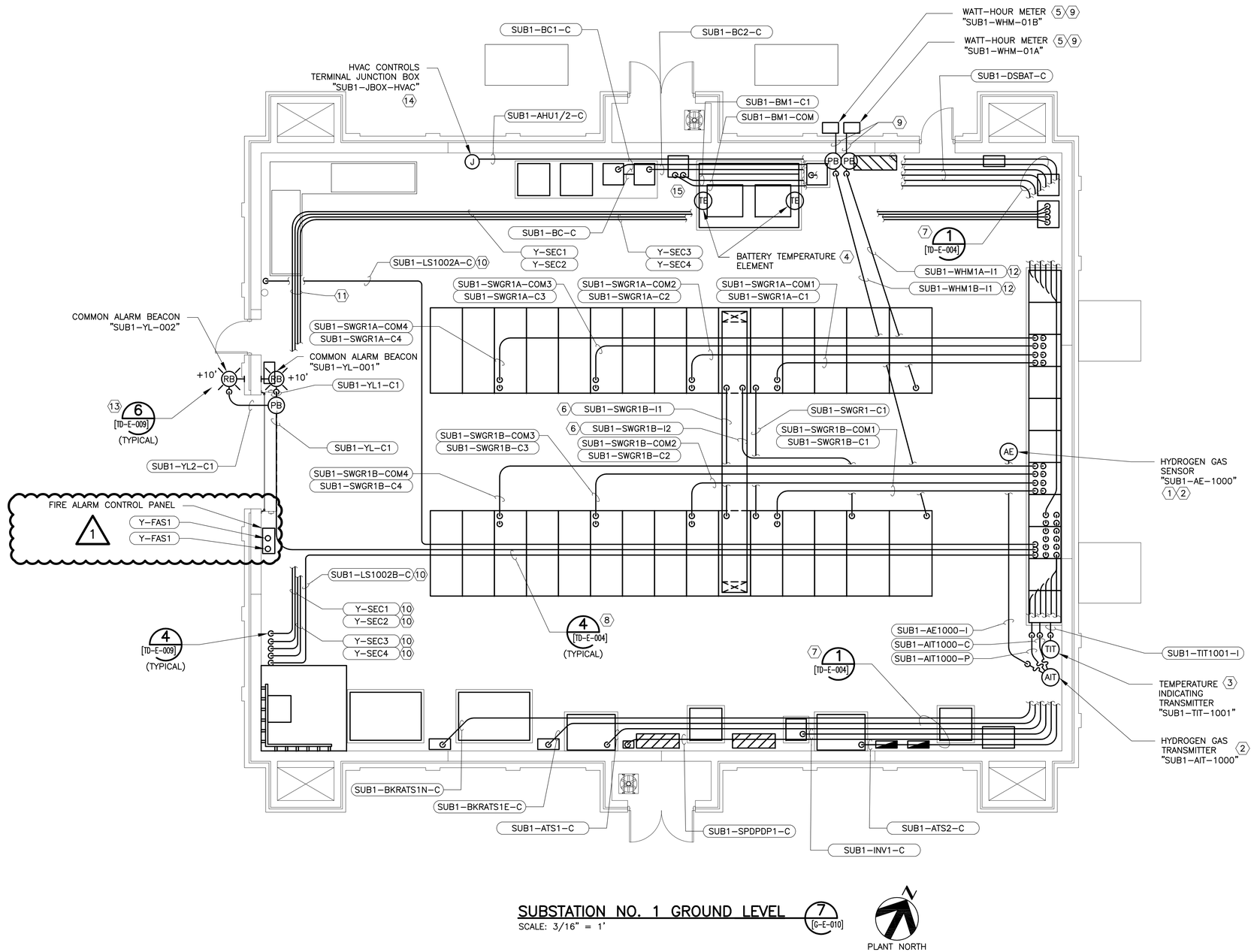
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: AS NOTED

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

# SUBSTATION NO. 1
# CABLE VAULT LEVEL CONDUIT AND CABLE ROUTING PLAN – PROPOSED

PROJECT NO: 2009-800 | SHT. 732 OF 854 | DWG NO. SUB1-E-034

ADDENDUM NO. 1




## SUBSTATION NO. 1 GROUND LEVEL 7 [G-E-010]

SCALE: 3/16" = 1'

PLANT NORTH

## KEY NOTES:

1. MOUNT REMOTE HYDROGEN GAS CONCENTRATION SENSOR ON WALL WITHIN 6" OF HIGHEST POINT IN CEILING. FURNISH AND INSTALL CONDUIT/WIRE INTERCONNECTING THE REMOTE SENSOR WITH THE INDICATING TRANSMITTER. NOT ALL INSTALLATION DETAILS ARE SHOWN HERE FOR CLARITY. REFER TO DETAIL 2 ON DRAWING NO. [TD-I-001] FOR ADDITIONAL INFORMATION.
2. FURNISH AND INSTALL HYDROGEN GAS ANALYZER AND INDICATING TRANSMITTER PER DETAIL 2 ON DRAWING NO. [TD-I-001].
3. MOUNT TEMPERATURE INDICATING TRANSMITTER PER DETAIL 1 ON DRAWING NO. [TD-I-001].
4. BATTERY TEMPERATURE ELEMENT, DEDICATED FOR INTERCONNECTION WITH BATTERY CHARGER. REFER TO DC AUXILIARY ONE-LINE DIAGRAM ON DRAWING NO. [SUB1-E-020] FOR ADDITIONAL INFORMATION.
5. SURFACE MOUNT WATT HOUR METER ENCLOSURE IN ACCORDANCE WITH THE DETAIL 3 ON DRAWING NO. [TD-E-010]. COORDINATE WITH AUSTIN ENERGY.
6. MOUNT CONDUIT BELOW BUS DUCT AND SUPPORT FROM BUS DUCT SUPPORT SYSTEM.
7. CONDUITS STACKED VERTICALLY AND ROUTED ALONG WALL PER DETAIL 1 ON DRAWING NO. [TD-E-004].
8. MOUNT CONDUIT ON SUSPENDED SUPPORT RACK PER DETAIL 4 ON DRAWING NO, [TD-E-004].
9. CONDUIT PENETRATES EXTERIOR WALL AND ENTERS WATT HOUR METER. MAKE ALL FINAL CONNECTIONS PER THE RECOMMENDATIONS AND WIRING DIAGRAMS PROVIDED BY AUSTIN ENERGY. ADHERE TO REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (N.E.C) AND SPECIFICATIONS.
10. CONDUIT PENETRATES FLOOR AND CONTINUES INTO SUBSTATION VAULT LEVEL. REFER TO DRAWING NO. [SUB1-E-034] FOR CONTINUATION.
11. CONDUITS ROUTED ALONG WALL ABOVE PERSONNEL DOOR AND ROLL UP DOOR. SHOWN AWAY FROM WALL FOR CLARITY. COORDINATE CONDUIT ROUTE WITH HVAC EQUIPMENT.
12. CONDUIT RUN BETWEEN AUSTIN ENERGY METERING CANS AND CT ENCLOSURES (12.5kV METERING SECTION) SHALL NOT HAVE MORE THAN TWO (2) 90 DEGREE BENDS AND NOT MORE THAN TWO (2) CONDULETS. CONDULETS SHALL BE NO HIGHER THAN 10 FEET ABOVE FINISHED GRADE. COORDINATE CONDUIT RUN WITH AUSTIN ENERGY. IN ADDITION TO THE CONTENTS FROM THE CONDUIT SCHEDULE, PLEASE FURNISH AND INSTALL CONDUIT MEASURING TAPE WITHIN CONDUIT.
13. FURNISH AND INSTALL ROTATING BEACON PER DETAIL 6 ON DRAWING NO. [TD-E-009].
14. FURNISH AND INSTALL NEMA 4X STAINLESS STEEL JUNCTION BOX WITH BACK PANEL AND TERMINAL BLOCKS PER DIVISION 16 AND 17 OF THE SPECIFICATIONS. MINIMALLY SIZE JUNCTION BOX 12"H x 12"W x 6" D. CONTRACTOR TO SIZE JUNCTION BOX PER THE NATIONAL ELECTRIC CODE (N.E.C). REFER TO SCHEMATICS AND COORDINATE WITH HVAC CONTRACTOR FOR ALL INTERFACE REQUIREMENTS BETWEEN THE HVAC SYSTEM AND THE CONTROL SYSTEM. FURNISH AND INSTALL A MINIMUM OF FOUR (4) SPARE TERMINAL BLOCKS IN ADDITION TO THE QUANTITY REQUIRED FOR ALL INTERFACE WIRING TERMINATIONS. REFER TO DETAIL 3 ON DRAWING NO. [TD-E-010] FOR MOUNTING OF JUNCTION BOX ONTO WALL. FURNISH AND INSTALL WIRING BETWEEN TERMINAL JUNCTION BOX AND MAIN CONTROL PANEL AND MAKE ALL FINAL CONNECTIONS.
15. ALTHOUGH NOT SHOWN HERE FOR CLARITY, FURNISH AND INSTALL CONDUITS/WIRE TAGGED "SUB1-BAT1A-C", "SUB1-BAT1B-C", "SUB1-BM1-C2A", AND "SUB1-BM1-C2B" INTERCONNECTING BATTERY SYSTEM COMPONENTS AS SHOWN ON DRAWING NO. [SUB1-E-020]. ROUTE ALONG WALL PER DETAIL 1 ON DRAWING NO. [TD-E-004].

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.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K. A. HARUTUNIAN 59181 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS 5/1/2016


HARUTUNIAN ENGINEERING INCORPORATED

TEXAS FIRM REGISTRATION NUMBER F-2408

ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | FIRE ALARM SYSTEM |

DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: AS NOTED

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

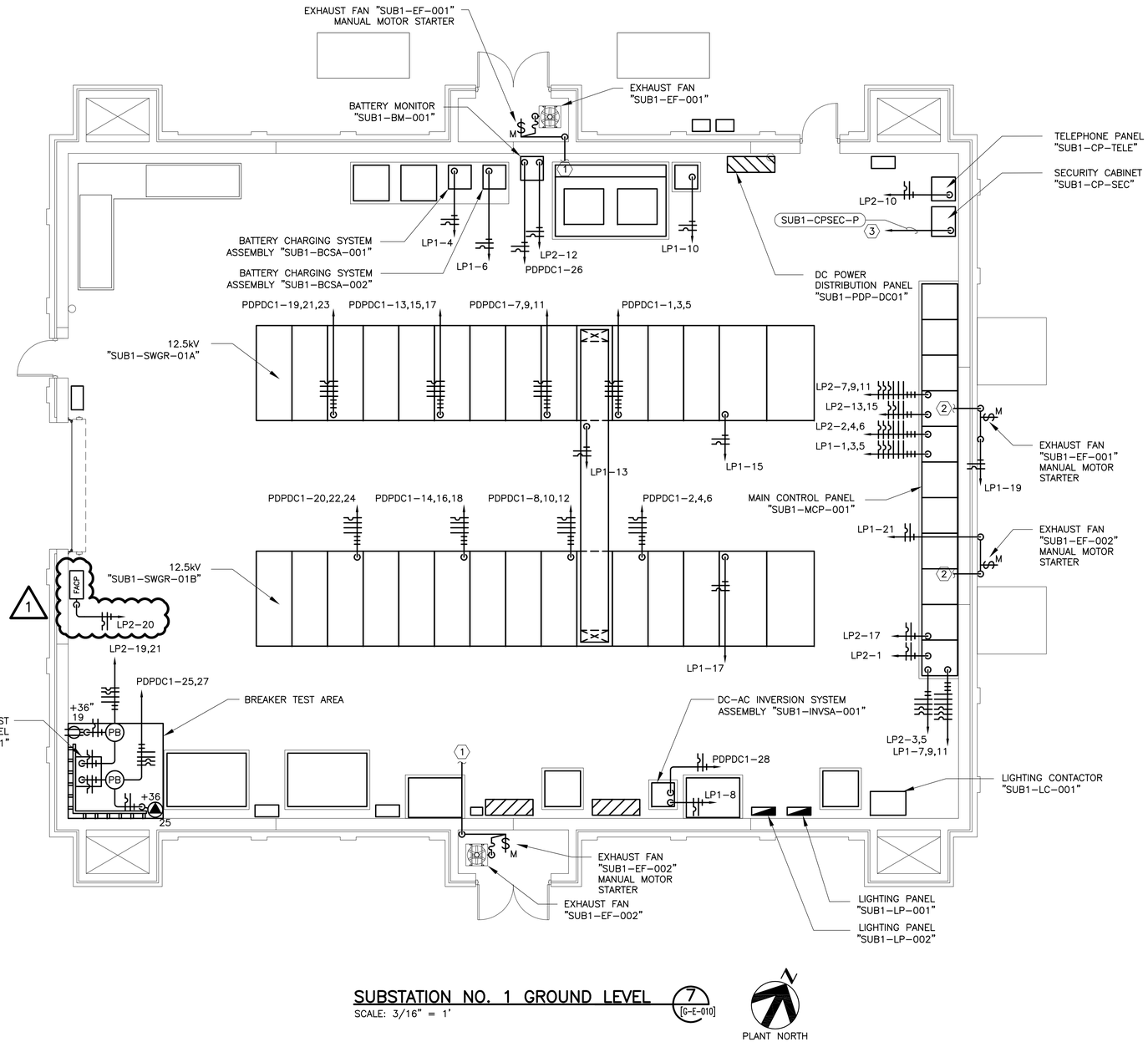
# SUBSTATION NO. 1 GROUND LEVEL I&C PLAN - PROPOSED

PROJECT NO: 2009-800 | SHT. 734 OF 854 | DWG NO. SUB1-E-036

ADDENDUM NO. 1

## KEY NOTES:

1. CONDUIT CONTINUES TO EXHAUST FAN MANUAL MOTOR STARTER ON EAST WALL.
2. CONDUIT CONTINUES TO EXHAUST FAN MANUAL MOTOR STARTER ADJACENT TO FAN.
3. CONDUIT HOMERUN CONTINUES TO LIGHTING PANEL "SUB1-LP-002".




## SUBSTATION NO. 1 GROUND LEVEL

SCALE: 3/16" = 1'

7 [G-E-010]

PLANT NORTH

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.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K. A. HARUTUNIAN 59181 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS 5/1/2016


HARUTUNIAN ENGINEERING INCORPORATED

TEXAS FIRM REGISTRATION NUMBER F-2408

ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | FIRE ALARM SYSTEM |

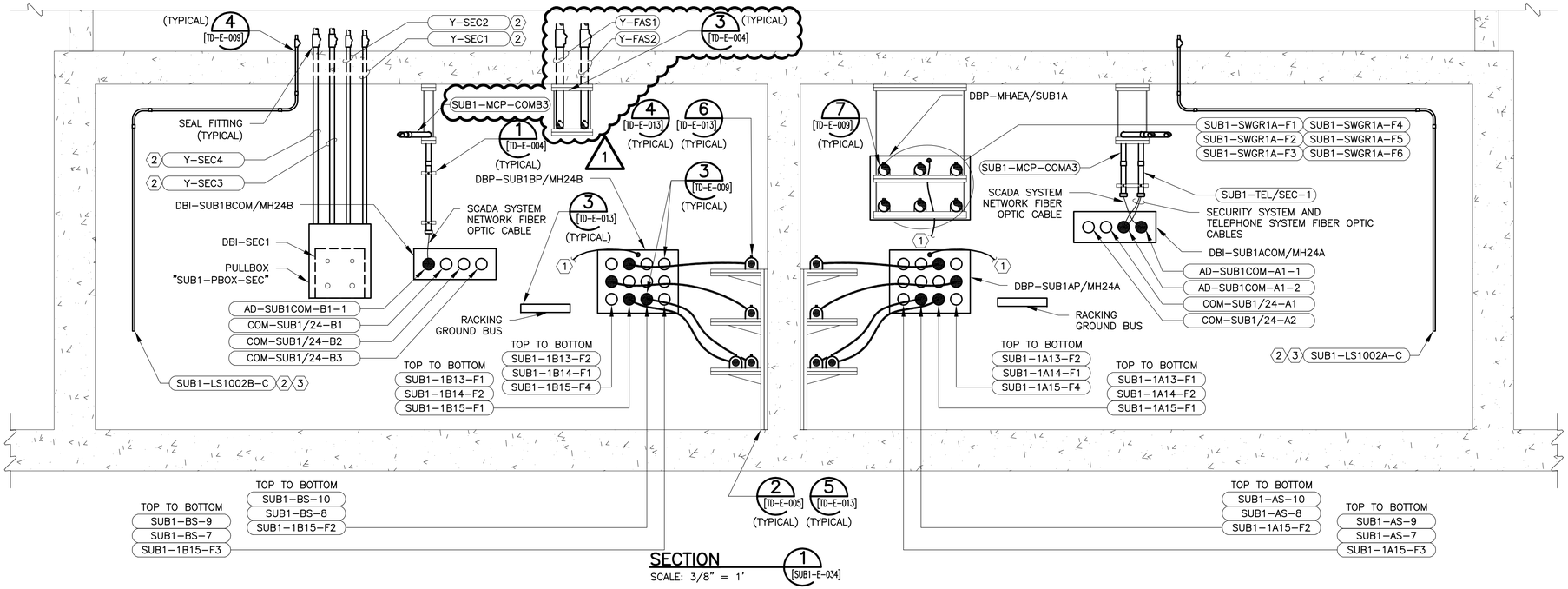
| | |
|---|---|
| DESIGNED BY: | HEI |
| CHECKED BY: | HEI |
| APPROVED BY: | HEI |
| SUBMITTAL DATE: | JANUARY 2016 |
| SCALE: | AS NOTED |

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

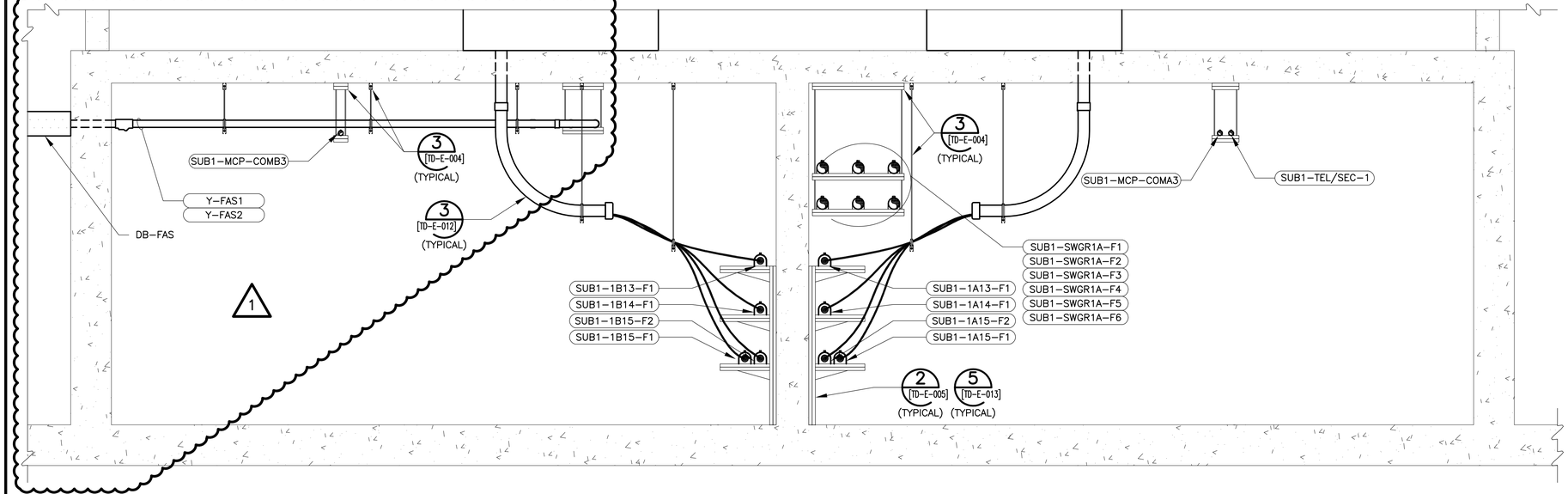
# SUBSTATION NO. 1 GROUND LEVEL AUXILIARY POWER PLAN – PROPOSED

PROJECT NO: 2009-800 | SHT. 735 OF 854 | DWG NO. SUB1-E-037

ADDENDUM NO. 1




SECTION 1 [SUB1-E-034]
SCALE: 3/8" = 1'




SECTION 2 [SUB1-E-034]
SCALE: 3/8" = 1'

## KEY NOTES:

1. ROUTE AND SECURE #250 KCMIL GROUNDING CONDUCTOR EXPOSED ALONG WALL. GROUNDING CONDUCTOR SHALL ROUTE TO/FROM AND TERMINATE AT NEAREST GROUND BUS.
2. CONDUIT TURNS UP INTO SUBSTATION GROUND LEVEL. REFER TO DRAWING NO. [SUB1-E-036] FOR CONTINUATION.
3. CONTINUES TO HIGH WATER FLOAT SWITCH.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.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ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | FIRE ALARM SYSTEM |

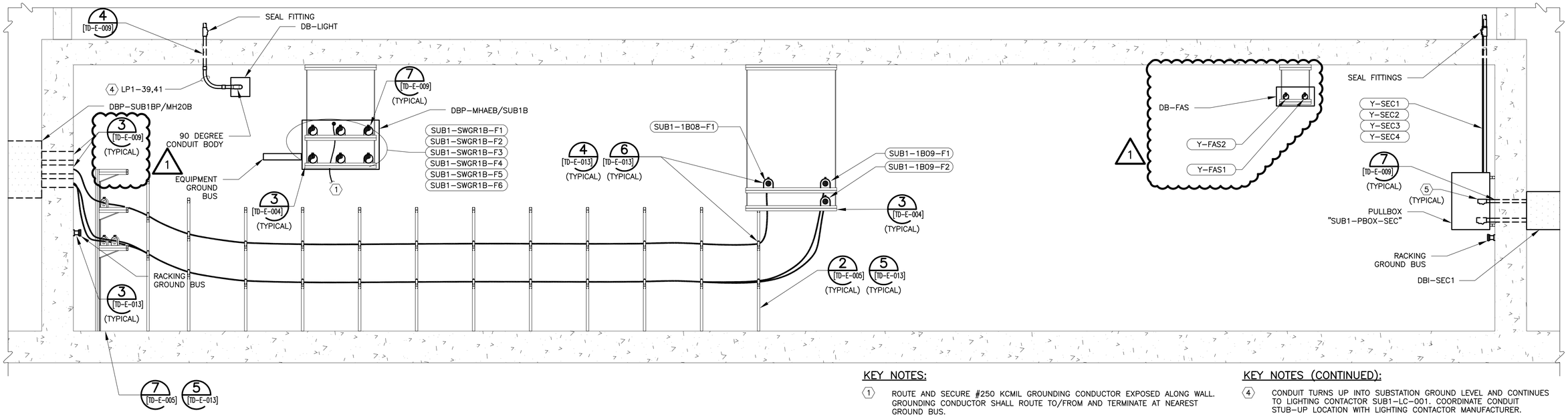
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: AS NOTED

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

# SUBSTATION NO. 1
# CABLE VAULT LEVEL CONDUIT AND CABLE ROUTING ELEVATION – PROPOSED (SHEET 1 OF 5)

PROJECT NO: 2009-800 | SHT. 738 OF 854 | DWG NO. SUB1-E-040

ADDENDUM NO. 1



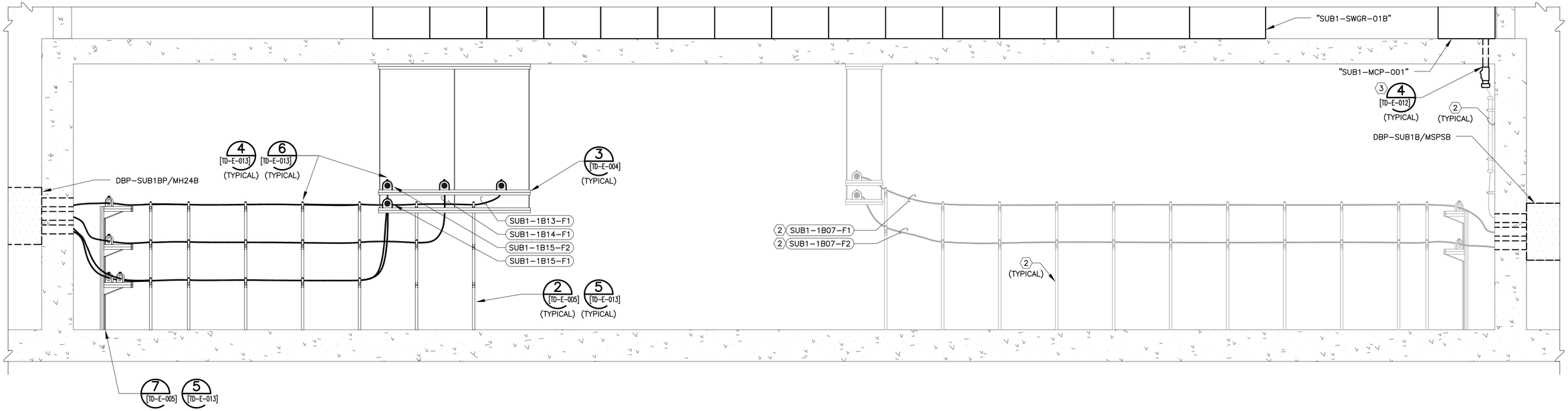

SECTION 9 [SUB1-E-034]
SCALE: 3/8" = 1'

## KEY NOTES:

1. ROUTE AND SECURE #250 KCMIL GROUNDING CONDUCTOR EXPOSED ALONG WALL. GROUNDING CONDUCTOR SHALL ROUTE TO/FROM AND TERMINATE AT NEAREST GROUND BUS.
2. CABLE, CABLE CLAMPS AND ASSOCIATED EQUIPMENT INSTALLED BY OTHERS.
3. EMPTY CONDUIT FOR FUTURE USE TURNS UP INTO SUBSTATION GROUND LEVEL PER DETAIL 4 ON DRAWING NO. [TD-E-012]. SEAL EMPTY SPARE CONDUIT ON EACH END WITH 99.0% COPPER-FREE ALUMINUM ALL-SOLID WASHER SIZED TO FIT TRADE SIZE OF CONDUIT.

## KEY NOTES (CONTINUED):

4. CONDUIT TURNS UP INTO SUBSTATION GROUND LEVEL AND CONTINUES TO LIGHTING CONTACTOR SUB1-LC-001. COORDINATE CONDUIT STUB-UP LOCATION WITH LIGHTING CONTACTOR MANUFACTURER.
5. FURNISH AND INSTALL SEAL FITTINGS WITHIN PULLBOX TO PREVENT MOISTURE IN DUCT BANK FROM ENTERING CABLE VAULT.




SECTION 8 [SUB1-E-034]
SCALE: 3/8" = 1'

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.

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5/1/2016


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ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | FIRE ALARM SYSTEM |

DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: AS NOTED

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

# SUBSTATION NO. 1
# CABLE VAULT LEVEL CONDUIT AND CABLE ROUTING ELEVATION – PROPOSED (SHEET 5 OF 5)

PROJECT NO: 2009-800 | SHT. 742 OF 854 | DWG NO. SUB1-E-044

ADDENDUM NO. 1

## CIRCUIT BREAKER PANEL SCHEDULE–"SUB1–LP–001"

VOLTS: 208/120 AMPS: 225A BUS MAIN: 150A PHASE/WIRE: 3ø, 4W

| CONDUIT/WIRE DESCRIPTION | CIRCUIT BREAKER SIZE | CKT. NO. | LOAD DESCRIPTIONS | PHASE A (VA) | PHASE B (VA) | PHASE C (VA) | LOAD DESCRIPTIONS | CKT. NO. | CIRCUIT BREAKER SIZE | CONDUIT/WIRE DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|
| 3/4" – 6#10(P), 3#10(G) | 20 1P | 1 | MAIN CONTROL PANEL "SUB1–MCP–001" LIGHTS SECTIONS 1–5 | ---<br>210 | | | SPARE | 2 | 20 1P | |
| INCLUDED IN CONDUIT WITH CIRCUIT NO. 1 | 20 1P | 3 | MAIN CONTROL PANEL "SUB1–MCP–001" VENT FANS SECTIONS 1–5 | | 54<br>135 | | BATTERY CHARGING SYSTEM ASSEMBLY "SUB1–BSCA–001" FANS | 4 | 20 1P | 3/4" – 2#10(P), 1#10(G) |
| INCLUDED IN CONDUIT WITH CIRCUIT NO. 1 | 20 1P | 5 | MAIN CONTROL PANEL "SUB1–MCP–001" AUXILIARY POWER SECTIONS 1–5 | | | 54<br>200 | BATTERY CHARGING SYSTEM ASSEMBLY "SUB1–BSCA–002" FANS | 6 | 20 1P | 3/4" – 2#10(P), 1#10(G) |
| 3/4" – 6#10(P), 3#10(G) | 20 1P | 7 | MAIN CONTROL PANEL "SUB1–MCP–001" LIGHTS SECTIONS 6–11 | 54<br>252 | | | DC–AC INVERSION SYSTEM ASSEMBLY "SUB1–INVSA–001" FANS | 8 | 20 1P | 3/4" – 2#10(P), 1#10(G) |
| INCLUDED IN CONDUIT WITH CIRCUIT NO. 7 | 20 1P | 9 | MAIN CONTROL PANEL "SUB1–MCP–001" VENT FANS SECTIONS 6–11 | | 54<br>162 | | MAIN DC POWER DISTRIBUTION BUS "SUB1–PDB–001" FANS | 10 | 20 1P | 3/4" – 2#10(P), 1#10(G) |
| INCLUDED IN CONDUIT WITH CIRCUIT NO. 7 | 20 1P | 11 | MAIN CONTROL PANEL "SUB1–MCP–001" AUXILIARY POWER SECTIONS 6–11 | | | ---<br>240 | SPARE | 12 | 20 1P | |
| 3/4" – 2#10(P), 1#10(G) | 20 1P | 13 | 12470 BUS DUCT SPACE HEATER | ---<br>500 | | | SPARE | 14 | 20 1P | |
| 1" – 2#6(P), 1#6(G) | 25 1P | 15 | "SUB1–SWGR–01A" SPACE HEATERS | | 896<br>2250 | | LIGHTING IN MAIN ROOM 100 | 16 | 20 1P | 1" – 6#8(P), 1#8(G) |
| 1" – 2#6(P), 1#6(G) | 25 1P | 17 | "SUB1–SWGR–01B" SPACE HEATERS | | | 896<br>2250 | LIGHTING IN MAIN ROOM 100 | 18 | 20 1P | INCLUDED IN CONDUIT WITH CIRCUIT NO. 16 |
| 3/4" – 4#10(P), 2#10(G) | 20 1P | 19 | EXHAUST FAN "SUB1–EF–001" MANUAL MOTOR STARTER | 832<br>389 | | | LIGHTING IN MAIN ROOM 100 | 20 | 20 1P | INCLUDED IN CONDUIT WITH CIRCUIT NO. 16 |
| INCLUDED IN CONDUIT WITH CIRCUIT NO. 19 | 20 1P | 21 | EXHAUST FAN "SUB1–EF–002" MANUAL MOTOR STARTER | | ---<br>389 | | SPARE | 22 | 20 1P | |
| 3/4" – 2#8(P), 1#10(G) | 20 1P | 23 | BUILDING EAST INTERIOR AND EXTERIOR RECEPTACLES | | | ---<br>1440 | SPARE | 24 | 20 1P | |
| 3/4" – 2#10(P), 1#10(G) | 20 1P | 25 | BUILDING WEST INTERIOR AND EXTERIOR RECEPTACLES | 640<br>900 | | | LIGHTING IN CABLE VAULT | 26 | 20 1P | 1" – 4#8(P), 1#10(G) |
| | 20 1P | 27 | SPARE | | 832<br>--- | | LIGHTING IN CABLE VAULT | 28 | 20 1P | INCLUDED IN CONDUIT WITH CIRCUIT NO. 26 |
| | 20 1P | 29 | SPARE | | | 360<br>--- | CABLE VAULT RECEPTACLES | 30 | 20 1P | INCLUDED IN CONDUIT WITH CIRCUIT NO. 26 |
| | 20 1P | 31 | SPARE | 640<br>--- | | | LIGHTING IN CABLE VAULT | 32 | 20 1P | 1" – 4#8(P), 1#10(G) |
| 3/4" – 2#8(P), 1#10(G) | 20 2P | 33 | BUIDLING EXTERIOR LIGHTING | | 832<br>194 | | LIGHTING IN CABLE VAULT | 34 | 20 1P | INCLUDED IN CONDUIT WITH CIRCUIT NO. 32 |
| | | 35 | | | | 360<br>194 | CABLE VAULT RECEPTACLES | 36 | 20 1P | INCLUDED IN CONDUIT WITH CIRCUIT NO. 32 |
| 3/4" – 2#10(P), 1#10(G) | 20 1P | 37 | "SUB1–LC–001" LIGHTING CONTACTOR CONTROL CIRCUIT | ---<br>100 | | | SPARE | 38 | 20 1P | |
| 1–1/2" – 4#8(P), 1#10(G) | 20 2P | 39 | ROADWAY LIGHTING | | ---<br>177 | | SPARE | 40 | 20 1P | |
| | | 41 | | | | ---<br>177 | SPARE | 42 | 20 1P | |
| TOTAL CONNECTED VOLT AMPS (VA) | | | | 4517 | 5975 | 6171 | | | | |

## CIRCUIT BREAKER PANEL SCHEDULE–"SUB1–LP–002"

VOLTS: 240/120 AMPS: 225A BUS MAIN: 100A PHASE/WIRE: 1ø, 3W

| CONDUIT/WIRE DESCRIPTION | CIRCUIT BREAKER SIZE | CKT. NO. | LOAD DESCRIPTIONS | PHASE A (VA) | PHASE B (VA) | LOAD DESCRIPTIONS | CKT. NO. | CIRCUIT BREAKER SIZE | CONDUIT/WIRE DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| 3/4" – 2#10(P), 1#10(G) | 20 1P | 1 | 24VDC POWER SUPPLY "SUB1–PS–001" LINE 1 | 160<br>600 | | PLC "SUB1–PLC–001" | 2 | 20 1P | 1" – 6#10(P), 3#10(G) |
| 1" – 4#10(P), 2#10(G) | 20 1P | 3 | 24VDC POWER SUPPLY "SUB1–PS–001" LINE 2 | | 160<br>600 | PLC "SUB1–PLC–002" | 4 | 20 1P | INCLUDED IN CONDUIT WITH CIRCUIT NO. 2 |
| INCLUDED IN CONDUIT WITH CIRCUIT NO. 3 | 20 1P | 5 | "SUB1–PLC–000" AND "SUB1–OIU–001" | 160<br>260 | | PLC "SUB1–PLC–003" | 6 | 20 1P | INCLUDED IN CONDUIT WITH CIRCUIT NO. 2 |
| 1" – 6#10(P), 3#10(G) | 20 1P | 7 | COMMUNICATION EQUIPMENT IN "SUB1–MCP–001" | | 180<br>1050 | SECURITY CABINET "SUB1–CP–SEC" | 8 | 20 1P | SEE CONDUIT "SUB1–CPSEC–P" |
| INCLUDED IN CONDUIT WITH CIRCUIT NO. 7 | 20 1P | 9 | "SUB1–SWGR–01A" MAIN & TIE BREAKER AND ALARM BEACONS | 180<br>60 | | TELEPHONE PANEL "SUB1–CP–TELE" | 10 | 20 1P | 3/4" – 2#10(P), 1#10(G) |
| INCLUDED IN CONDUIT WITH CIRCUIT NO. 7 | 20 1P | 11 | "SUB1–SWGR–01A" FEEDER BREAKERS | | 180<br>140 | BATTERY MONITOR POWER RECEPTACLE | 12 | 20 1P | 3/4" – 2#10(P), 1#10(G) |
| 3/4" – 4#10(P), 2#10(G) | 20 1P | 13 | "SUB1–SWGR–01B" MAIN & TIE BREAKER | 544<br>40 | | EMERGENCY AND SECURITY LIGHTS GROUND LEVEL | 14 | 20 1P | 3/4" – 2#10(P), 1#10(G) |
| INCLUDED IN CONDUIT WITH CIRCUIT NO. 13 | 20 1P | 15 | "SUB1–SWGR–01B" FEEDER BREAKERS | | 331<br>140 | EMERGENCY LIGHTS LOWER LEVEL | 16 | 20 1P | 3/4" – 2#10(P), 1#10(G) |
| 3/4" – 2#10(P), 1#10(G) | 20 1P | 17 | ROOM HYDROGEN CONCENTRATION LEVEL INDICATOR/TRANSMITTER CONTROL POWER | 331<br>23 | | EMERGENCY LIGHTS LOWER LEVEL | 18 | 20 1P | 3/4" – 2#10(P), 1#10(G) |
| 3/4" – 4#10(P), 2#10(G) | 20 1P | 19 | BREAKER TEST AREA RECEPTACLE | | 360<br>180 | FIRE ALARM PANEL | 20 | 20 1P | 3/4" – 2#10(P), 1#10(G) |
| INCLUDED IN CONDUIT WITH CIRCUIT NO. 19 | 20 1P | 21 | BREAKER TEST CONTROL PANEL "SUB1–CP–001" | ---<br>--- | | SPARE | 22 | 20 1P | |
| | 0 1P | 23 | SPACE | | ---<br>--- | SPACE | 24 | 0 1P | |
| | 0 1P | 25 | SPACE | ---<br>--- | | SPACE | 26 | 0 1P | |
| | 0 1P | 27 | SPACE | | ---<br>--- | SPACE | 28 | 0 1P | |
| | 0 1P | 29 | SPACE | ---<br>--- | | SPACE | 30 | 0 1P | |
| TOTAL CONNECTED VOLT AMPS (VA) | | | | 2358 | 3321 | | | | |

1

1

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.


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HARUTUNIAN ENGINEERING INCORPORATED

TEXAS FIRM REGISTRATION NUMBER F–2408

ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | FIRE ALARM SYSTEM |

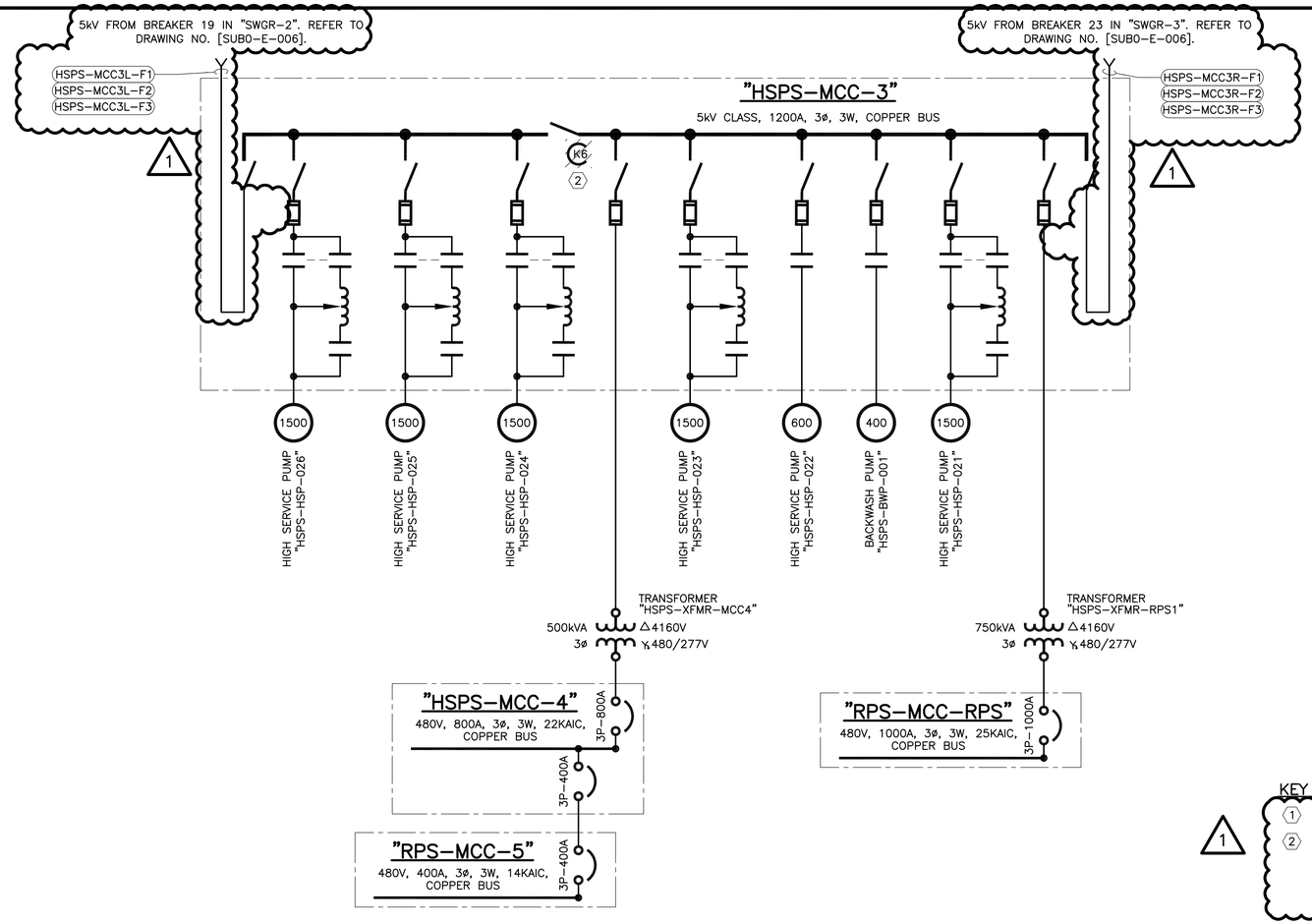
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

SUBSTATION NO. 1
PANEL SCHEDULE
PROPOSED (SHEET 1 OF 2)

PROJECT NO: 2009–800 | SHT. 758 OF 854 | DWG NO. SUB1–E–060

ADDENDUM NO. 1




KEY NOTES:

1

1. N/A
2. REMOVE KEY INTERLOCK MECHANISM.

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AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | HSPS FEEDERS |

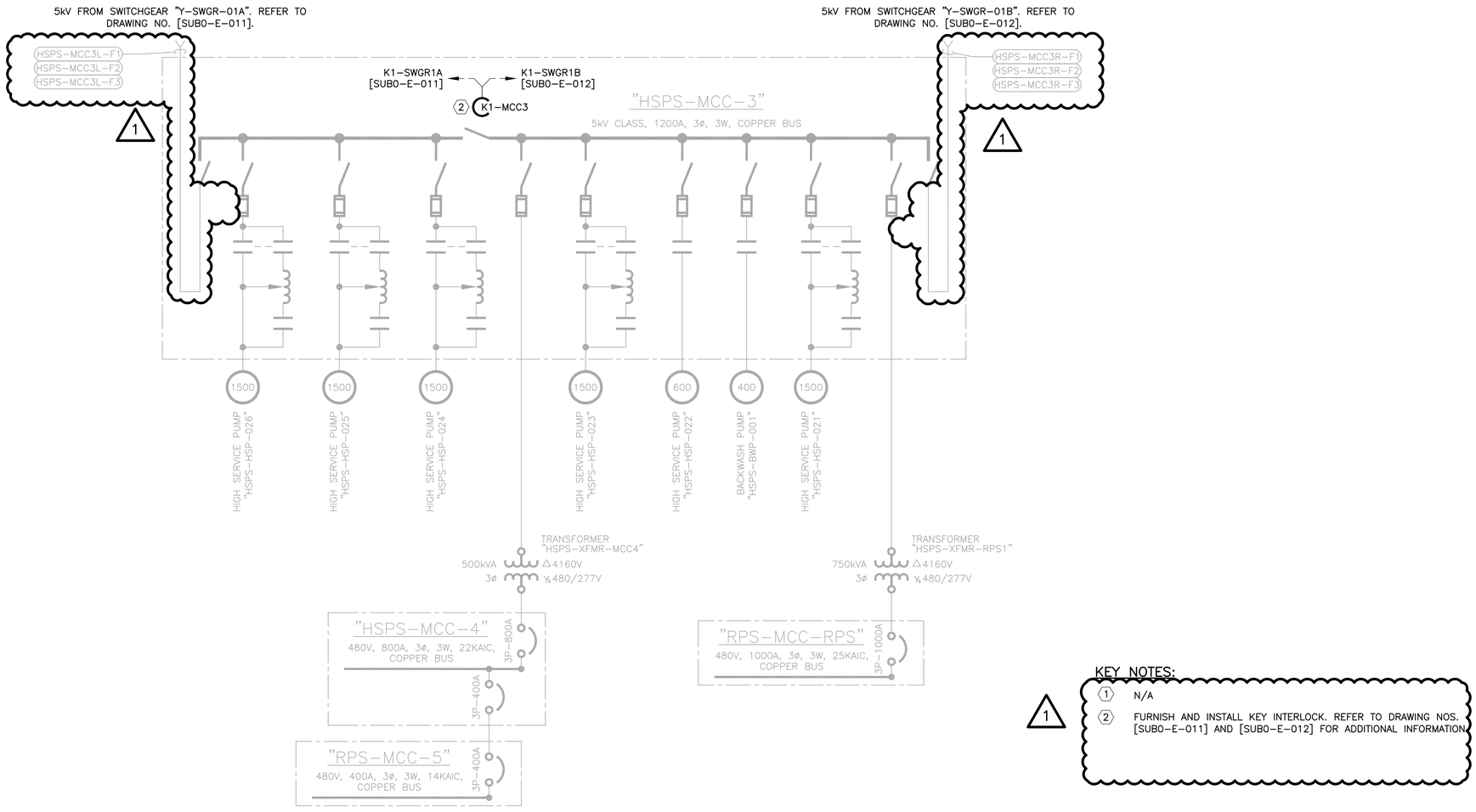
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

# HIGH SERVICE PUMP STATION ONE-LINE DIAGRAM - DEMOLITION

PROJECT NO: 2009-800 | SHT. 778 OF 854 | DWG NO. HSPS-E-008

ADDENDUM NO. 1




KEY NOTES:

1 ⚠

(1) N/A

(2) FURNISH AND INSTALL KEY INTERLOCK. REFER TO DRAWING NOS. [SUB0-E-011] AND [SUB0-E-012] FOR ADDITIONAL INFORMATION.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.

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305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752


| NO. | DATE: | DESCRIPTION |
|---|---|---|
| ⚠1 | 4/20/16 | HSPS FEEDERS |

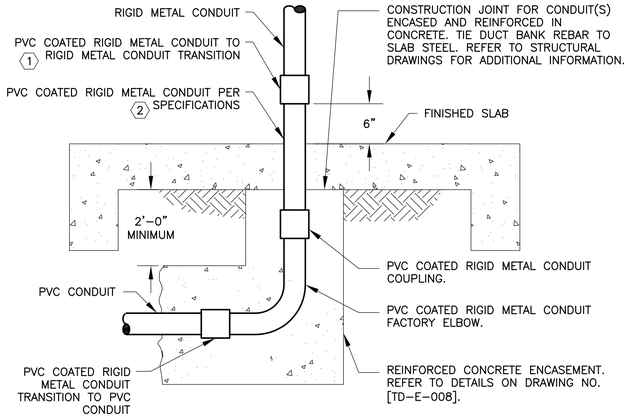
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

# HIGH SERVICE PUMP STATION ONE-LINE DIAGRAM - RENOVATION

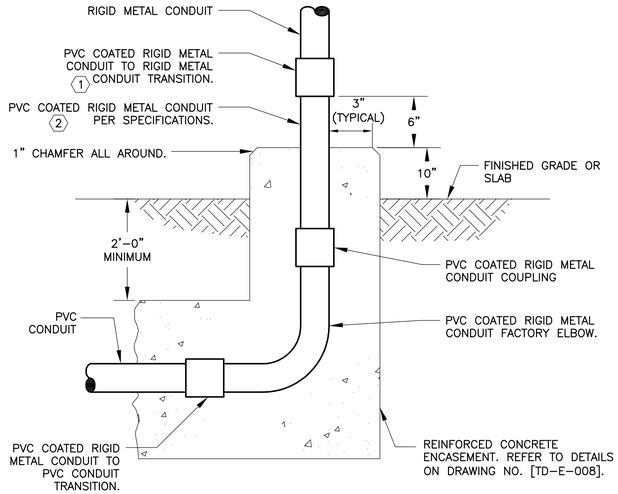
PROJECT NO: 2009-800 | SHT. 780 OF 854 | DWG NO. HSPS-E-010

ADDENDUM NO. 1



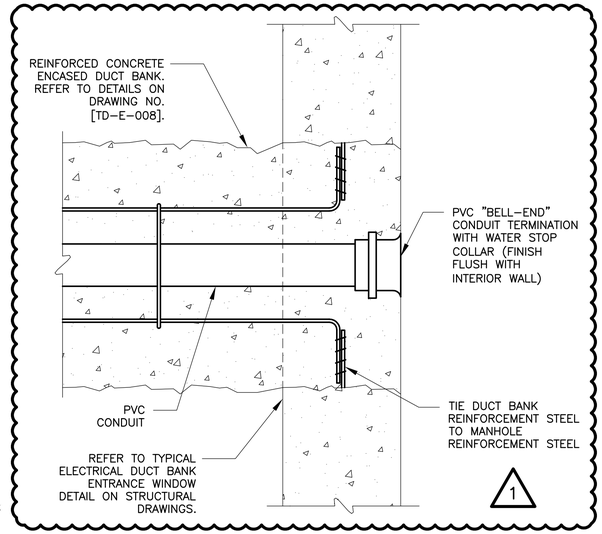

## FINISHED INDOOR CONDUIT STUB-UP DETAIL 1

SCALE: N.T.S. [TD-E-009]




## FINISHED OUTDOOR CONDUIT STUB-UP DETAIL 2

SCALE: N.T.S. [TD-E-009]

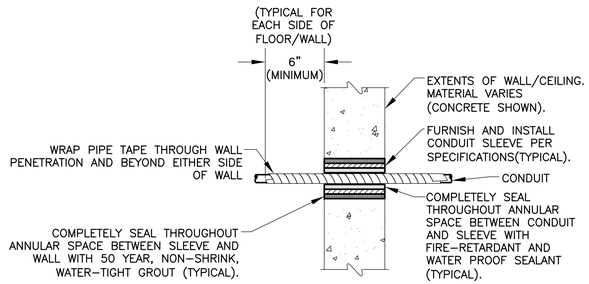



## CONDUIT ENTRY INTO EXTERIOR MANHOLE/CABLE VAULT 3

SCALE: N.T.S. [TD-E-009]

## KEY NOTES:

1. FURNISH AND INSTALL RIGID METAL CONDUIT COUPLING AT THIS LOCATION TO INTERCONNECT FEMALE PVC COATED RIGID METAL CONDUIT TO RIGID METAL CONDUIT SYSTEM. THOROUGHLY COAT THREADS PRIOR TO ASSEMBLY PER SPECIFICATIONS.
2. ALTHOUGH SHOWN EXPOSED AND REQUIRED OTHERWISE BY THE SPECIFICATIONS, FURNISH AND INSTALL PER THE REQUIREMENTS OF THE "UNDERGROUND CONDUIT IN DUCT BANK SYSTEM" SUBSECTION OF SECTION 16150 OF THE CONTRACT SPECIFICATIONS.
3. FURNISH AND INSTALL PULL STRING INSIDE AND ALONG ENTIRE LENGTH OF CONDUIT FOR FUTURE USE. TAPE PULL STRING AROUND INTERIOR OF CONDUIT ADJACENT TO PLUG THREADS.
4. THE EXISTING/PROPOSED STRUCTURE TYPE TO WHICH PROPOSED EQUIPMENT AND/OR SUPPORT SYSTEMS SHALL BE MOUNTED MAY VARY. THE EQUIPMENT ANCHOR TYPE SHALL CORRESPOND TO THE TYPE OF STRUCTURE TO WHICH THE EQUIPMENT AND/OR SUPPORT SYSTEMS ARE ATTACHED. THE DRAWING REFLECTS A SPECIFIC STRUCTURE TYPE WITH CORRESPONDING ANCHOR TYPE AND IS TYPICAL FOR THE STRUCTURE TYPE SHOWN. TO ATTACH EQUIPMENT/SUPPORT SYSTEMS TO PRE-CAST/CAST-IN-PLACE CONCRETE WALL/FLOOR SLAB STRUCTURE TYPES, FURNISH AND INSTALL BOLT WITH EXPANSION ANCHOR. TO ATTACH EQUIPMENT/SUPPORT SYSTEMS TO A CONCRETE MASONRY UNIT (CMU)/BRICK WALL STRUCTURE TYPE, FURNISH AND INSTALL BOLT WITH EXPANSION ANCHOR. TO ATTACH EQUIPMENT/SUPPORT SYSTEMS TO AN EXISTING STEEL STRUCTURE TYPE, FURNISH AND INSTALL BOLTING ASSEMBLY AND/OR ANCHORING SYSTEM WITH BOLTING ASSEMBLY, PER SPECIFICATIONS AND STRUCTURAL REQUIREMENTS. CLOSELY AND CAREFULLY COORDINATE ATTACHMENT REQUIREMENTS WITH STRUCTURAL.
5. WHERE SPECIFICALLY SHOWN ON THE PLANS, FURNISH AND INSTALL MODULAR SEAL ASSEMBLY TO SEAL ANNULAR SPACE AROUND CONDUIT PENETRATION. MODULAR SEAL ASSEMBLY SHALL CONSIST OF EPDM SEAL ELEMENTS, COMPOSITE PRESSURE PLATES, AND 316 STAINLESS STEEL HARDWARE. MODULAR SEAL SHALL BE MODEL S-316 BY LINK-SEAL, OR APPROVED EQUAL. FURNISH MODULAR SEAL ASSEMBLY COMPLETE WITH NON-CONDUCTIVE, HIGH IMPACT RESISTANT, HPDE MOLDED SLEEVE WITH WATER STOP COLLAR AND NAILER END CAPS. SLEEVE SHALL BE MODEL CS BY CENTURY-LINE, OR APPROVED EQUAL. QUANTITY AND SIZE OF MODULAR SEAL ASSEMBLIES WILL VARY. REFER TO THE PLANS FOR QUANTITY AND SIZE OF CONDUITS PENETRATING STRUCTURE. SUBMIT PRODUCT DATA OF THE MODULAR SEAL ASSEMBLY AND SLEEVE IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIFICATION SECTIONS 01300 AND 16150.
6. FURNISH AND INSTALL SLEEVE PRIOR TO POURING CONCRETE. COORDINATE WITH MODULAR SEAL MANUFACTURER TO DETERMINE SLEEVE SIZE REQUIRED FOR EACH CONDUIT SIZE.

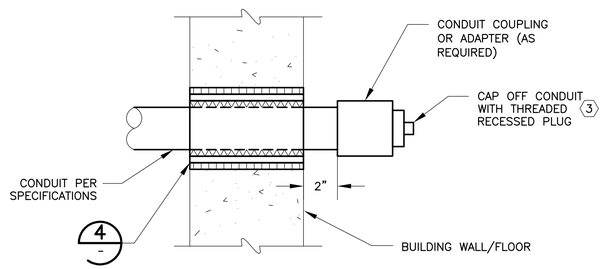



FLOOR/WALL

NOTE: THIS DETAIL DOES NOT APPLY TO FLOOR PENETRATIONS WHERE SLAB IS AT GRADE, BUT ONLY WHERE SLAB IS BETWEEN LEVELS.

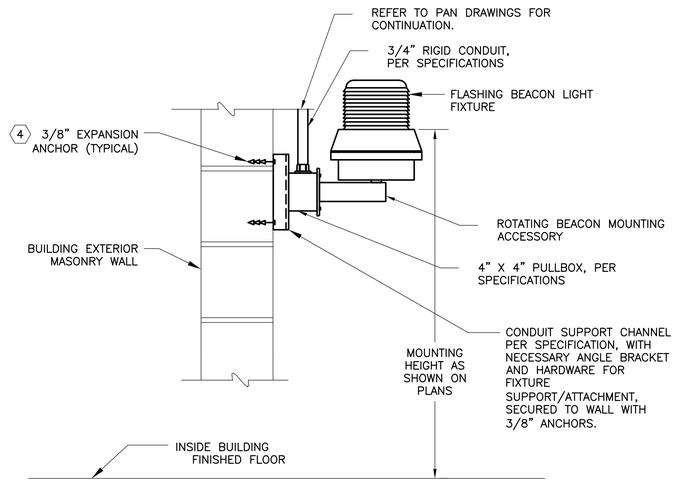
## CONDUIT PENETRATION DETAIL 4

SCALE: N.T.S. [TD-E-009]



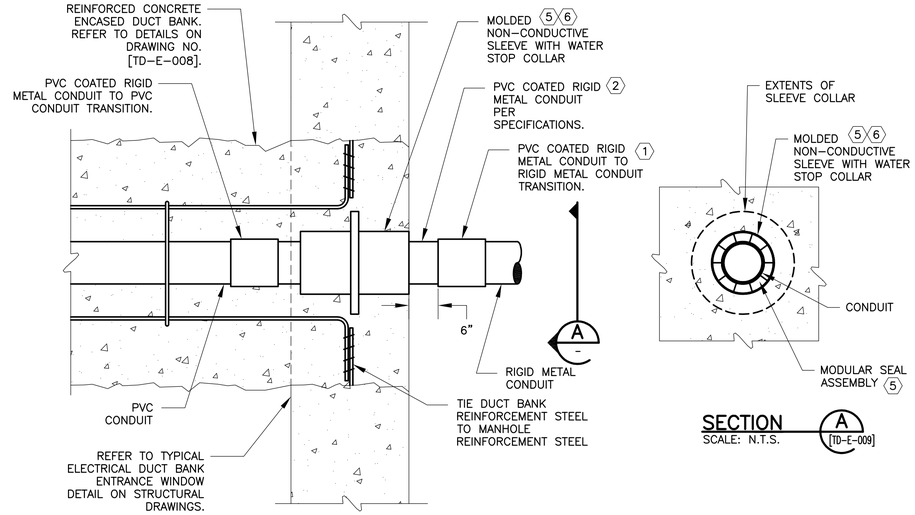

## TERMINATION OF CONDUIT FOR FUTURE USE 5

SCALE: N.T.S. [TD-E-009]




## BEACON MOUNTING DETAIL 6

SCALE: N.T.S. [TD-E-009]




## CONDUIT STUB-OUT INTO CABLE VAULT 7

SCALE: N.T.S. [TD-E-009]

## SECTION A

SCALE: N.T.S. [TD-E-009]

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY.

**REUSE OF DOCUMENTS**

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K. A. HARUTUNIAN 59181 STATE OF TEXAS REGISTERED PROFESSIONAL ENGINEER 5/1/2016

HARUTUNIAN ENGINEERING INCORPORATED
TEXAS FIRM REGISTRATION NUMBER F-2408
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

| NO. | DATE: | DESCRIPTION |
|---|---|---|
| 1 | 4/20/16 | HSPS FEEDERS |

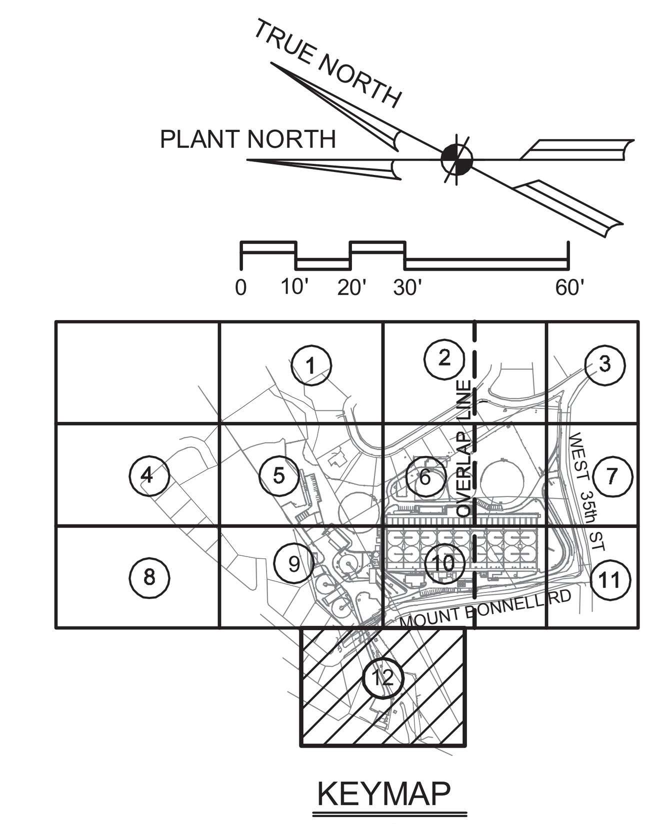
DESIGNED BY: HEI
CHECKED BY: HEI
APPROVED BY: HEI
SUBMITTAL DATE: JANUARY 2016
SCALE: N.T.S.

DAVIS WATER TREATMENT PLANT
POWER DISTRIBUTION UPGRADE
CIP NO. 2015.006

# ELECTRICAL STANDARD DETAILS IX

PROJECT NO: 2009-800 | SHT. 800 OF 854 | DWG NO. TD-E-009

ADDENDUM NO. 1




KEYMAP

NTS

## NOTES:

1. THE LOCATION OF EXISTING UTILITIES SHOWN ON THIS DRAWING IS FROM AVAILABLE RECORD INFORMATION WHICH MAY NOT BE COMPLETE OR ACCURATE, AND FROM SURFACE EVIDENCE SURVEYED ON THE GROUND. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING THE LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
2. DAVIS WTP RAW WATER TRANSMISSION MAIN REHABILITATION PROJECT TO BE CONSTRUCTED UNDER THE SAME CONSTRUCTION CONTRACT AS THE DAVIS WTP POWER DISTRIBUTION UPGRADES PROJECT. THESE DRAWINGS SHOW THE WORK ASSOCIATED WITH THE RECONSTRUCTION AND REHABILITATION OF THE RAW WATER TRANSMISSION MAIN.
3. MAINTAIN EQUIPMENT CLEARANCES TO OVERHEAD POWER LINES IN COMPLIANCE WITH OSHA AND STATUTORY REQUIREMENTS. COORDINATE WITH AUSTIN ENERGY FOR EXCAVATIONS IN THE VICINITY OF POLES AND GUY ANCHORS.
4. INTERNAL PIPE REPAIR INCLUDED AS PART OF ALLOWANCE NO. 2. REFERENCE SPECIFICATION FOR INTERNAL PIPE REPAIR REQUIREMENTS. (1)
5. ACCESS POINTS PROVIDED FOR INTERNAL PIPE REPAIR.
6. CONTRACTOR TO REMOVE EXISTING PIPE SEGMENT AT PIPE JOINT FOR ACCESS POINT No. 2 AS REQUIRED FOR ALLOWABLE ACCESS. REMOVE PIPE SEGMENT TO BE REPLACED WITH DUCTILE IRON PIPE AND COUPLING ADAPTER.
7. CONTRACTOR TO NOT OBSTRUCT DELIVERIES ON THE PLANT ACCESS ROAD. WORK WITHIN THE ACCESS ROAD MUST BE DONE IN A WAY THAT CAN BE COVERED TO PROVIDE DELIVERY ACCESS. ACCESS ROAD CLOSURES MUST BE AGREED UPON WITH THE CITY OF AUSTIN IN ADVANCE.
8. CONNECT PROPOSED 48–INCH D.I. PIPE TO EXISTING PIPE. REFERENCE RW–C–230.
9. REFERENCE ENLARGED PROPOSED DRAWINGS FOR ADDITIONAL INSTALLATION DETAILS.
10. ALL ACCESS WAYS AND DRIVEWAYS TO BE KEPT CLEAR TO ALLOW OPERATORS ACCESS TO ALL AREAS FOR MAINTENANCE AND EMERGENCIES. CONTRACTOR TO COORDINATE THE DELIVERY AND LOADING/UNLOADING OF EQUIPMENT WITH OWNER AT A MINIMUM OF 48 HOURS PRIOR TO DELIVERY.
11. CONTRACTOR TO PROVIDE ACCESS FOR CHEMICAL DELIVERY TRUCKS UP TO THREE TIMES PER DAY. CONTRACTOR TO SUBMIT WORKING PLAN TO CITY OF AUSTIN FOR APPROVAL PRIOR TO THE START OF ANY CONSTRUCTION IN THE ROADWAY.
12. RWTM IS TO BE DESIGNED BASED ON THE FOLLOWING PRESSURES:
    WORKING PRESSURE = 90 PSI.
    MAXIMUM PRESSURE = 135 PSI.
    VACUUM PRESSURE = –14.7 PSI.
    (1)

## LEGEND

PROPERTY LIMITS

LIMITS OF CONSTRUCTION

LIMITS OF CONSTRUCTION (BY OTHERS)

AREAS OUTSIDE LOC

COMMON AREA LIMITS

EXISTING DUCT BANK

EXISTING PIPING

PROPOSED PIPING

INTERNAL PIPE REPAIR

DUCT BANK (BY OTHERS)

| REV | DATE | DESCRIPTION | APPROVED |
|---|---|---|---|
| 1 | 4/28/2016 | PIPE PRESSURE NOTE; ALLOWANCE NO. 2 | |

CITY OF AUSTIN

DAVIS WATER TREATMENT PLANT - RWHEEI
RAW WATER TRANSMISSION MAIN REHABILITATION
CIP PROJECT No. 2015.017

SITE PIPING - RWTM (CIVIL) - PROPOSED

AECOM TECHNICAL SERVICES INC.
400 W 15th STREET SUITE 500
AUSTIN, TEXAS 78701
WWW.AECOM.COM
TBPE REG. NO. F-3580

STATE OF TEXAS – WILLIAM J. BALCOM – 108478 – LICENSED PROFESSIONAL ENGINEER – 4-28-2016

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF THIS BAR DOES NOT MEASURE ONE INCH, DWG IS NOT TO SCALE

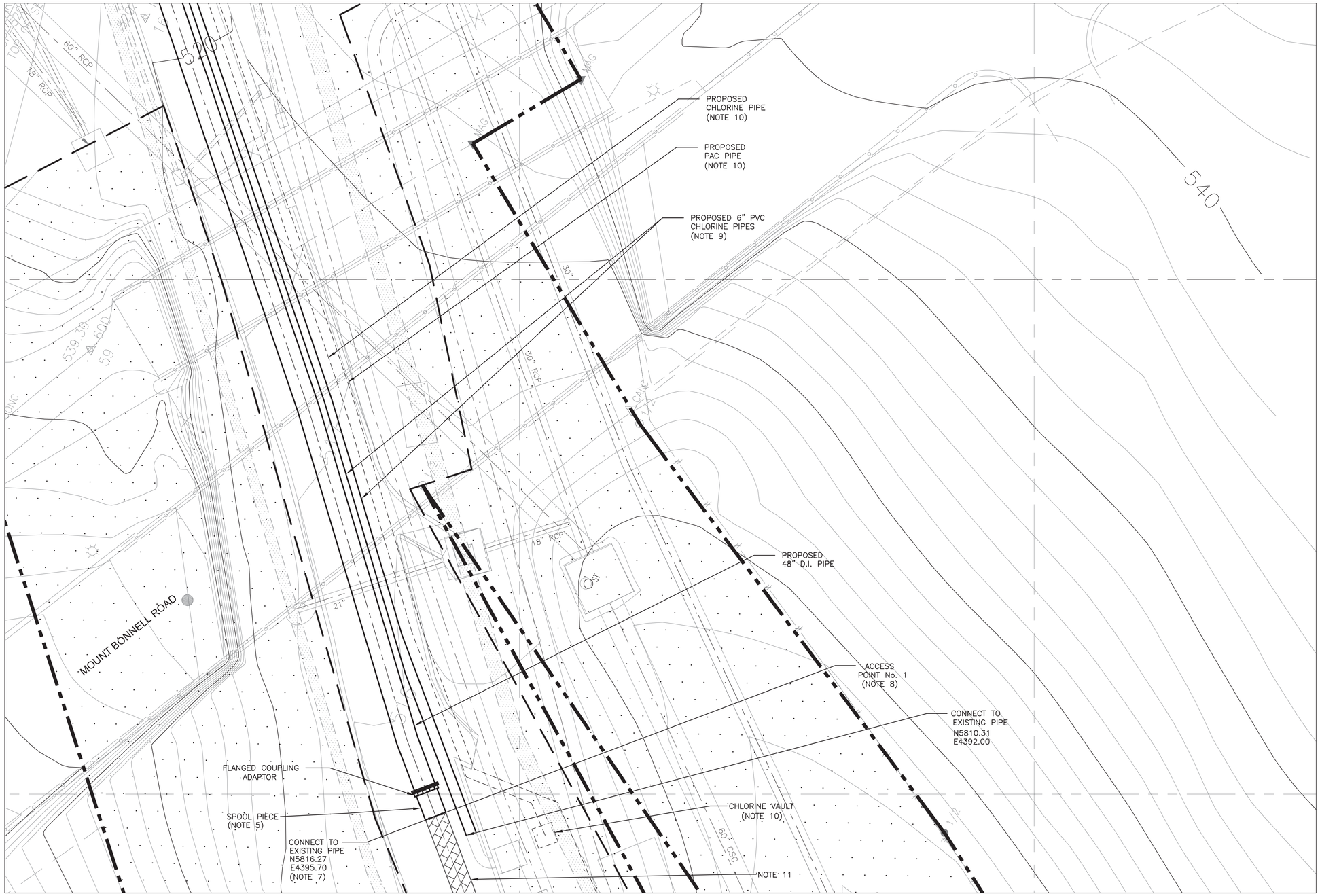
| | |
|---|---|
| DESIGNED: | JB |
| DRAWN: | PW |
| CHECKED: | ICC |
| APPROVED: | SGE |
| SCALE: | NTS |
| DATE: | APRIL 2016 |

PROJECT No. 60310035
DRAWING No. RW-C-212
SHEET No. 832 OF 854

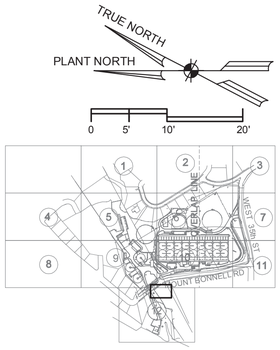
E:\60310035 DAVIS WTP RWHEEI\900 WORK\910 CAD\910.21 SHEETS - RWTM\RW-C-212.DWG BY: GADHIAT DATE: 5/3/2016 4:07 PM

ADDENDUM NO. 1

E4555




1 SITE PIPING ENLARGED PLAN - PROPOSED
SCALE" 1" = 10'
RW-C-209, RW-C-210, RW-C212




KEYMAP
NTS

## NOTES:

1. THE LOCATION OF EXISTING UTILITIES SHOWN ON THIS DRAWING IS FROM AVAILABLE RECORD INFORMATION WHICH MAY NOT BE COMPLETE OR ACCURATE, AND FROM SURFACE EVIDENCE SURVEYED ON THE GROUND. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING THE LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
2. DAVIS WTP RAW WATER TRANSMISSION MAIN REHABILITATION PROJECT TO BE CONSTRUCTED UNDER THE SAME CONSTRUCTION CONTRACT AS THE DAVIS WTP POWER DISTRIBUTION UPGRADES PROJECT. THESE DRAWINGS SHOW THE WORK ASSOCIATED WITH THE RECONSTRUCTION AND REHABILITATION OF THE RAW WATER TRANSMISSION MAIN.
3. MAINTAIN EQUIPMENT CLEARANCES TO OVERHEAD POWER LINES IN COMPLIANCE WITH OSHA AND STATUTORY REQUIREMENTS. COORDINATE WITH AUSTIN ENERGY FOR EXCAVATIONS IN THE VICINITY OF POLES AND GUY ANCHORS.
4. CONTRACTOR TO NOT OBSTRUCT DELIVERIES ON THE PLANT ACCESS ROAD. WORK WITHIN THE ACCESS ROAD MUST BE DONE IN A WAY THAT CAN BE COVERED TO PROVIDE DELIVERY ACCESS. ACCESS ROAD CLOSURES MUST BE AGREED UPON WITH THE CITY OF AUSTIN IN ADVANCE.
5. REMOVE EXISTING SEGMENT OF CONCRETE STEEL CYLINDER PIPE (C.S.C.) AND INSTALL NEW SPOOL PIECE. BUTT WELD SPOOL PIECE TO EXISTING STEEL CYLINDER OF THE C.S.C. PIPE PER DETAIL 1/TD-M-1. SPOOL PIECE AND FLANGE SHALL BE FABRICATED OF STEEL CONFORMING TO ASTM A139, GRADE C OR EQUAL, FOR A WORKING PRESSURE OF 100 PSI. PIPE AND FLANGE SHALL CONFORM TO AWWA C200 AND C207 STANDARDS. PROVIDE CEMENT MORTAR LININGFOR SPOOL PIECE ACCORDING TO AWWA C602. PROVIDE COATING PER SECTION 09902.
6. TEST PROPOSED PIPING BEFORE CONNECTING TO EXISTING PIPING. INSTALL BLIND FLANGE FOR TESTING.
7. CONNECT TO EXISTING 48-INCH C.S.C. PIPE AT EXISTING PIPE JOINT. CONTRACTOR SHALL EXCAVATE PIPE AND AND CONFIRM EXACT COORDINATE PRIOR TO START OF DEMOLITION.
8. ACCESS POINTS PROVIDED FOR INTERNAL PIPE REPAIR.
9. RELOCATE TWO EXISTING 6-INCH CHLORINE PIPES. CHLORINE PIPES TO MAINTAIN A MINIMUM 1-FOOT HORIZONTAL OFFSET FROM 48-INCH TRANSMISSION MAIN.
10. REFERENCE SEPARATE DRAWINGS IN THIS PACKAGE FOR DETAILS OF PROPOSED CHLORINE VAULT, CHLORINE, AND PAC PIPES WORK.
11. (1) INTERNAL PIPE REPAIR INCLUDED AS PART OF ALLOWANCE NO. 2. REFERENCE SPECIFICATION FOR INTERNAL PIPE REPAIR REQUIREMENTS.
12. ALL ACCESS WAYS AND DRIVEWAYS TO BE KEPT CLEAR TO ALLOW OPERATORS ACCESS TO ALL AREAS FOR MAINTENANCE AND EMERGENCIES. CONTRACTOR TO COORDINATE THE DELIVERY AND LOADING/UNLOADING OF EQUIPMENT WITH OWNER AT A MINIMUM OF 48 HOURS PRIOR TO DELIVERY.
13. CONTRACTOR TO PROVIDE ACCESS FOR CHEMICAL DELIVERY TRUCKS UP TO THREE TIMES PER DAY. CONTRACTOR TO SUBMIT WORKING PLAN TO CITY OF AUSTIN FOR APPROVAL PRIOR TO THE START OF ANY CONSTRUCTION IN THE ROADWAY.
14. PROVIDE TEMPORARY 6-INCH SCHEDULE 80 PVC CHLORINE LINE PRIOR TO DEMOLITION OF (2) EXISTING 6-INCH CHLORINE LINES. TEMPORARY CHLORINE LINE IS TO SERVE THE SAME FUNCTION AS THE EXISTING CHLORINE LINES. CONTRACTOR TO SUBMIT TEMPORARY PIPING LAYOUT FOR ENGINEER AND OWNER'S REVIEW PRIOR TO COMMENCING WORK.

| REV | DATE | DESCRIPTION | APPROVED |
|---|---|---|---|
| 1 | 5/3/2016 | ALLOWANCE NO. 2 | |

CITY OF AUSTIN

DAVIS WATER TREATMENT PLANT - RWHEEI
RAW WATER TRANSMISSION MAIN REHABILITATION
CIP PROJECT No. 2015.017

SITE PIPING - RWTM (CIVIL)
ENLARGED PLAN - PROPOSED

AECOM
AECOM TECHNICAL SERVICES INC.
400 W 15th STREET SUITE 500
AUSTIN, TEXAS 78701
WWW.AECOM.COM
TBPE REG. NO. F-3580

STATE OF TEXAS
WILLIAM J. BALCOM
108478
LICENSED
PROFESSIONAL ENGINEER
4-28-2016

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF THIS BAR DOES NOT MEASURE ONE INCH, DWG IS NOT TO SCALE

| | |
|---|---|
| DESIGNED: | JB |
| DRAWN: | PW |
| CHECKED: | ICC |
| APPROVED: | SGE |
| SCALE: | 1" = 10' |
| DATE: | JANUARY 2016 |

PROJECT No. 60310035
DRAWING No. RW-C-230
SHEET No. 833 OF 854

E:\60310035 DAVIS WTP RWHEEI\900 WORK\910 CAD\910.21 SHEETS - RWTM\RW-C-230.DWG BY: GADHIAT DATE: 2/1/2016 4:34 PM

ADDENDUM NO. 1