



San Antonio Water System
(DSP) Somerset Facility – High Service Pump Upgrades Project
SAWS Job No. 12-6101
SAWS Solicitation No. B-13-059-DD

ADDENDUM NO. 2

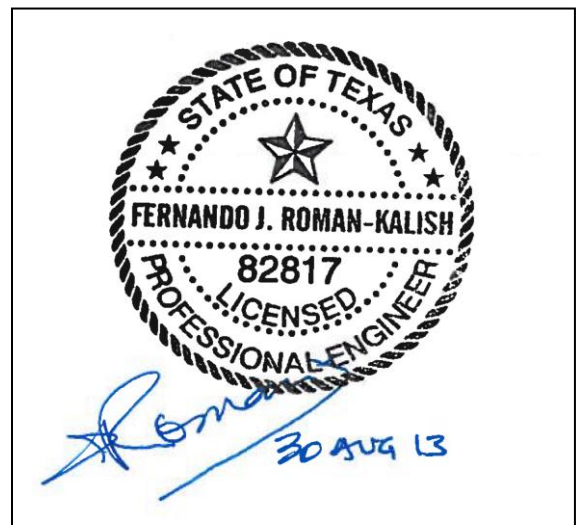
August 30, 2013

Proposal Opening Date: September 5, 2013
2:00 PM

Consulting Engineer: Tetra Tech, Inc
TBPE Registration No. F-3924

To: All Documents Holders of Record

This addendum, applicable to work designated above, is an amendment to the proposal and specification documents and as such shall be a part of and included in the Contract. Acknowledge receipt of this addendum by entering the addendum number and issue date in the spaces provided on all submitted copies of the proposal.





A. Addendum Purpose

The purpose of this addendum is to issue revisions to the plans and specifications for the (DSP) Somerset Facility – High Service Pump Upgrades Project (SAWS Job No. 12-6101; SAWS Solicitation No. B-13-059-DD). All questions received by the August 28, 2013 deadline are addressed in this addendum. In addition description of changes to selected drawings and specifications are noted.

B. Questions

Question #1

“Re: sheet 15 (C-102) of the drawings. There is a 16” x 16” tapping sleeve and valve shown on the 24” inlet line from the existing water main to the Pump Station on sheet C-103. Saws Specification 832.1 does not permit same size tapping sleeves and valves. Shall we use a cut in tee instead?”

Response:

The requirement for the size-on-size tapping tee stems from the need to limit the interruption of service to the City of Somerset. A limit of two hours is available, which time may prove to be inadequate to accomplish the installation of a cut-in tee, especially if the system valves do not close well and dewatering is not achieved efficiently. It is anticipated that the use of a tapping tee will avoid the need for any service interruption. Provide the tapping tee as specified.

Question #2

1. “The plant piping sheets do not clearly show details of the onsite water piping. IE: 2” chlorination solution and 2” and 6” site water lines.”

Response:

Connection of the new water service lines (2 and 6-inch lines) to the water delivery station and the chlorination unit shall be done in a manner that replicates the current installation. Connection is to happen outside the structure.

2. “The concrete strength requirements are not shown on the general notes sheet G-002 or the structural sheets. The specifications do not list the strength or class requirements for structural concrete for cast in place structures used on this project. The specifications listed on page number 3300-3 table 2 appear to be for highway construction. The SAWS specification item 300 has a maximum structural concrete strength of 3000 psi. Shall I use the SAWS 3000 psi concrete for the proposed structures?.”

Response:

The required concrete strength for all structures in this project is 4,000 psi.

Question #3

“I am having difficulty finding information for the “drivable grass product” by Retention Solutions shown in a note block on page 14 (sheet -101). I could not find a website for this company. I have some



information for another product called “flexamat” that is available from Hill Country Culverts, a company with local representatives. I attached two files and ask that you forward to the engineer. I don’t know if this product is similar to the drivable grass product or not but, is all I can find at the moment. Hill Country Culverts sent me quite a bit more technical information that I can forward to you if we need it.”

Response:

The company name was mistakenly stated as “Retention Solutions”; the correct name is “Soil Retention” and the web page is <http://www.soilretention.com>. Other products must be specifically designed to serve as driving surfaces, to be considered.

Question #4

“There are notes to “refer to geotechnical report” on page 33 (S-101) details 2 and 5 of the drawings. I did not find a geotechnical report in the specifications. Please provide a geotechnical report.”

Response:

Geotechnical report was issued in Addendum No. 1

Question #5

“I have a couple of questions regarding the scope of supply for the DSP Somerset Facility High Service Pump Upgrades Project bidding 09-05-13:

1. Spec.11300 – PACKAGED BOOSTER PUMP STATION 2.3 COMPONENTS indicates that the steel pipe, valves, flow meter, instrumentation & controls will be supplied by the Packaged Pumping System Supplier

Sheet C-110 indicates the end limit of the discharge piping after the 24”90 Elbow Flg

Neither Sheet C-109 nor C-110 indicates the beginning limit of Packaged Pumping System Materials scope of supply

Can you clarify the scope of supply being provided by the Packaged Pumping System Supplier (Steel Suction Header, 4-Suction Branches, 1-Surge Relief Line, 4-Discharge Branches, Steel Discharge Header, associated valves, meter, supports, etc)?”

Response:

Sheet C-109 contains references to “Welded Steel Pipe” and “Ductile iron Pipe” at both ends of the suction header. The intent of the design is that the packaged pumping system supplier will be responsible for furnishing everything inside the “Welded Steel Pipe” boundaries on suction and discharge headers. Sheet C-110 provides the Welded Steel Pipe boundary on the discharge header.

2. “Sheets C-111 & C-112 detail Control Stations 1&2 and indicate the steel pipe to be provided by the Packaged Pumping System Provider. Nothing is mentioned about the valves, meter, instrumentation & controls



Spec.15120 CONTROL VALVES details the type and function of valves for both Control Stations 1&2 but does not indicate that they are included in a Packaged Pumping System Materials scope of supply

Will the steel pipe, valves, flow meter, instrumentation & controls for Control Stations 1&2 be included in a Packaged Pumping System Supplier's scope of supply? ...or is it just the steel pipe as indicated on sheets C-111 & C-112? ...or not at all as indicated in Spec.15120?"

Response:

The notes on C-111 and C-112 regarding the Packaged Pumping System Provider will be removed. The intent of the design is to provide the contractor full discretion on how to handle the control station procurement, installation and testing.

Pursuant to the clarification above, the Packaged Pumping System Supplier will not be responsible for the control stations at all; therefore Section 15120 does not apply to them.

Question #6

"KST Electric would like to be an approved PCSI in order to bid the DSP Somerset Facility High Service Pump Upgrades. Note that we are currently performing similar work for SAWS on the Buckhorn Wellfield project. What can we do in order to become approved? We have submitted our qualifications in the past."

Response:

See Section C of this Addendum, Modifications to Specs, Section 17300, below.

Question #7

"I need information on the SCADA antenna tower. Sheet E-200 shows a detail (detail E) of the SCADA antenna tower with a note next to it "see structural drawings for base design", there is no base design on the structural drawings. Please provide a base design."

Response:

Structural details were provided in Addendum No. 1

Question #8

"I have a question regarding the packaged pump station specifications:

I believe that the pump station controls are being provided by others (meaning other than the packaged pump station mfg.). However in the pump station section the specs refers us to the electrical section meaning we could be held liable for the MCC panel and SCADA panel. It is not our intent to quote these units. We would just quote the pump skid with pumps, piping, valves and pressure transducers and other ancillary instrumentation and equipment. Can you please confirm with that this is actually the intent per the specifications rather than having the packaged pump station mfg. supply the MCC and SCADA Panel?"

Response:

The Packaged Pumping System Supplier will not be responsible for the provision, installation or testing of the MCC or SCADA panels. The intent of the specification is for the Packaged Pumping System Supplier to furnish only the elements encompassed in the boundaries specified in Question #5



Question #9

“Is there a bid bond required of the bidders? Is it 5%?”

Response:

Yes, read Instructions to Respondents for details.

Question #10

Concerning the subject project bid, please clarify the following:

A note on Drawing D-100 (Demolition Plan) instructs the Contractor to “REMOVE EXIST CONCRETE AND CAP WELL.” (Upper Left corner of drawing). Furthermore, the Technical Specifications includes a Specification Section 02671 titled “WELL PLUGGING”. Please clarify if the existing well at the Somerset Facility is to be capped per the demolition note, or plugged per the Well Plugging specification.

Response:

Demolition of the well is no longer a part of this contract.

Question #11

“My company, Itsa Energy, is interested in bidding on the SCADA portion of the DSP Somerset Facility project. I see on the specifications that the Process Control Systems Integrator (PCSI) and the Application Services Provider (ASP) are listed in the document and it specifies that they must be the providers. Are we allowed to get on the list? Is there another registration process we need to follow?”

Response:

See Section C of this Addendum, Modifications to Specs, Section 17300, below.

Question #12

1. “-Drawing E-200, Detail E refers to Structural Drawings for SCADA antenna base design, however no such design exists on Structural Drawings. Please clarify if details are to be provided or if Contractor is to provide design.”

Response:

Structural details were provided in Addendum No. 1.

2. “- Drawing E-140, Section B makes reference to “Canopy Lighting Layout”. Is a canopy to be provided over MCC? If so, please provide specifics.”

Response:

Canopy details were provided in Addendum No. 1

Question #13

“A notation on the right of Section A-A of Drawing C-111 and C-112 indicates that the above-grade portions of Control Station No. 1 and Control Station No. 2 piping, fittings, valves & appurtenances is to be provided by the Packaged Pumping System Provider.”

Is this notation accurate or a misprint?



Response: *This notation is a misprint. Please see Question #5, No. 2, and the response.*

Question # 14

“Specification section 02060, paragraph 3.08 B states “Material of water main piping contains asbestos materials, asbestos cement. CONTRACTOR shall refer to Section 02110 – Asbestos Cement Pipe Repairs, Demolition and Disposal for removal and handling of asbestos containing materials.” Specification section 02110 is not included in the contract documents, please provide. Additionally, is the contractor to assume that existing pipe without material callout to be demolished contains asbestos?:

Response:

No assumption that asbestos cement pipe is present in the facility is to be made. Delete Section 02060 3.08 (B) in its entirety.

Question # 15

I had one question pertaining to the pump skid, what electrical and control devices will be supplied as part of the skid to ensure that nothing is missed or duplicated.

Response:

The only electrical equipment located at the skid to be provided by the electrical contractor are the heat trace junction boxes.

Question # 16

Note 16 on Sheet G-002 states “All excavations including, but not limited to, trenches and wet wells shall be backfilled and compacted with select fill material ...” In specification section 02215, paragraph 1.01 H. defines selected backfill material as materials available onsite that Owner determines to be suitable for specific use. Also in section 02215, paragraph 2.03 A. defines select earthfill as cohesionless material used for structural backfill free from organic material and other foreign matter and as approved by the engineer. Specification section 02220, paragraph 2.01 D states that for secondary backfill “To the maximum extent available, excess suitable material obtained from structure and trench excavations shall be used for secondary backfill.”

Since there is not a geotechnical report included in the contract documents for the contractor to determine suitability of the existing soils, will all onsite soil be deemed usable as backfill material? If not, please indicate how much material will need to be imported to the site.

Response:

The geotechnical report was issued in Addendum No. 1

Question # 17

1) I see that PFCC's are shown in the specifications but not shown on the one-line. Will PFCC's be required?

Response:

PFCC's are not required for this project.



2) The Switchboard enclosure and the Motor Control Center enclosures are different heights. Since this will be mounted outdoor, I am concerned that rain will get into the enclosures. I have 2 - possible solutions

- a) Have a cable connection from the Switchboard sections and the Motor Control Centers
- b) Have all equipment mounted into Motor Control Center construction (not switchboard construction).

Are either of these solutions acceptable to SAWS?

Response:

The first solution is acceptable. The Switchboard/Motor Control Center configuration has been modified accordingly. Please refer to revised one line diagram on sheet E-101.

Question # 18

18-1) Section 11312, 1.08 Quality Assurance, G, 3. calls for the manufacturer to supervise setting of pump bases, supervise installation of pumps, etc. There are requirements in the specifications for a laser alignment, etc. in addition to these requirements. Since this is a large pre-fabricated pump skid that will have the pumps already secured to it, would it be possible to adjust these minimum lengths of time at the site and instead word this to be supervision of proper skid (with associated motor and instrumentation hook-ups) installation?

Response:

The intent of the specification is to have the pump factory representative supervise the installation on site, whether the pump is shipped separately or already mounted on the skid; however the factory representative can begin his/her services once the skid is in place. Items 1 (supervise unloading) and 2 (supervise setting of pump bases) in the table under 1.08 G(3) are revoked; the rest of the items remain unchanged.

18-2) Section 11312 1.04 B lists Toshiba, Teco-Westinghouse, Siemens, Nidec (US Motors) and no or-equal. Whereas, Section 16406 2.01 E also states that Baldor is an acceptable manufacturer to these other brands listed. Is Baldor an acceptable manufacturer?

Response:

Yes, Baldor is acceptable. Section 11312 1.04(B) is amended to include Baldor as an approved product.

18-3) S1R1, B., 4 states that the contractor must confirm to comply with Section 11300 pursuant to the manufacturer meeting the requirements of the specifications. Also, S1R-3, 2, A, note 4, states that the prime contractor is to submit which brand of pump they included in their bid. Would SAWS consider adding to this requirement that the contractor includes which "brand" pump station manufacturer they are recommending and complies with Section 11300?

Response:

No



18-4) Is it the engineer's intent for the packaged pump station manufacturer to provide blockouts in the steel base for the electricians to run their conduit up into and to the motor boxes and instrumentation? If so, will electricians need to supply junction boxes (or one junction box) from the instrumentation (i.e. flowmeter, bearing RTDs, winding RTDs, pressure transducer, etc.)?

Response:

Yes, blockouts will be provided in the pump skid steel base. The pump skid manufacturer will be responsible for the instrumentation on the skid, the conduits to the equipment located on the skid, and for the junction/pull boxes located at the edge of the slab. The electrical contractor is responsible for the cables to the instrumentation, the cables to the motor and the heat trace junction boxes. Refer to sheet E-111 for junction/pull box locations.

18-5) We typically include a drain line from the pump bases and/or air release valves to somewhere off of the skid so the skid doesn't have water build up on it. Are drains recommended/required?

Response:

Yes, skid is to include means to ensure drainage. Packaged Pumping System Manufacturer to include proposed draining concepts at submittal phase. Water must drain away from skid and onto adjacent ground.

18-6) Sheet C-109 has a note on the suction header to have a 12" blind flange for "future pump". Does the pump station packaged manufacturer need to have provisions in their design for this future pump? It appears from the drawing that this is off of the skid and possibly for a bypass.

Response:

Yes, the 12" blind flange is within the packaged pumping system manufacturer boundary limits. Provide a 12" connection off the suction header identical in all regards to the connections for the four pumps. Cap connection with blind flange.

Question # 19

19-1) Drawing E-101 shows INCOMING MAIN-B bussed to MCC BUS "B", but Drawing E-140 shows the ATS/Main in between the INCOMING MAIN-B and MCC BUS "B". Should the INCOMING MAIN-B be bussed to MCC BUS "B" and place the ATS/Main at the end of one of the MCC Lineups?

Response:

The Switchboard /Motor Control Centers connection has been modified to reflect cabled instead of bussed. Refer to revised drawing E101. Therefore, the ATS location per sheet E-140 does not need to change.

19-2) Drawing E-101 shows that the ATS and Main-Tie-Main Distribution is to be SWITCHBOARD CONSTRUCTION. SWITCHBOARD Specification 16428 Article 2.03.E States "Designed, tested, and assembled in accordance with ANSI/IEEE C37.21, NEMA SG5, and NEMA SG6". ANSI C37.21 governs the construction of Control Switchboards (Relays, Control Switches ect) and NEMA SG5 governs Power Switchgear Assemblies. Switchboard construction is governed by UL891 for the construction and UL489



for the breaker types. Should the Switchboards be of Metal Enclosed Switchgear Design or Switchboard Design? If of Switchgear Design the breakers will be of Drawout Construction.

Response:

Switchboard construction is adequate for this application. All standards in Specification 16428 referencing switchgear will be corrected to the standards governing switchboard construction.

Question # 20

Ruhrpumpen has been asked to quote the pumps for this project. Owing to the complexity of the specifications and the pending holiday, we would request that a bid extension of seven days be granted.

Response:

The deadline to submit proposals will not be changed.

Question # 21

1. RFCS requests the integrators qualifications to be submitted with the bid. Since this work is being competitively bid, the integrator will not be known at bid time. As an alternative the qualifications can be submitted a few days after the bid. Is this acceptable?

Response:

The integrator's qualifications do not have to be submitted with the proposal. Respondents can supply this information during the submittal process.

2. RFCS requests the pump, brand, model and pump curves to be submitted with the bid. Since this equipment is being competitively bid, the supplier will not be known at bid time. As an alternative this information can be submitted a few days after the bid. Is this acceptable?

Response:

Section SIR C.2(a) - delete the last bullet that reads: "List your proposed pump..." in its entirety. The successful contractor shall supply the pump information within one week of award.

3. Spec Section 02671 references well plugging. Where is this located on the project?

Response:

The requirement to plug and cap the well is hereby revoked. Demolition of the pipes and electrical features up to the wellhead is still required as noted in the plans.

4. Will there be a requirement for full time uniformed security officers during construction?

Response:

Yes, read Section 01500 for details.

5. Spec. 15072.2.01.B states "...manufactured in the USA." Is this correct? DI fittings,



bolts, and other products are typically imported.

Response:

The requirement applies to pipes only.

6. Spec. 15072.2.01.C mentions “service level”. Please define “service level”.

Response:

See modifications to section 15072 in Addendum No. 2 Section C, below.

7. On drawings C-111 and C-112, at Control Stations 1 and 2, Section A-A notes that the exposed steel pipe is supplied with the pump package. Is this correct?

Response:

The notes on C-111 and C-112 regarding the Packaged Pumping System Provider will be removed. The intent of the design is to provide the contractor full discretion on how to handle the control station procurement, installation and testing.

Question # 22

“In the Supplementary Instructions to Respondents, Section C, Item 2, Paragraph g, respondents are to provide the OSHA documents requested for the last three (3) years.

Since we work nationally, does SAWS want us to provide OSHA documents for states that are not under federal OSHA but have a federally approved state program?”

Response:

Yes. Since SAWS is primarily seeking the statistics associated with each of the requested OSHA forms, Respondent should include all states in the national numbers provided including those states that are not under the federal OSHA. In addition, Respondent should provide two sets of numbers to distinguish what the firm’s local business unit numbers, as well as the numbers for the entire organization. If a nation number is provided that does not include several of the states, the firm should indicate this as part of their response within the proposal packet.

Question # 23

“Tigerflow has received several request to provide a proposal for the subject project, however due to the complex nature of the project and stringent specification requirements we would at this time request a two (2) extension of the bid date. Your consideration is greatly appreciated.”

Response:

The proposal date will not change.

Question # 24

Concerning the subject project bid, please provide clarification of the following:

The Supplementary Instructions to Respondents, Part B (Required Experience), Subpart 3 requires that “Respondent must have successfully constructed three (3) projects of similar size and scope within the last five (5) years to qualify for this project.”



Though our company has decades of experience with municipal water pump station facilities construction, and decades of experience with San Antonio Water System contracting, over the last five years (due to construction market conditions and our niche in constructing Electrical Substations) we have only completed one project of similar scope to the subject project.

Would this prevent us from being favorably considered for this contract?

Response:

The project requirements specified in the contract documents are mandatory minimum requirements.



C. Modifications to the Specifications

1. Section SIR. Section SIR C.2 (a) - delete the last bullet that reads: "List your proposed pump brand, model," in its entirety.
2. Section 02060, 3.08(B), Delete in its entirety.
3. Section 02761 Well Plugging. Delete section in its entirety.
4. Section 11300, 2.3 (H) (1) Revise paragraph to read: "All pre-fabricated items including, but not limited to, steel platform for equipment mounting and all piping shall be primed with fusion bonded epoxy in accordance with AWWA C213 and painted in accordance with Division 9 – Finishes".
5. Section 11312
 - a. 1.04 (A). Add "No alternates will be considered" to the end of the opening paragraph.
 - b. 1.04 (B). *add "Baldor" after "Siemens,"*
 - c. Table 1.08 G(3). Items 1 and 2 shown as revoked.
6. Section 15072
 - a. 2.02 (H) Replace "liquid epoxy 8 mils DFT in accordance with AWWA C210" with "fusion bonded epoxy coating in accordance with AWWA section C213"
 - b. 2.02 (I) Replace "to be protected by coal tar enamel in conformance with AWWA C203" with "to be primed with fusion bonded epoxy coating in accordance with AWWA section C213"
 - c. Replace Table 1 on Section 15072 2.01 C with the version shown below:

**Table 1
Design Service Conditions**

Service Parameter	Design Condition
(a) Maximum depth of cover	As shown in plans
(b) Minimum depth of bury	4 feet or as indicated on the Plans
(c) Maximum live load	AASHTO H-20 truck with 1.5 impact factor considered at all pipe depths
(d) Maximum interior working pressure	150 pounds per square inch for buried service and 200 pounds per square inch for above ground service
(e) Field test pressure	As shown in the plans, sheet PH-100
(f) Maximum vacuum pressure	-10 pounds per square inch
(g) Surge pressure	Maximum velocity change of 4 feet per second
(h) Standard laying condition	Type 4 as specified by AWWA
(I) Fluid temperature	70 degrees (F)
(j) Soil unit weight	120 pounds per cubic foot

7. Section 16428 Low Voltage Switchboards, Page 16428-2, Paragraph 2.02, E. Delete NEMA SG6 standard.
8. Section 16431 Low Voltage Motor Control Center



- a. Page 16431-3, Paragraph 2.03, B. Replace NEMA type 12 with type 3R (Outdoor).
 - b. Page 16431-3, Paragraph 2.03, C, 1 add “with ANSI 61 gray polyester powder
 - c. Page 16431-8, Paragraph 2.09, B, 5. Modify to read “Momentary-10 cycles asymmetrical: 65kA.”
 - d. c. Page 16431-8, Paragraph 2.09, B, 6. Replace 42kA with 65kA.
 - e. d. Page 16431-9, Paragraph 2.10. Delete entire section.
9. Section 17300
- a. 1.05 (B) Delete the sentence: “Only approved suppliers, as listed herein, are approved”.
 - b. 1.05 (D) Delete the words: “The PCSI shall be one of the following:” and replace with “Recommended PCSI Suppliers:”
 - c. 1.05 (D) Add the following: “5. Other”
 - d. 1.06 (D) Replace “The ASP shall be:” with “Recommended ASP providers:”
 - e. 1.06 (D) (5) Replace “NO APPROVED EQUALS” with “Other.”
 - f. Page 17300-6, Paragraph 1.06, A. Replace paragraph with the following: “The PCSI shall procure the services of an Application Services Provider (ASP) for existing ClearSCADA application software program modifications for the Human Machine Interface (HMI) computer as specified in Section 17305.”
10. Section 17405 Appendix A – I/O List, remove all references to PFCC.

D. Modifications to the Plans

1. Sheet C-101 (14 of 70): Revise the note in the middle of the Sheet to refer to the manufacturer of the drivable grass product as “Soil Retention” instead of “Retention Solutions”.
2. Sheet C-102 (15 of 70): Revise the Sheet as follows:
 - a. Under “NOTES”, No. 3, revise reference “C-116” to “C-117”.
 - b. Under “NOTES”, No. 8 added TxDOT Traffic Control language as follows:

TXDOT TRAFFIC CONTROL
TRAFFIC CONTROL IN UTILITY WORK ZONES SHALL CONFORM TO APPLICABLE REQUIREMENTS OF THE “TEXAS MANUAL ON UNIFORM TRAFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, PART VI”. ADEQUATE SIGNS, BARRICADES, FLAG PERSONNEL, ETC. SHALL BE ERECTED AND MAINTAINED IN COMPLETE COMPLIANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AS DEEMED NECESSARY BY THE TXDOT INSPECTOR. ANY TRAVEL LANE CLOSURES ARE ONLY PERMITTED AFTER A TRAFFIC CONTROL PLAN IS APPROVED BY TXDOT PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES.”
 - c. Under “NOTES”, No. 9 added TxDOT Re-vegetation requirements as follows:

RE-VEGETATION WITHIN TXDOT ROW
ALL SURPLUS MATERIAL SHALL BE REMOVED AND THE ROW SHALL BE RESHAPED TO ITS ORIGINAL CONDITION OR BETTER. FOUR INCHES (4”) OF TOPSOIL SHALL BE SPREAD OVER ALL DISTRURBED AREAS AND THEN RE-SEEDED AND WATERED SUFFICIENTLY TO PROMOTE REVEGETATION. APPLY ONE INCH (1”) OF GENERAL USE COMPOST, ITEM 161 COMPOST, UNIFORMLY OVER ALL DISTURBED AREAS. IRRIGATE AS REQUIRED TO ESTABLISH



VEGETATION. USE BLOCK SOD ON SLOPES STEEPER THAN 4:1. FOR SODDED AREAS, DO NOT PLACE ECC BUT APPLY ONE INCH (1”) OF GENERAL USE COMPOST (GUC) ON TOP OF THE SOD FOLLOWING INSTALLATION. THIS WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) “STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS, AND BRIDGES”. TEMPORARY EROSION CONTROL DEVICES (SUCH AS SILT FENCES, ROCK BERMS, SOIL RETENTION BLANKETS, ETC.) SHOULD BE SHOWN ON THE UTILITY PLANS IN AREAS WHERE UTILITY WORK WILL LEAVE DISTURBED OR LOOSE SOIL ACROSS/LONG CREEKS AND STREAMBEDS, ON STEEP SLOPES, OR IN ENVIRONMENTALLY SENSITIVE AREAS SUCH AS THE EDWARDS AQUIFER RECHARGE ZONE. A TXDOT UTILITY INSPECTOR MAY DIRECT THAT SUCH DEVICES BE INSTALLED EVEN WHEN AND WHERE THEY ARE NOT SHOWN ON THE PLANS. THESE AREAS MUST BE PROTECTED FROM EROSION. IN ADDITION, PERMANENT REVEGETATION (AT LEAST 70% OF NORMAL VEGETATION COVER OF THE SURROUNDING UNDISTURBED AREA) MUST BE ACCOMPLISHED BY THE UTILITY COMPANY/CONTRACTOR BEFORE THE UTILITY WORK IS CONSIDERED ACCEPTABLE AND COMPLETED BY TXDOT. THE AMOUNT OF REVEGETATION IS CONSIDERED ACCEPTABLE WHEN IT RESEMBLES THE AMOUNT OF EXISTING VEGETATION IN THE SURROUNDING UNDISTURBED AREA.”

- d. Provided additional dimensions as noted by the revision clouds in order to meet TxDOT permitting requirements.
3. Sheet C-111 (24 of 70): The note on Section A-A which reads “by Packaged Pumping System Provider”, has been removed.
4. Sheet C-112 (25 of 70): The note on Section A-A which reads “by Packaged Pumping System Provider”, has been removed.
5. Sheet C-113 (26 of 70):
 - a. “Tree Protection Fencing & Notes” has moved to Sheet C-114.
 - b. Provided “Trench Detail Within TxDOT ROW”
6. Sheet D-100 (9 of 70): Revise note pointing to the existing well to read, “Demolish pipes and electrical features up to the wellhead.”
7. Sheet ED-101– Re-issued
8. Sheet E-110– Re-issued
9. Sheet E-111– Re-issued
10. Sheet E-112– Re-issued
11. Sheet E-140– Re-issued
12. Sheet E-141– Re-issued
13. Sheet E-142– Re-issued
14. Sheet E-150– Re-issued
15. Sheet E-152– Re-issued
16. Sheet E-153– Re-issued



ACKNOWLEDGEMENT BY RESPONDENT

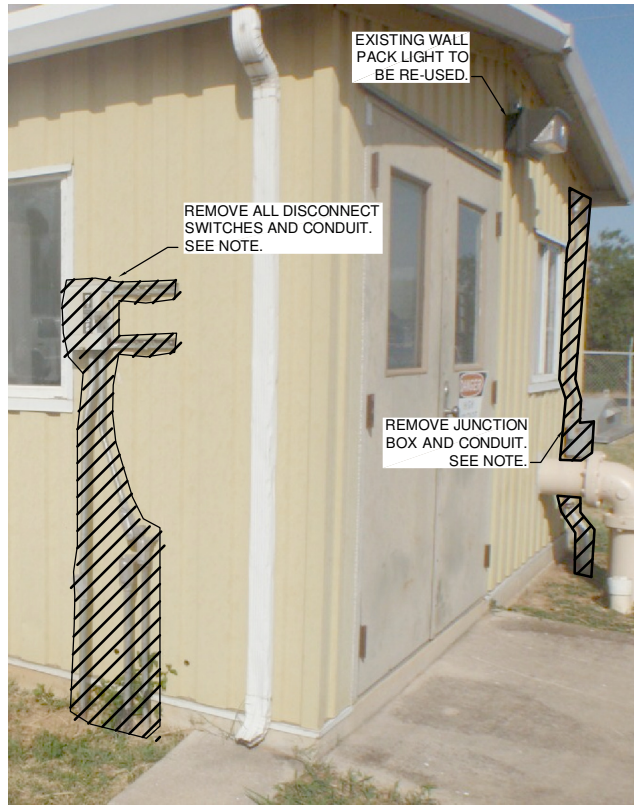
Each respondent is requested to acknowledge receipt of this Addendum by his/her signature affixed hereto and to file same and attach with his/her proposal.

The undersigned acknowledges receipt of this Addendum No. 2 and the proposal submitted herewith is in accordance with the information and stipulations set forth.

Date

Signature

END OF ADDENDUM



A EXISTING PUMP BUILDING EXTERIOR
SCALE: N.T.S.



B EXISTING SCADA (PUMP BUILDING)
SCALE: N.T.S.



C EXISTING PUMP CONTROLS (PUMP BUILDING)
SCALE: N.T.S.



D EXISTING HISTORIAN (PUMP BUILDING)
SCALE: N.T.S.



E MISCELLANEOUS OF (PUMP BUILDING)
SCALE: N.T.S.



F EXISTING PUMP BUILDING
SCALE: N.T.S.

NOTE:
SAWS HAS FIRST RIGHT OF REFUSAL OF SALVAGEABLES. CONTRACTOR SHALL PROPERLY DISPOSE OF ALL UNSALVAGEABLE EQUIPMENT.



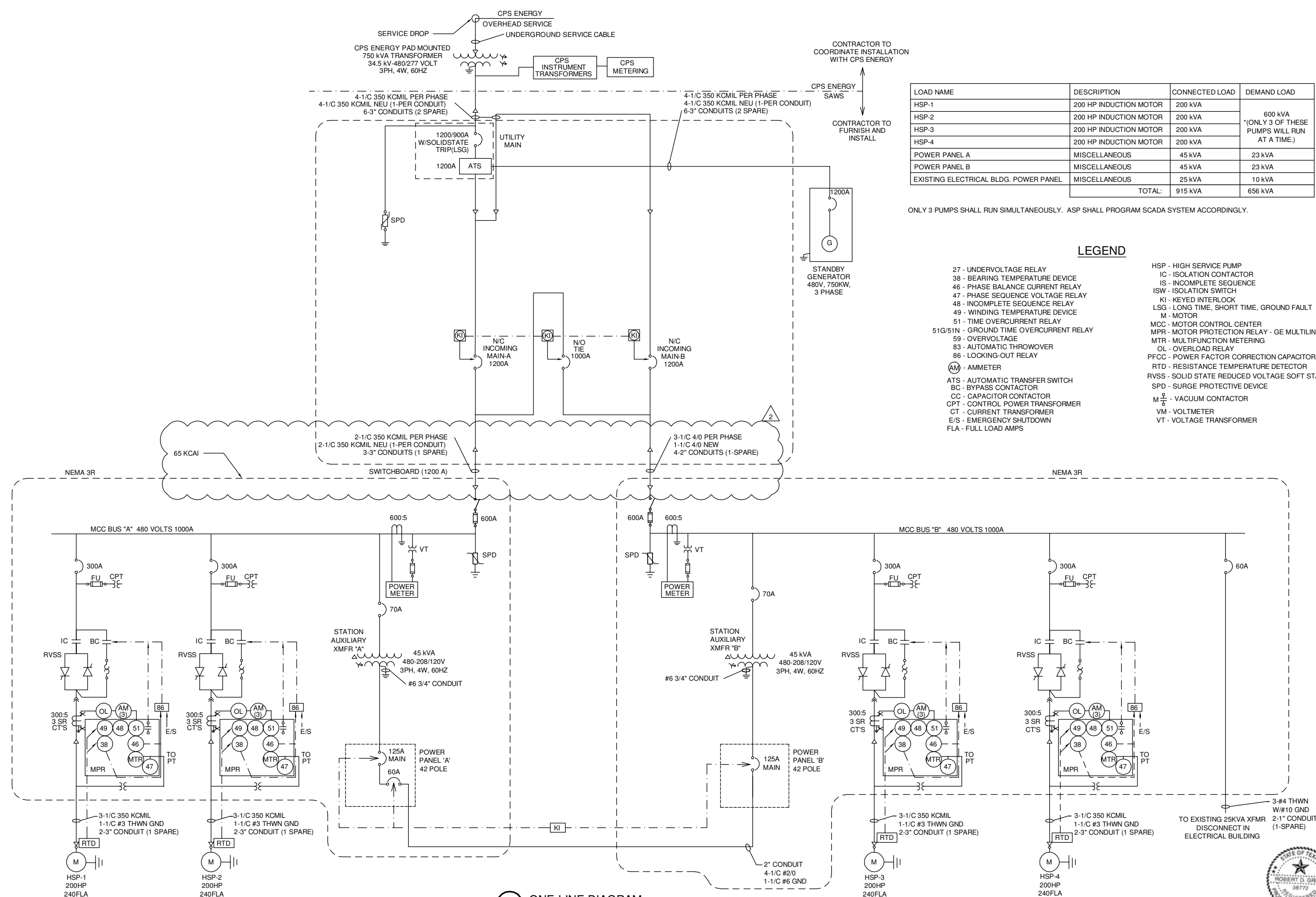
8/30/2013 1:00:38 PM - R:\TETRA TECH\SOMERSET GST\RESTART USING SAWS STANDARDS\BID SET\ADDENDUM #2\DRAWINGS\ED 101 - ELECTRICAL DEMOLITION PLANDWG - STEVEN GRAF

MARK	DATE	DESCRIPTION	BY
Δ	8/30/13	ADDENDUM #2	RDG

SAN ANTONIO WATER SYSTEM
(OSP) SOMERSET FACILITY
HIGH SERVICE PUMP UPGRADES PROJECT
DEMOLITION PLAN
DETAILS

SAWS Job No.: 12-6101
Designed By: BD, CG
Drawn By: SG
Checked By: SM

8/30/2013 1:36:47 PM - R:\TETRA TECH\SOMERSET GST\RESTART USING SAWS STANDARD\SETADDENDUM #2\DRAWINGS\E-101 - ONE-LINE DIAGRAM.DWG - STEVEN GRAF



LOAD NAME	DESCRIPTION	CONNECTED LOAD	DEMAND LOAD
HSP-1	200 HP INDUCTION MOTOR	200 kVA	600 kVA *(ONLY 3 OF THESE PUMPS WILL RUN AT A TIME.)*
HSP-2	200 HP INDUCTION MOTOR	200 kVA	
HSP-3	200 HP INDUCTION MOTOR	200 kVA	
HSP-4	200 HP INDUCTION MOTOR	200 kVA	
POWER PANEL A	MISCELLANEOUS	45 kVA	23 kVA
POWER PANEL B	MISCELLANEOUS	45 kVA	23 kVA
EXISTING ELECTRICAL BLDG. POWER PANEL	MISCELLANEOUS	25 kVA	10 kVA
TOTAL:		915 kVA	656 kVA

ONLY 3 PUMPS SHALL RUN SIMULTANEOUSLY. ASP SHALL PROGRAM SCADA SYSTEM ACCORDINGLY.

LEGEND

- 27 - UNDERVOLTAGE RELAY
- 38 - BEARING TEMPERATURE DEVICE
- 46 - PHASE BALANCE CURRENT RELAY
- 47 - PHASE SEQUENCE VOLTAGE RELAY
- 48 - INCOMPLETE SEQUENCE RELAY
- 49 - WINDING TEMPERATURE DEVICE
- 51 - TIME OVERCURRENT RELAY
- 51G/51N - GROUND TIME OVERCURRENT RELAY
- 59 - OVERVOLTAGE
- 83 - AUTOMATIC THROWOVER
- 86 - LOCKING-OUT RELAY
- AM - AMMETER
- ATS - AUTOMATIC TRANSFER SWITCH
- BC - BYPASS CONTACTOR
- CC - CAPACITOR CONTACTOR
- CPT - CONTROL POWER TRANSFORMER
- CT - CURRENT TRANSFORMER
- E/S - EMERGENCY SHUTDOWN
- FLA - FULL LOAD AMPS
- HSP - HIGH SERVICE PUMP
- IC - ISOLATION CONTACTOR
- IS - INCOMPLETE SEQUENCE
- ISW - ISOLATION SWITCH
- KI - KEYED INTERLOCK
- LSG - LONG TIME, SHORT TIME, GROUND FAULT
- M - MOTOR
- MCC - MOTOR CONTROL CENTER
- MPR - MOTOR PROTECTION RELAY - GE MULTILIN 469
- MTR - MULTIFUNCTION METERING
- OL - OVERLOAD RELAY
- PFCC - POWER FACTOR CORRECTION CAPACITOR
- RTD - RESISTANCE TEMPERATURE DETECTOR
- RVSS - SOLID STATE REDUCED VOLTAGE SOFT STARTER
- SPD - SURGE PROTECTIVE DEVICE
- M - VACUUM CONTACTOR
- VM - VOLTMETER
- VT - VOLTAGE TRANSFORMER

A ONE-LINE DIAGRAM
SCALE: N.T.S.



8/30/2013 1:36:47 PM - R:\TETRA TECH\SOMERSET GST\RESTART USING SAWS STANDARD\SETADDENDUM #2\DRAWINGS\E-101 - ONE-LINE DIAGRAM.DWG - STEVEN GRAF

TETRA TECH
www.tetra-tech.com
Texas Registration No. F-9324
700 N. St. Mary's, Suite 300
San Antonio, TX 78205
Ph (210) 226-2922 Fax (210) 226-6497

GRUBB ENGINEERING, INC.
ELECTRICAL POWER SYSTEMS
DESIGN & TESTING
TXBE FIRM REGISTRATION #3904

SAN ANTONIO WATER SYSTEM

BY RDG

DATE 8/30/13

DESCRIPTION ADDENDUM #2

MARK 2

SAWS Job No.: 12-6101

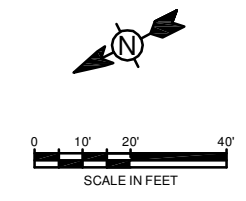
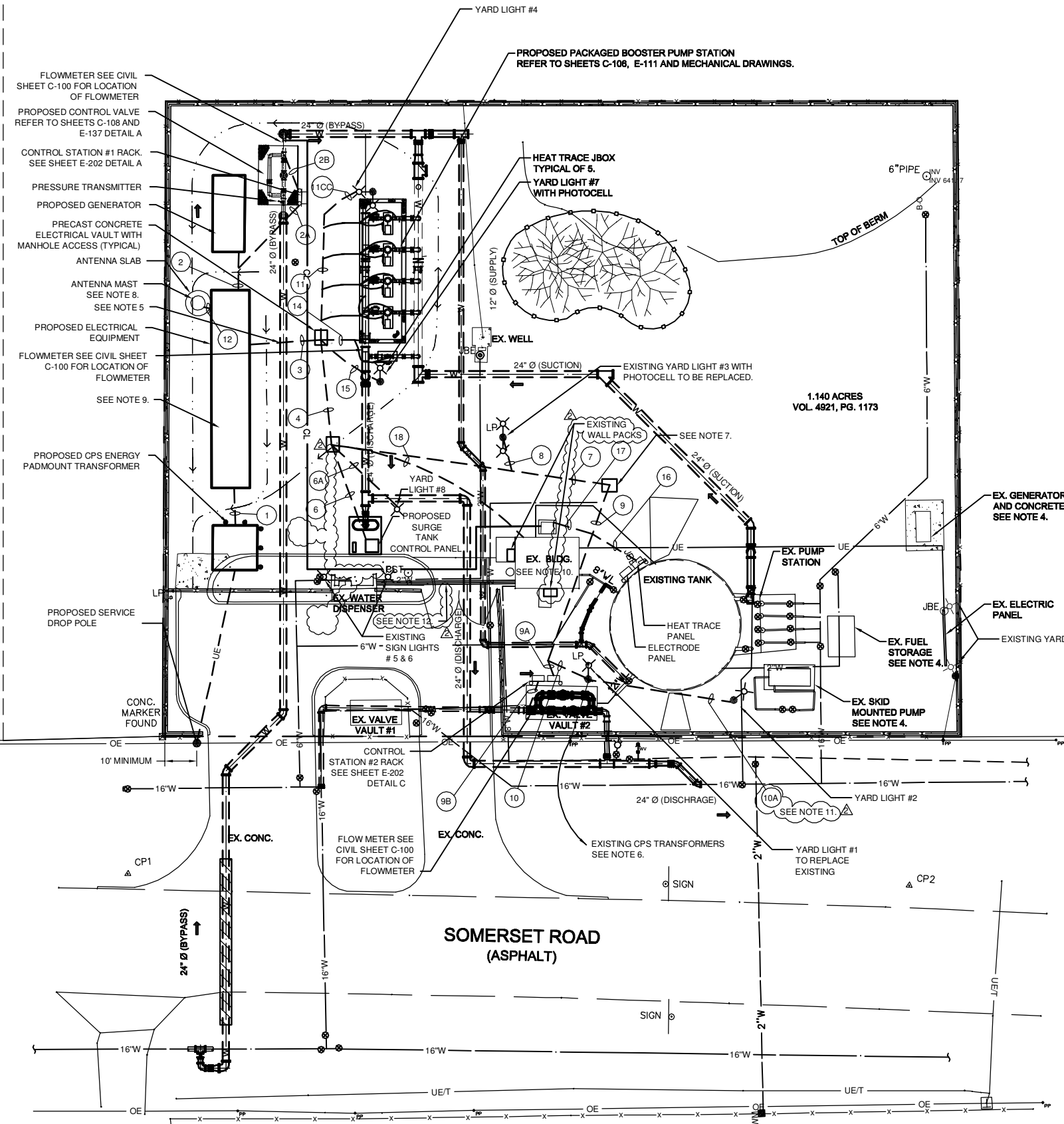
DESIGNED BY: BD, CG

DRAWN BY: SG

CHECKED BY: SM

E-101
Sheet 03 of 26

8/30/2013 1:28:21 PM - R:\TETRA TECH\SOMERSET\GSTR\START USING SAWS STANDARD\SET\ADDENDUM #2\DRAWINGS\E 110 - ELECTRICAL OVERALL SITE PLAN.DWG - STEVEN GRAF



- NOTES:**
- CONTRACTOR SHALL MAINTAIN PUBLIC ACCESS TO WATER DISPENSER AT ALL TIMES.
 - AT NO TIME SHALL THE CONTRACTOR OBSTRUCT OWNER'S ACCESS TO THE EXISTING PUMP STATION FACILITIES OR CHLORINE BUILDING.
 - REFER TO SHEET C-110 FOR TREE PROTECTION NOTES AND DETAILS.
 - SEE SHEETS D-100 AND D-101 FOR DEMOLITION.
 - CONTRACTOR MUST USE RED CONCRETE/RED TAPE ON ALL DUCTBANK. MUST BE LOCATED 1' ABOVE THE 24" MAIN.
 - CPS EXISTING ELECTRICAL POLE MOUNT TRANSFORMER TO BE DEMOLISHED AFTER THE NEW ELECTRICAL DISTRIBUTION IS INSTALLED, CONNECTED, ENERGIZED AND TESTED.
 - CONTRACTOR TO INSTALL SEPARATE MANHOLE FOR SPARE SECURITY CONDUITS. SEE SHEETS E 150 THROUGH E 152 FOR CABLE & CONDUIT SCHEDULE.
 - ANTENNA SLAB LOCATION IS NOT TO INTERFERE WITH CANOPY FOOTINGS.
 - SEE SHEET E-140 FOR DETAILS ON 480V MCC/SWITCHBOARD LAYOUT.
 - CONTRACTOR SHALL INSTALL NEW POWER DISTRIBUTION FROM NEW MCC LOCATION TO EXISTING BUILDING TRANSFORMER DISCONNECT. EXISTING TRANSFORMER AND DISCONNECT SHALL BE RETAINED ALONG WITH LIGHTING AND RECEPTACLES AND ALL ASSOCIATED CABLE AND CONDUIT.
 - ALL DUCTBANKS MUST BE MAPPED BY THE CONTRACTOR AND XY COORDINATES PROVIDED TO OWNER.
 - CONTRACTOR TO REUSE POWER PANEL FOR WATER DISPENSER. EXISTING DUCTBANK TO BE REUSED FROM ELECTRICAL BUILDING TO WATER DISPENSER.

ADDRESS:
19260 SOMERSET ROAD
SOMERSET, TX 78069

TETRA TECH
www.tetra.tech.com
Texas Registration No. F-9324
700 N. St Mary's, Suite 300
San Antonio, TX 78205
Ph (210) 226-2922 Fax (210) 226-6497

GRUBB ENGINEERING, INC.
ELECTRICAL POWER SYSTEMS
DESIGN & TESTING
TXBE FIRM REGISTRATION #3904

SAN ANTONIO WATER SYSTEM

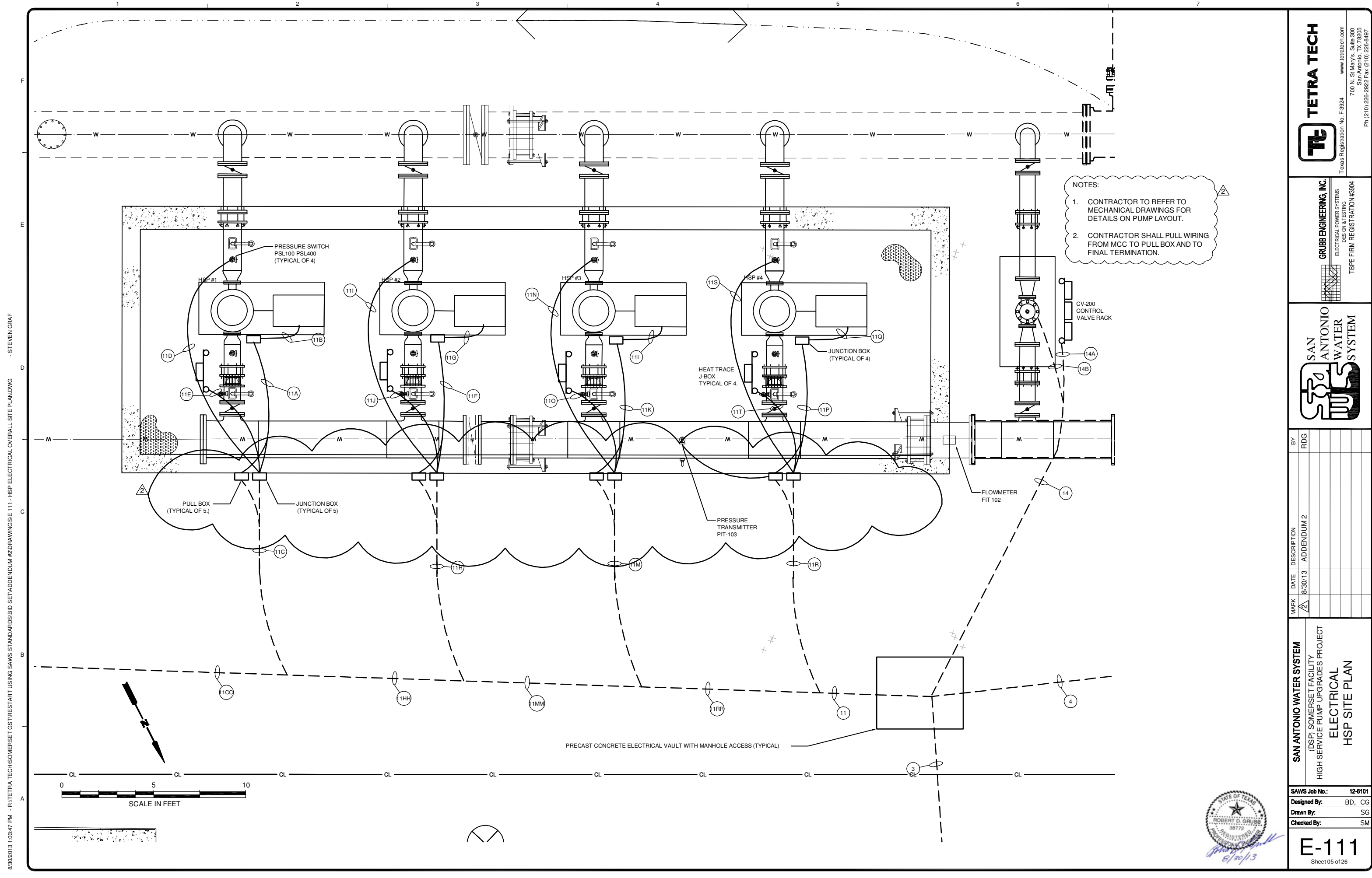
MARK	DATE	DESCRIPTION
83013		ADDENDUM #2

SAN ANTONIO WATER SYSTEM
(OSP) SOMERSET FACILITY
HIGH SERVICE PUMP UPGRADES PROJECT
ELECTRICAL OVERALL SITE PLAN

SAWS Job No.: 12-6101
Designed By: BD, CG
Drawn By: SG
Checked By: SM



E 110
Sheet 04 of 26



NOTES:

1. CONTRACTOR TO REFER TO MECHANICAL DRAWINGS FOR DETAILS ON PUMP LAYOUT.
2. CONTRACTOR SHALL PULL WIRING FROM MCC TO PULL BOX AND TO FINAL TERMINATION.

8/30/2013 1:03:47 PM - R:\TETRA TECH\SOMERSET GST\RESTART USING SAWS STANDARD\BID SET\ADDENDUM #2\DRAWINGS\E 111 - HSP ELECTRICAL OVERALL SITE PLANDWG - STEVEN GRAF

TETRA TECH
 Texas Registration No. F-9924
 www.tetra-tech.com
 700 N. St. Mary's, Suite 300
 San Antonio, TX 78205
 Ph (210) 226-2922 Fax (210) 226-6497

GRUBB ENGINEERING, INC.
 ELECTRICAL POWER SYSTEMS
 DESIGN & TESTING
 TBPE FIRM REGISTRATION #3904

SAN ANTONIO WATER SYSTEM

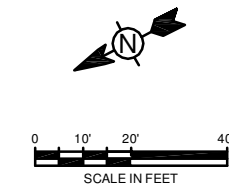
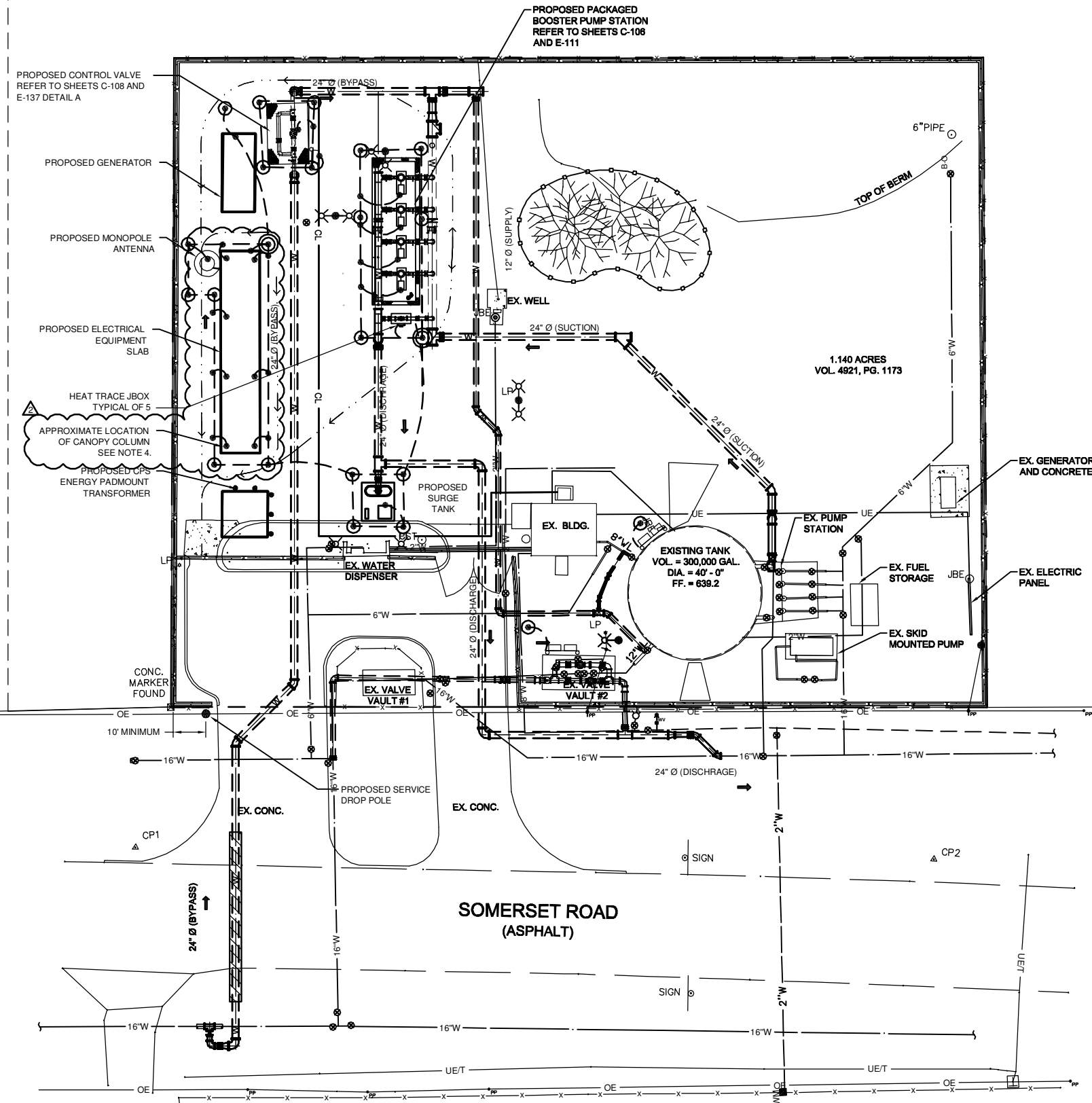
MARK	DATE	DESCRIPTION	BY	RDG
Δ	8/30/13	ADDENDUM 2		

SAN ANTONIO WATER SYSTEM
 (OSP) SOMERSET FACILITY
 HIGH SERVICE PUMP UPGRADES PROJECT
ELECTRICAL
HSP SITE PLAN

SAWS Job No.: 12-6101
 Designed By: BD, CG
 Drawn By: SG
 Checked By: SM



8/30/2013 12:54:43 PM - R:\TETRA TECH\SOMERSET\GSTR\ESTART USING SAWS STANDARDS\BID SET\ADDENDUM #2\DRAWINGS\E 112 - GROUNDING SITE PLANDWG - STEVEN GRAF



NOTES:

1. CONTRACTOR SHALL MAINTAIN PUBLIC ACCESS TO WATER DISPENSER AT ALL TIMES.
2. AT NO TIME SHALL THE CONTRACTOR OBSTRUCT OWNER'S ACCESS TO THE EXISTING PUMP STATION FACILITIES OR CHLORINE BUILDING.
3. REFER TO SHEET C-110 FOR TREE PROTECTION NOTES AND DETAILS.
4. SEE STRUCTURAL DRAWINGS FOR SLAB DETAILS.

ADDRESS:

19260 SOMERSET ROAD
SOMERSET, TX 78069

LEGEND

- GROUNDING CONNECTION EXOTHERMIC OR COMPRESSION
- GATE FLEXIBLE GROUNDING STRAP.
- GROUND ROD CONNECTION 3/4" X 10' LONG. RODS TO BE SPACED A MINIMUM OF 20' APART.
- TEST WELL WITH GROUND ROD CONNECTION 3/4" X 10' LONG
- #2/0 STRANDED BARE COPPER WIRE, SOFT DRAWN.
- ABOVE GRADE TAIL FOR EQUIPMENT CONNECTION. TO BE LOCATED FOR PROPER EQUIPMENT ENTRANCE. PENETRATION THRU CONCRETE TO HAVE SCHEDULE 80 PVC PIPE SEGMENT.
- 3-ROD LIGHTNING GROUND 5/8" X 10' LONG EACH.



TETRA TECH
www.tetra-tech.com
Texas Registration No. F-9924
700 N. St Mary's, Suite 300
San Antonio, TX 78205
Ph (210) 226-2922 Fax (210) 226-6497

GRUBB ENGINEERING, INC.
ELECTRICAL POWER SYSTEMS
DESIGN & TESTING
TBPE FIRM REGISTRATION #3904

SAN ANTONIO WATER SYSTEM

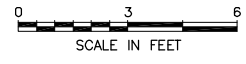
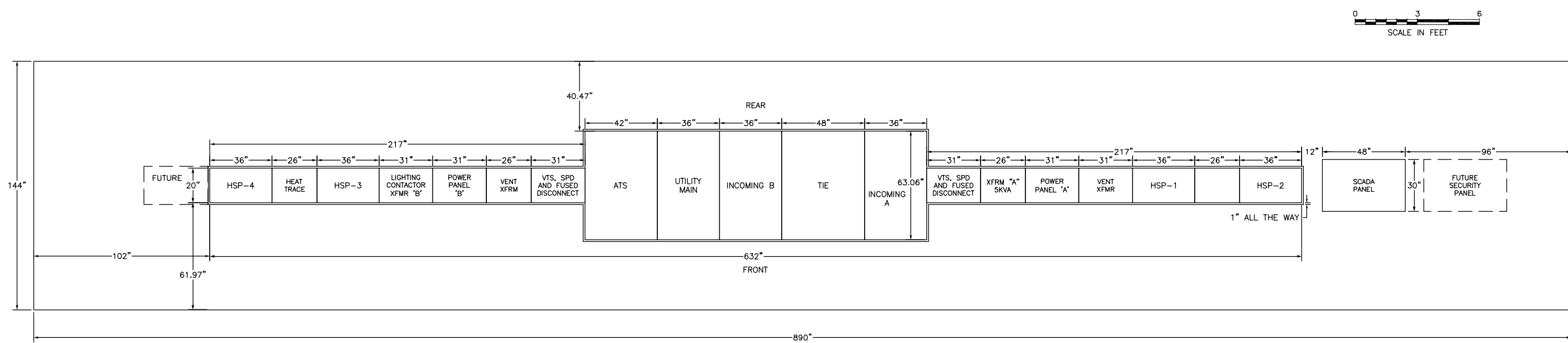
MARK	DATE	DESCRIPTION
8/30/13	ADDENDUM #2	

SAN ANTONIO WATER SYSTEM
(DSP) SOMERSET FACILITY
HIGH SERVICE PUMP UPGRADES PROJECT
ELECTRICAL GROUNDING SITE PLAN

SAWS Job No.: 12-6101
Designed By: BD, CG
Drawn By: SG
Checked By: SM

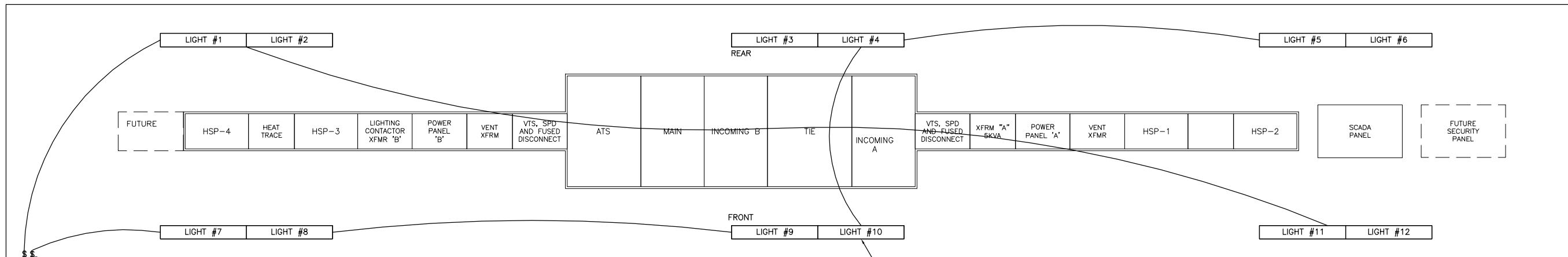
E 112
Sheet 6 of 26

8/30/2013 12:48:12 PM - R:\TETRA TECH\SETUP\SETUP\SAWS STANDARDS\SETUP\DRAWINGS\140 MCC SWITCHBOARD DETAIL.DWG - STEVEN GRAF



A 480V MCC/SWITCHBOARD TOP VIEW

- NOTES:
1. GEAR LAYOUT AND DIMENSIONS SHOWN ARE AN ESTIMATE ONLY. SLIGHT VARIATIONS IN GEAR SIZE ARE ACCEPTABLE. OUTLINE DRAWING SHOWN ON SITE PLAN IS THE LARGEST SIZE ESTIMATE GENERATED AFTER REVIEW OF SEVERAL MANUFACTURERS. SUPPLIED GEAR MUST NOT EXCEED 54.0" DEPTH AS SHOWN AND MUST NOT EXCEED 2' OVER LENGTH AS SHOWN. CONTRACTOR TO COORDINATE SLAB PENETRATIONS FOR CONDUIT WITH MANUFACTURER DRAWINGS.
 2. SEE SITE PLAN SHEET FOR INSTALLATION LOCATION. SEE STRUCTURAL PLANS FOR SLAB DETAILS.
 3. 4" HIGH HOUSEKEEPING SLAB SHALL BE PROVIDED FOR SWITCHGEAR/MCC'S. SEE STRUCTURAL PLANS FOR SLAB DETAILS.
 4. GEAR IS FRONT ACCESS AND BACK ACCESS.
 5. CENTERLINE OF MCC & CENTER OF SWBD MUST LINE UP PER TOP VIEW.
 6. CONTRACTOR TO AFFIX LIGHTS TO JOINTS USING UNISTRUT.



B CANOPY LIGHTING LAYOUT

LIGHT FIXTURE SCHEDULE						
TYPE	LAMPS	MOUNTING	VOLTAGE	MANUFACTURER	DESCRIPTION	CATALOG
YARD LIGHT	1	POLE	120	LITHONIA	AREA LIGHTING	KSE2 400M R4SC 120 SCWA SP04 W/POLE SSA205GDM19VDDDB
LIGHT	2	SURFACE MOUNTED	120	LITHONIA	CANOPY LIGHTS	TDMW 254T5HO120 GEB10PS

C LIGHT SCHEDULE



TETRA TECH
www.tetratech.com
Texas Registration No. F-9924
700 N. St Mary's, Suite 300
San Antonio, TX 78205
Ph (210) 226-2922 Fax (210) 226-6497

GRUBB ENGINEERING, INC.
ELECTRICAL POWER SYSTEMS
DESIGN & TESTING
TXBE FIRM REGISTRATION #3904

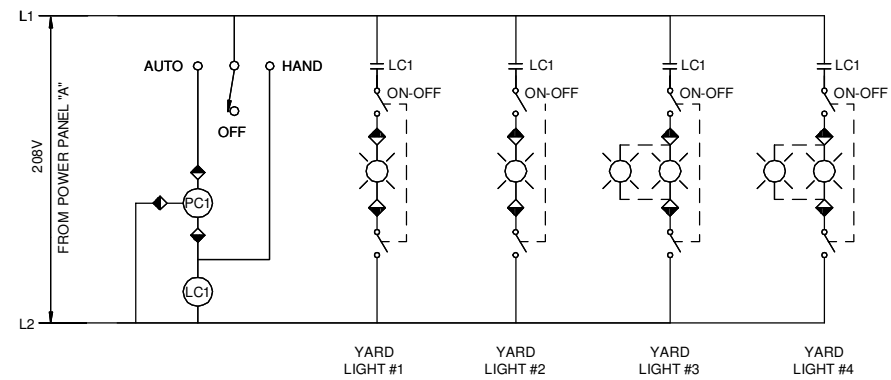
SAN ANTONIO WATER SYSTEM

MARK	DATE	DESCRIPTION	BY
Δ	8/30/13	ADDENDUM #2	RDG

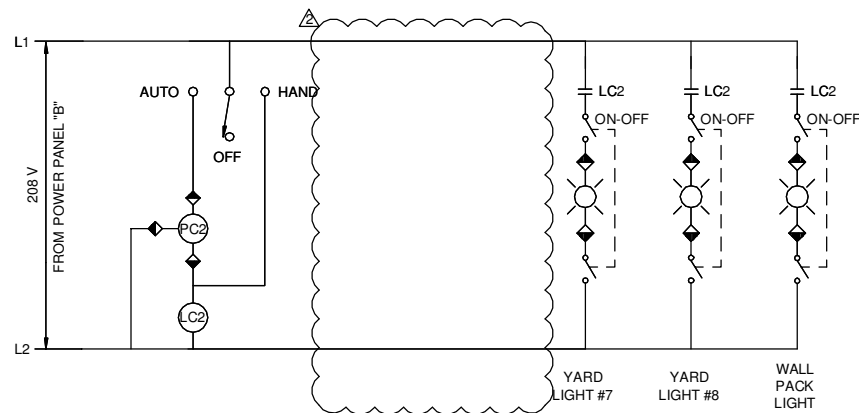
SAN ANTONIO WATER SYSTEM
(DSP) SOMERSET FACILITY
HIGH SERVICE PUMP UPGRADES PROJECT
PROPOSED MCC/SWITCHBOARD LAYOUT

SAWS Job No.: 12-6101
Designed By: BD, CG
Drawn By: SG
Checked By: SM

8/30/2013 1:24:20 PM - R:\TETRA TECH\SOMERSET GST\RESTART USING SAWS STANDARD\BID SET\ADDENDUM #2\DRAWINGS\E-141 - SPSS EXTERIOR LIGHTING CONTROLS.DWG - STEVEN GRAF



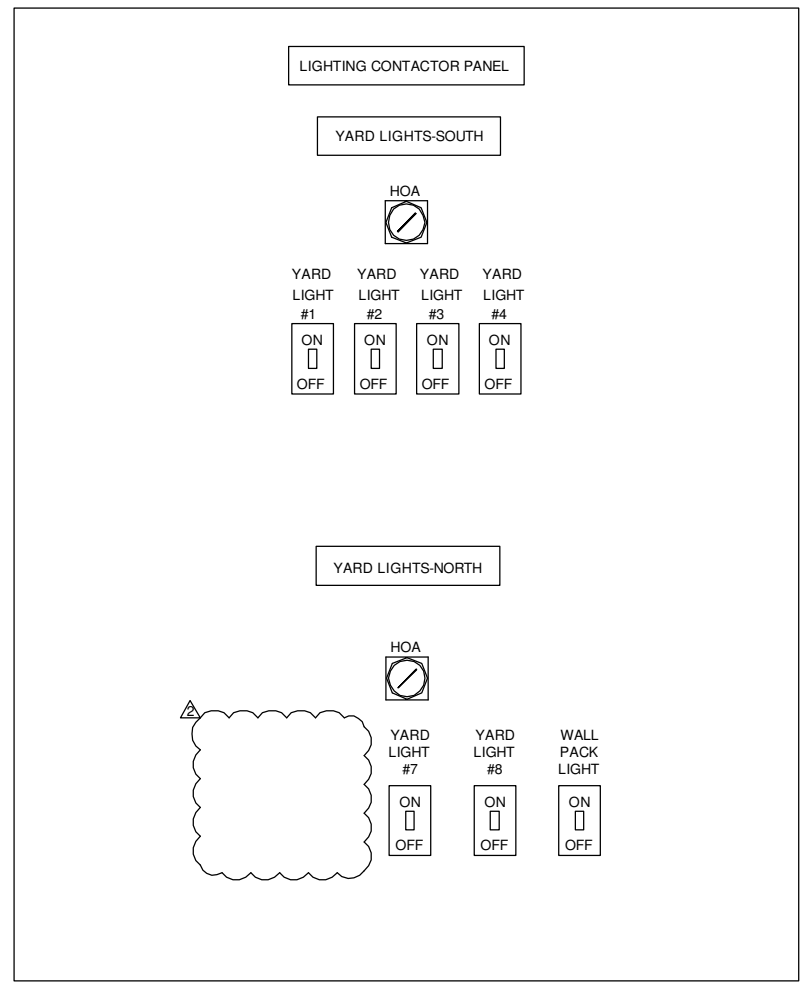
A YARD LIGHTS-SOUTH
SCALE: N.T.S.



B YARD LIGHTS-NORTH
SCALE: N.T.S.

LEGEND:
PC = PHOTOCELL
LC = LIGHTING CONTACTOR

- NOTES:**
1. FOR EACH YARD LIGHT CIRCUIT INSTALL PHOTOCELL ON LIGHT POLE AS SHOWN ON ELECTRICAL SITE PLAN.
 2. ALL ON/OFF SWITCHES SHALL BE TWO-POLE TYPE.
 3. ALL SWITCHES SHALL BE PROVIDED WITH MEANS FOR LOCKOUT DEVICE PER NFPA 70E.
 4. REFER TO SPECIFICATION 16050 FOR SWITCH AND NAMEPLATE REQUIREMENTS.



C LIGHTING CONTACTOR PANEL:
MCC INNER DOOR LAYOUT
SCALE: N.T.S.

NOTE:
INSTALL TAG LABELED "LIGHTING CONTACTOR PANEL" ON FRONT EXTERIOR OF PANEL.



TETRA TECH
www.tetra-tech.com
Texas Registration No. F-9924
700 N. St Mary's, Suite 300
San Antonio, TX 78205
Ph (210) 226-2922 Fax (210) 226-6497

GRUBB ENGINEERING, INC.
ELECTRICAL POWER SYSTEMS
DESIGN & TESTING
TBP# FIRM REGISTRATION #3904

SAN ANTONIO WATER SYSTEM

MARK	DATE	DESCRIPTION	BY	RDG
▲	8/30/13	ADDENDUM #2		

SAN ANTONIO WATER SYSTEM
(DSP) SOMERSET FACILITY
HIGH SERVICE PUMP UPGRADES PROJECT
EXTERIOR LIGHTING CONTROLS

SAWS Job No.:	12-6101
Designed By:	BD, CG
Drawn By:	SG
Checked By:	SM

8/30/2013 1:30:12 PM - R:\TETRA TECH\SOMERSET GST\RESTART USING SAWS STANDARD\SET\ADDENDUM #2\DRAWINGS\E-142 - POWER PANELS.DWG - STEVEN GRAF

POWER PANEL 'A'									
TYPE: 250A COPPER BUS 125A MAIN BREAKER 208 / 120V 3-PHASE, 4-WIRE				SERVICE ENTRANCE RATED WITH ISOLATED NEUTRAL BUS WITH ISOLATED GROUND BUS					
LABEL	LOAD	BKR	POLE	CKT#	CKT#	POLE	BKR	LOAD	LABEL
TIE TO PANEL B WITH KEY INTERLOCK	-	60	3	1	2			5kW	SURGE TANK CONTROL PANEL
				3	4	3	20		
				5	6				
HSP #1 MOTOR SPACE HEATER	0.5 kW	20	1	7	8	1	20	0.5kW	HSP #2 MOTOR SPACE HEATER
HSP #1 RECEPTACLE ON RACK	1.92 kW	20	1	9	10	1	20	1.92 kW	HSP #2 RECEPTACLE ON RACK
SURGE TANK LEVEL CONTROL PANEL	0.06kW	25	1	11	12	1	20	0.5kW	CV-200 CONTROL RACK HEAT TRACE
SCADA PANEL UPS	1.85kW	20	1	13	14	1	20	1.92kW	CV-200 CONTROL RACK RECEPTACLE
SCADA PANEL A/C	1.172kW	20	1	15	16	2	30	0.4kW	GENERATOR BATTERY CHARGER/HEATER
LIGHTING CONTACTOR PANEL CIRCUIT #1	2.27 kW	20	2	17	18	2	30	1.92kW	SCADA PANEL RECEPTACLE
				19	20	1	20	-	SPARE
TANK LEVEL CONTROL PANEL	0.02 kW	20	1	21	22	1	20	0.2kW	TANK HEAT TRACE PANEL
CONTROL STATION #1 HEAT TRACE PANEL CV-100	0.5kW	20	1	23	24	1	20	0.1kW	SCADA PANEL HEATER
HSP #1 CUBICLE LIGHTS AND RECEPTACLE	1.92kW	20	1	25	26	1	20	1.92kW	HSP #2 CUBICLE LIGHTS AND RECEPTACLE
MCC "A" SPACE HEATERS	1.92kW	20	1	27	28	1	20	0.5kW	CONTROL STATION #1 FIT101 FLOWMETER
CONTROL STATION #1 RACK RECEPTACLE	1.92kW	20	1	29	30				
SPARE	-	20	1	31	32	2	20	-	SPARE
SPARE	-	20	3	33	34	1	20	-	SPARE
SPARE	-	20	1	35	36	1	20	-	SPARE
SPARE	-	20	1	37	38	1	20	-	SPARE
SPARE	-	20	1	39	40	1	20	-	SPARE
SPARE	-	20	1	41	42	1	20	-	SPARE
	14.05 kW			TOTAL: 28.93kW				14.88kW	

NOTE: EACH CIRCUIT SHALL HAVE SEPARATE HOT, NEUTRAL, GROUND WIRES. DO NOT SHARE NEUTRAL OR GROUND WIRES FROM OTHER CIRCUITS.

A POWER PANEL 'A' LAYOUT
SCALE: N.T.S.

POWER PANEL 'B'									
TYPE: 250A COPPER BUS 125A MAIN BREAKER 208 / 120V 3-PHASE, 4-WIRE				SERVICE ENTRANCE RATED WITH ISOLATED NEUTRAL BUS WITH ISOLATED GROUND BUS					
LABEL	LOAD	BKR	POLE	CKT#	CKT#	POLE	BKR	LOAD	LABEL
SWITCHBOARD SPACE HEATERS	1.92kW	20		1	2	1	20	0.1kW	CHLORINE ANALYZER PANEL HEATER
SWITCHBOARD LIGHTS AND RECEPTACLES CIRCUIT #1	1.92kW	20	3	3	4	1	20	-	SPARE
SWITCHBOARD LIGHTS AND RECEPTACLES CIRCUIT #2	1.92kW	20		5	6	1	20	0.15kW	TANK RACK LIGHT
HSP #3 MOTOR SPACE HEATER	0.5kW	20	1	7	8	1	20	0.5kW	HSP #4 MOTOR SPACE HEATER
HSP #3 RECEPTACLE ON RACK	1.92kW	20	1	9	10	1	20	1.92kW	HSP #4 RECEPTACLE ON RACK
SPARE	-	20	2	11	12	1	20	0.648kW	CANOPY LIGHTS
				13	14	1	20	0.648kW	CANOPY LIGHTS
CONTROL STATION #2 HEAT TRACE PANEL (CV-500 & CV-501)	1.5kW	20	1	15	16	1	20	1.92kW	TANK RACK AND ROOF RECEPTACLES
CONTROL STATION 2 FIT102 FLOWMETER	0.5kW	20	1	17	18	1	20	-	SPARE
FIT102 FLOWMETER (DISCHARGE)	0.5kW	20	1	19	20	1	20	1.92kW	HIGH SERVICE PUMP HEAT TRACE PANEL
SPARE	-	20	1	21	22				
MCC "B" SPACE HEATERS	1.92kW	20	1	23	24	2	20	2.72kW	LIGHTING CONTACTOR PANEL CIRCUIT #2
HSP #3 CUBICLE LIGHTS AND RECEPTACLE	1.92kW	20	1	25	26	1	20	1.92kW	HSP #4 CUBICLE LIGHTS AND RECEPTACLE
DISCHARGE PRESSURE HEAT TRACE PIT103	0.2kW	20	1	27	28	1	20	-	SPARE
SPARE	-	20	1	29	30	1	20	-	SPARE
SPARE	-	20	1	31	32	1	20	-	SPARE
SPARE	-	20	1	33	34	1	20	-	SPARE
SPARE	-	20	1	35	36	1	20	-	SPARE
SPARE	-	20	1	37	38	1	20	-	SPARE
SPARE	-	20	1	39	40	1	20	-	SPARE
SPARE	-	20	1	41	42	1	20	-	SPARE
	14.52kW			TOTAL: 26.97kW				12.45kW	

NOTE: EACH CIRCUIT SHALL HAVE SEPARATE HOT, NEUTRAL, GROUND WIRES. DO NOT SHARE NEUTRAL OR GROUND WIRES FROM OTHER CIRCUITS.

B POWER PANEL 'B' LAYOUT
SCALE: N.T.S.

TETRA TECH
www.tetra.tech.com
Texas Registration No. F-9324
700 N. St Mary's, Suite 300
San Antonio, TX 78205
Ph (210) 226-2922 Fax (210) 226-6497

GRUBB ENGINEERING, INC.
ELECTRICAL POWER SYSTEMS
DESIGN & TESTING
TBPE FIRM REGISTRATION #3904

SAN ANTONIO WATER SYSTEM

MARK	DATE	DESCRIPTION	BY	RDG
Δ	8/30/13	ADDENDUM #2		

SAN ANTONIO WATER SYSTEM
(DSP) SOMERSET FACILITY
HIGH SERVICE PUMP UPGRADES PROJECT
POWER PANELS

SAWS Job No.: 12-6101
Designed By: BD, CG
Drawn By: SG
Checked By: SM



8/30/2013 1:31:06 PM - R:\TETRA TECH\SOMERSET\GSTR\START USING SAWS STANDARD\SETADDENDUM\#2\DRAWINGS\E-150 - CABLE & CONDUIT SCHEDULE.DWG - STEVEN GRAF

SECTION(S)	CONDUIT		CABLES			FROM	TO	CIRCUIT
	ID	SIZE	POWER	GROUND/NEUTRAL	CONTROL			
1	1	3	4-1/C 350 KCMIL	1-1/C 350 KCMIL NEUTRAL		CPS ENERGY TRANSFORMER	SWITCHBOARD	MAIN UTILITY FEED
1	2	3	4-1/C 350 KCMIL	1-1/C 350 KCMIL NEUTRAL		CPS ENERGY TRANSFORMER	SWITCHBOARD	MAIN UTILITY FEED
1	3	3	4-1/C 350 KCMIL	1-1/C 350 KCMIL NEUTRAL		CPS ENERGY TRANSFORMER	SWITCHBOARD	MAIN UTILITY FEED
1	4	3	4-1/C 350 KCMIL	1-1/C 350 KCMIL NEUTRAL		CPS ENERGY TRANSFORMER	SWITCHBOARD	MAIN UTILITY FEED
1	6	3	SPARE			CPS ENERGY TRANSFORMER	SWITCHBOARD	SPARE (STUB UP IN SWITCHBOARD AND TRANSFORMER AND CAP WITH PULL STRING)
1	7	3	SPARE			CPS ENERGY TRANSFORMER	SWITCHBOARD	SPARE (STUB UP IN SWITCHBOARD AND TRANSFORMER AND CAP WITH PULL STRING)
2	8	3	4-1/C 350 KCMIL	1-1/C 350 KCMIL NEUTRAL		AUTOMATIC TRANSFER SWITCH (SWITCHGEAR)	STANDBY GENERATOR	GENERATOR POWER FEED
2	9	3	4-1/C 350 KCMIL	1-1/C 350 KCMIL NEUTRAL		AUTOMATIC TRANSFER SWITCH (SWITCHGEAR)	STANDBY GENERATOR	GENERATOR POWER FEED
2	10	3	4-1/C 350 KCMIL	1-1/C 350 KCMIL NEUTRAL		AUTOMATIC TRANSFER SWITCH (SWITCHGEAR)	STANDBY GENERATOR	GENERATOR POWER FEED
2	11	3	4-1/C 350 KCMIL	1-1/C 350 KCMIL NEUTRAL		AUTOMATIC TRANSFER SWITCH (SWITCHGEAR)	STANDBY GENERATOR	GENERATOR POWER FEED
2	13	3	SPARE			AUTOMATIC TRANSFER SWITCH (SWITCHGEAR)	STANDBY GENERATOR	SPARE (STUB UP AT GENERATOR AND AT ATS AND CAP WITH PULL STRING)
2	14	3	SPARE			AUTOMATIC TRANSFER SWITCH (SWITCHGEAR)	STANDBY GENERATOR	SPARE (STUB UP AT GENERATOR AND AT ATS AND CAP WITH PULL STRING)
2	15	1	2-1/C #4 THWN	1-1/C #8 THWN GROUND		POWER PANEL "A"	STANDBY GENERATOR	GENERATOR BATTERY AND BLOCK/RADIATOR HEATER POWER
2	16		SPARE			POWER PANEL "A"	STANDBY GENERATOR	SPARE (STUB UP IN GENERATOR AND AT SWITCHBOARD AND CAP WITH PULL STRING)
2	17	1		1-1/C #12 THWN GROUND	6-1/C #12 THWN	SCADA PANEL	STANDBY GENERATOR	GENERATOR RUN INDICATION, LOW FUEL ALARM AND FUEL LEAK ALARM
2	18	1	SPARE			SCADA PANEL	STANDBY GENERATOR	SPARE (STUB UP IN SCADA PANEL AND AT GENERATOR AND CAP WITH PULL STRING)
2	19	1		1-1/C #12 THWN GROUND	2-1/C #12 THWN	AUTOMATIC TRANSFER SWITCH (SWITCHGEAR)	STANDBY GENERATOR	GENERATOR RUN TO ATS
2	20	1	SPARE			AUTOMATIC TRANSFER SWITCH (SWITCHGEAR)	STANDBY GENERATOR	SPARE (STUB UP AT GENERATOR AND AT ATS AND CAP WITH PULL STRING)
2,2A	21	1		1-1/C #12 THWN GROUND	6-1/C #12 THWN	SCADA PANEL	CONTROL STATION #1 CV-100	VALVE LIMIT SWITCHES AND CONTROL (ADD ADDITIONAL CABLE AS REQUIRED PER MFR.)
2,2A	22	1			#16 T W/SH/PR + RS485 T W/SH	SCADA PANEL	CONTROL STATION #1 CV-100	VALVE PRESSURE SETTING
2,2A	23	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		POWER PANEL "A"	CONTROL STATION #1 CV-100	CONTROL STATION #1 CV-100 HEAT TRACE PANEL LOCATED AT THE CONTROL VALVE
2,2A	24	1	SPARE			POWER PANEL "A"	CONTROL STATION #1 CV-100	SPARE (STUB UP AT POWER PANEL AND AT RACK AND CAP WITH PULL STRING)
2,2A	25	1			2x(#16 T W/SH/PR)	SCADA PANEL	CONTROL STATION #1 CV-100	CONTROL STATION #1 CV-100 UPSTREAM AND DOWNSTREAM PRESSURES
2,2A,2B	26	1			#16 T W/SH/PR + RS485 T W/SH	SCADA PANEL	SUPPLY FLOWMETER (FIT-101) CONTROL STATION 1	SUPPLY FLOW MODBUS RS485 AND 4-20mA
2,2A,2B	27	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		SCADA PANEL	SUPPLY FLOWMETER (FIT-101) CONTROL STATION 1	SUPPLY FLOWMETER POWER
2,2A,2B	28	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		POWER PANEL "A"	SUPPLY FLOWMETER (FIT-101) CONTROL STATION 1	SUPPLY FLOWMETER RACK RECEPTACLE POWER
2,2A,2B	29	1	SPARE			POWER PANEL "A"	SUPPLY FLOWMETER (FIT-101) CONTROL STATION 1	SPARE (STUB UP IN MCC AND AT RACK AND CAP WITH PULL STRING)
2,2A,2B	30	1	SPARE			SCADA PANEL	SUPPLY FLOWMETER (FIT-101) CONTROL STATION 1	SPARE (STUB UP IN SCADA PANEL AND AT RACK AND CAP WITH PULL STRING)
3,4,6	35	1.5	3-1/C #3 THWN	1-1/C #3 NEU & 1-1/C #4 GND		POWER PANEL "A"	SURGE TANK LEVEL CONTROL PANEL	SURGE TANK CONTROL PANEL POWER AND LEVEL CONTROL PANEL
3,4,6	36	1.5	SPARE			POWER PANEL "A"	SURGE TANK LEVEL CONTROL PANEL	SPARE (STUB UP IN MCC AND AT CONTROL PANEL AND CAP WITH PULL STRING)
3,4,6	37	1.5	3-1/C #3 THWN	1-1/C #3 NEU & 1-1/C #4 GND		POWER PANEL "A"	SURGE TANK CONTROL PANEL	SURGE TANK CONTROL PANEL POWER AND LEVEL CONTROL PANEL
3,4,6	38	1.5	SPARE			POWER PANEL "A"	SURGE TANK CONTROL PANEL	SPARE (STUB UP IN MCC AND AT CONTROL PANEL AND CAP WITH PULL STRING)
3,4,6	39	1			2x(#16 T W/SH/PR)	SCADA PANEL	SURGE TANK CONTROL RACK	SURGE TANK PRESSURE AND WATER LEVEL INDICATIONS
3,4,6	40	1	SPARE			SCADA PANEL	SURGE TANK CONTROL RACK	SPARE (STUB UP IN SCADA PANEL AND AT CONTROL PANEL AND CAP WITH PULL STRING)
3,4,6	41	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		POWER PANEL "A"	SURGE TANK CONTROL RACK	SURGE TANK CONTROL RACK RECEPTACLE POWER
3,4,6	42	1		1-1/C #8 THWN GROUND	6-1/C #12 THWN	SCADA PANEL	SURGE TANK LEVEL CONTROL PANEL	SURGE TANK LOW AND HIGH WATER LEVELS
3,4,6	43	1	SPARE			SCADA PANEL	SURGE TANK LEVEL CONTROL PANEL	SPARE (STUB UP IN SCADA PANEL AND AT LEVEL CONTROL PANEL AND CAP W/PULL STRING)
3,4,8	44	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #3	YARD LIGHT #3 POWER
3,4,8	45	1	SPARE		SPARE	LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #3	SPARE (STUB UP IN MCC AND OUTSIDE LIGHT BASE AND CAP WITH PULL STRING)
3,4,7,9,10	46	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #1	YARD LIGHT #1 POWER
3,4,7,9,10	47	1	SPARE		SPARE	LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #1	SPARE (STUB UP IN MCC AND OUTSIDE LIGHT BASE AND CAP WITH PULL STRING)
3,4,7,9,10,10A	48	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #2	YARD LIGHT #2 POWER
3,4,7,9,10,10A	49	1	SPARE		SPARE	LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #2	SPARE (STUB UP IN MCC AND OUTSIDE LIGHT BASE AND CAP WITH PULL STRING)
3,4,7,9,17	50	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		POWER PANEL "A"	CHLORINE BUILDING	CHLORINE BUILDING POWER
3,4,7,9,17	51	1		1-1/C #12 THWN GROUND	2-1/C #12 THWN	SCADA PANEL	CHLORINE BUILDING	CHLORINE SOLENOID
3,4,7,9,17	52	1	SPARE		SPARE	POWER PANEL "A"	CHLORINE BUILDING	SPARE (STUB UP AT POWER PANEL 'A' AND CHLORINE BUILDING AND CAP WITH PULL STRING)
3,4,7,9,17	53	1	SPARE			FUTURE SECURITY PANEL	CHLORINE BUILDING (SECURITY)	SPARE (STUB UP ADJACENT TO SCADA PANEL AND CHLORINE BUILDING AND CAP WITH PULL STRING)
3,4,7,9,17	54	1	SPARE			FUTURE SECURITY PANEL	CHLORINE BUILDING (SECURITY)	SPARE (STUB UP ADJACENT TO SCADA PANEL AND CHLORINE BUILDING AND CAP WITH PULL STRING)
3,4,7,9	55	1		1-1/C #12 THWN GROUND	8-1/C #12 THWN	SCADA PANEL	CONTROL STATION #2 CV-500	VALVE LIMIT SWITCHES AND CONTROL (ADD ADDITIONAL CABLE AS REQUIRED PER MFR.)
3,4,7,9,9A	56	1	SPARE			SCADA PANEL	CONTROL STATION #2 CV-500	SPARE (STUB UP IN SCADA PANEL AND AT VALVE AND CAP WITH PULL STRING)
3,4,7,9,9A	57	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		POWER PANEL "A"	CONTROL STATION #2 CV-500	CONTROL STATION #2 CV-500 RACK RECEPTACLE POWER
3,4,7,9,9A	58	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		POWER PANEL "A"	CONTROL STATION #2 CV-500	CONTROL STATION #2 CV-500 HEAT TRACE PANEL LOCATED AT THE CONTROL VALVE
3,4,7,9,9A	59	1	SPARE			POWER PANEL "A"	CONTROL STATION #2 CV-500	SPARE (STUB UP IN MCC AND AT RACK AND CAP WITH PULL STRING)
3,4,7,9,9A	60	1			2x(#16 T W/SH/PR)	SCADA PANEL	CONTROL STATION #2 CV-500	CONTROL STATION #2 CV-500 UPSTREAM AND DOWNSTREAM PRESSURES
3,4,7,9,9A	61	1			#16 T W/SH/PR + RS485 T W/SH	SCADA PANEL	DISCHARGE FLOWMETER (FIT-103) CONTROL STATION 2	DISCHARGE FLOW MODBUS RS485 AND 4-20mA
3,4,7,9,9A,9B	62	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		SCADA PANEL	DISCHARGE FLOWMETER (FIT-103) CONTROL STATION 2	DISCHARGE FLOWMETER POWER

A CABLE AND CONDUIT SCHEDULE
SCALE: N.T.S.



TETRA TECH
www.tetratech.com
Texas Registration No. F-9924
700 N. St. Mary's, Suite 300
San Antonio, TX 78205
Ph (210) 226-2922 Fax (210) 226-6497

GRUBB ENGINEERING, INC.
ELECTRICAL POWER SYSTEMS
DESIGN & TESTING
Texas Registration No. F-9924
TBPE FIRM REGISTRATION #3904

SAN ANTONIO WATER SYSTEM

MARK	DATE	DESCRIPTION
Δ	8/30/13	ADDENDUM #2

SAN ANTONIO WATER SYSTEM
(OSP) SOMERSET FACILITY
HIGH SERVICE PUMP UPGRADES PROJECT
CABLE AND CONDUIT SCHEDULE 1

SAWS Job No.: 12-6101
Designed By: BD, CG
Drawn By: SG
Checked By: SM

E-150

8/30/2013 12:28 PM - R:\TETRA TECH\SOMERSET GST\RESTART USING SAWS STANDARDS\BID SET\ADDENDUM #2\DRAWINGS\E-152 - CABLE & CONDUIT SCHEDULE III (NOT USED).DWG - STEVEN GRAF

SECTION(S) ID	CONDUIT		CABLES			FROM	TO	CIRCUIT
	ID	SIZE	POWER	GROUND/NEUTRAL	CONTROL			
3,11	125	1	SPARE			POWER PANEL "B"	FUTURE HIGH SERVICE PUMP #4 JUNCTION BOX	SPARE (STUB UP IN MCC AND IN JUNCTION BOX AND CAP WITH PULL STRING)
3,11	126	1		SPARE	SPARE	SCADA PANEL	FUTURE HIGH SERVICE PUMP #4 PRESSURE SWITCH	HIGH SERVICE PUMP #4 PRESSURE SWITCH
3,14,14A	127	1			#16/TW/SH/PR	SCADA PANEL	DISCHARGE PRESSURE TRANSMITTER (PIT-103)	DISCHARGE PRESSURE TO SCADA
3,14,14A	128	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		POWER PANEL "B"	CV-200 CONTROL VALVE RACK	CV-200 HEAT TRACE
3,14,14A	129	1	SPARE			SCADA PANEL	CV-200 CONTROL VALVE RACK	SPARE (STUB UP IN SCADA PANEL AND AT PRESSURE SWITCH AND CAP WITH PULL STRING)
3,14,14A	130	1			#16/TW/SH/PR + RS485 T W/SH	SCADA PANEL	CV-200 CONTROL VALVE RACK	PUMP STATION DISCHARGE FLOW MODBUSRS485 AND 4-20mA
3,14,14A	131	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		POWER PANEL "A"	CV-200 CONTROL VALVE RACK	PUMP STATION DISCHARGE FLOWMETER POWER
3,14,14A	132	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		POWER PANEL "A"	CV-200 CONTROL VALVE RACK	CV-200 CONTROL VALVE RACK RECEPTACLE POWER
3,14,14A	133	1	SPARE			POWER PANEL "A"	CV-200 CONTROL VALVE RACK	SPARE (STUB UP IN MCC AND AT RACK AND CAP WITH PULL STRING)
3,14,14A	134	1	SPARE			SCADA PANEL	CV-200 CONTROL VALVE RACK	SPARE (STUB UP IN SCADA PANEL AND AT RACK AND CAP WITH PULL STRING)
3,14,14B	135	1		1-1/C #12 THWN GROUND	2-1/C #12 THWN	SCADA PANEL	CV-200 CONTROL VALVE RACK	CV-200 POSITION INDICATION TO SCADA
3,14,14A	136	1	SPARE			SCADA PANEL	CV-200 CONTROL VALVE RACK	SPARE (STUB UP IN SCADA PANEL AND AT RACK AND CAP WITH PULL STRING)
3,15	137	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #7	YARD LIGHT #7 POWER
3,15	138	1	SPARE			LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #7	SPARE (STUB UP AT LTG. CONT. PANEL AND OUTSIDE LIGHT BASE AND CAP WITH PULL STRING)
12	141	2			CAT6e	SCADA ANTENNA	SCADA PANEL	SCADA RADIO TO ANTENNA CONNECTION
12	142	2	SPARE			SCADA ANTENNA	SCADA PANEL	SPARE
18	143	1	3-1/C #4 THWN	1-1/C #10 THWN GROUND		MCC "B"	EXISTING ELECTRICAL BUILDING TRANSFORMER DISCONNECT	EXISTING BUILDING LIGHTS AND RECEPTACLE
18	144	1	SPARE	SPARE		MCC "B"	EXISTING ELECTRICAL BUILDING TRANSFORMER DISCONNECT	SPARE (STUB UP ADJACENT TO DISCONNECT AND IN EXISTING BUILDING AND CAP WITH PULL STRING)
3,4,6A	145	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #8	SIGN LIGHT #8 POWER
3,4,6A	146	1	SPARE			LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #8	SPARE (STUB UP IN MCC AND OUTSIDE LIGHT BASE AND CAP WITH PULL STRING)

A CABLE AND CONDUIT SCHEDULE
SCALE: N.T.S.



TETRA TECH
www.tetratech.com
Texas Registration No. F-9924
700 N. St. Mary's, Suite 300
San Antonio, TX 78205
Ph (210) 226-2922 Fax (210) 226-6497

GRUBB ENGINEERING, INC.
ELECTRICAL POWER SYSTEMS
DESIGN & TESTING
TXBE FIRM REGISTRATION #3904

SAN ANTONIO WATER SYSTEM

MARK	DATE	DESCRIPTION	BY	RDG
2	8/30/13	ADDENDUM #2		

SAN ANTONIO WATER SYSTEM
(DSP) SOMERSET FACILITY
HIGH SERVICE PUMP UPGRADES PROJECT
CABLE AND CONDUIT
SCHEDULE III

SAWS Job No.: 12-6101
Designed By: BD, CG
Drawn By: SG
Checked By: SM

E-152

