May 11, 2016

BOARD OF COUNTY COMMISSIONERS
ORANGE COUNTY, FLORIDA

ADDENDUM NO. 4 / IFB NO. Y16-764-PH

VISTANA WATER FACILITY SUPPLY IMPROVEMENTS

Revised BID OPENING DATE: May ~~17~~,19, 2016

This addendum is hereby incorporated into the bid documents of the project referenced above. The following items are clarifications, corrections, additions, deletions and/or revisions to and shall take precedence over the original documents. Additions are indicated by **underlining**, deletions are indicated by ~~strikethrough~~.

The bid opening is changed to May 19, 2016 at 2:00 P.M.

A. SPECIFICATIONS

1. Specification Section 08333: Insert the following new paragraph 2.05.E.4 which reads "**Motor Voltage: 480V, 3-phase, 60 Hz.**"

2. Specification Section 13300: Insert the following new paragraph 1.02.C which reads "**Specification Section 13591, Network Cables. The System Supplier shall be responsible for furnishing and ensuring correct installation and termination of all network cables.**"

3. Specification Section 13300, Paragraph 2.06.E: Delete "~~Provide a fully managed Ethernet switch with a minimum of four full duplex 10 Base FX ports and four 100 Base TX ports. GarrettCom series 6KL or approved equal by Hirschman.~~" and replace with "**Provide a fully managed Ethernet switch with the required quantity of full duplex fiber ports and copper TX ports to implement the system shown on the Contract Drawings. Provide a minimum of one fiber and one copper port as additional spare ports. GarrettCom series 6K or approved equal by Hirschman.**"

4. Specification Section 13300: Insert a new paragraph 3.11 which reads:

"**3.11 HMI MODIFICATIONS**

"A. Modify the existing Overview Graphic as follows:

1. **Add an indication of the well H/O/A switch position.**
2. **Add an indication of each high service pump's current speed.**

3. **Modify the high pressure table to show the new control strategy parameters and to provide operator adjustment of control strategy parameters.**

B. Modify the existing Generator and Power Graphic as follows:

1. **Add the data associated with the new power monitors for DP-1 and the raw water wells.**

C. Link all replacement I/O to the existing database tags."

5. Delete Specification Section 13360 without substitution.

6. Specification Section 13591: Insert the following new paragraph 1.04.B which reads "**All fiber optic cable work shall be performed by a Corning-certified Sub-Contractor experienced in fiber optic cable installation and termination.**"

7. Specification Section 13591, Paragraph 2.03.A.13: Delete, without substitution, "~~Optical fibers shall be placed inside a loose buffer tube. The nominal outer diameter of the buffer tube shall be 3.0 mm.~~"

8. Specification Section 13591, Paragraph 2.03.A.14: Delete "~~The cable shall contain 24 fibers. Each buffer tube shall contain up to 12 fibers.~~" and replace with "**The cable shall contain a minimum of six fibers or more as shown on the Contract Drawings.**"

9. Specification Section 13591, Paragraph 2.03.A.15: Delete, without substitution, "~~The fibers shall not adhere to the inside of the buffer tube.~~"

10. Specification Section 13591, Paragraph 2.03.A.18: Delete, without substitution, "~~Buffer tubes containing fibers shall also be color coded with distinct and recognizable colors in accordance with TIA/EIA-598-A, "Optical Fiber Cable Color Coding.""~~"

11. Specification Section 13591, Paragraph 2.03.A.19: Delete, without substitution, "~~In buffer tubes containing multiple fibers, the colors shall be stable during temperature cycling and not subject to fading or smearing onto each other. Colors shall not cause fibers to stick together.~~"

12. Specification Section 13591, Paragraph 2.03.A.20: Delete, without substitution, "~~The buffer tubes shall be resistant to kinking.~~"

13. Specification Section 13591, Paragraph 2.03.A.29: Delete "~~Fiber optic cable shall be as manufactured by Corning Cable Systems, Belden, BICCGeneral, AMP or equal.~~" and replace with "**Fiber optic cable shall be Corning 006KSF-T4130D20 as manufactured by Corning Cable Systems or approved equal.**"

14. Specification Section 16370. Insert the following new paragraph 1.02.F which reads "**This section covers fabrication, performance and functional requirements of a true six (6) Pulse, Pulse Width Modulating (PWM) variable frequency AC drive (VFD) system.**"

15. Specification Section 16370, Paragraph 1.03.F.2: Delete "~~The VFD manufacturer shall state in writing that the new VFDs for each master pump station will fit in the existing electrical room as shown on the drawings and will meet the requirements of the VFD elementary diagrams.~~" and replace with "**The VFD/RVSS manufacturer shall state in writing that the new VFDs and RVSSs for each high service pump will fit in the existing electrical room as shown on the electrical drawings and will meet the requirements of the VFD and RVSS elementary diagrams.**"

16. Insert new **Specification Section 16402 Underground System** included as part of this addendum.

17. Specification Section 11346, Paragraph 2.02.B.18: Delete, without substitution, "~~A solenoid relief valve shall be provided in the discharge piping to allow the pump to start under a reduced head condition and expel accumulated gas. The solenoid valve shall be actuated through an adjustable time delay relay to close between 0 and 5 minutes after pump start. Valve shall be NEMA 4X solenoid actuated valve with PVC body, PTFE bellows rated for 2 million cycles, Viton FKM seals, connector indicator light to show when solenoid is energized, continuous duty Class F coil, and rated for 140 psi maximum inlet pressure and 38 psi maximum back pressure.~~"

B. DRAWINGS

1. Drawing S06: Replace Drawing S06 in its entirety with the attached revised Drawing S06 issued as part of this addendum. The revised Drawing S06 adds Detail E for the existing window to be replaced and sealed with new concrete block wall shown on Drawing E10.

2. Drawing E03, Electrical Site Plan: delete pullbox detail reference "1" and replace with pullbox detail reference "3".

3. Drawing E05: Replace Drawing E05 in its entirety with the attached revised Drawing E05 issued as part of this addendum.

4. Drawing E06: Replace Drawing E06 in its entirety with the attached revised Drawing E06 issued as part of this addendum.

5. Drawing E13: Replace Drawing E13 in its entirety with the attached revised Drawing E13 issued as part of this addendum.

6. Drawing E17: Replace Drawing E17 in its entirety with the attached revised Drawing E17 issued as part of this addendum.

7. Drawing E19: Replace Drawing E19 in its entirety with the attached revised Drawing E19 issued as part of this addendum

8. Drawing E20: Replace Drawing E20 in its entirety with the attached revised Drawing E20 issued as part of this addendum.

9. Drawing I02: Replace Drawing I02 in its entirety with the attached revised Drawing I02 issued as part of this addendum.

10. Drawing I05: Replace Drawing I05 in its entirety with the attached revised Drawing I05 issued as part of this addendum.

11. Drawing I07: Replace Drawing I07 in its entirety with the attached revised Drawing I07 issued as part of this addendum.

12. Drawing HV06: Revise the Electrical Data for Exhaust Fans EF-01, EF-02, and EF-03 in the Exhaust Fan Schedule to be 480 volt/3 phase.

13. Drawing FA01: Replace Drawing FA01 in its entirety with the attached revised Drawing FA01 issued as part of this addendum.

C. BIDDER QUESTIONS

1. **The Existing generator at the Vistana WSF by design, is requested to be modified to provide shunt trip function. This generator was built in 1991. It is possible that generator set breaker is obsolete or not able to be modified or more over to be replaced in order to meet with design. Various phone call to Cummings service department in Florida and Georgia has been made and they are not able to provide the information requested. Please advise size, type, model and specifications of breaker.**

   Response: Coordinate with generator manufacturer to wire normally closed contact of the shunt trip station in series with the existing generator E-stop in the existing generator control panel. Or, if not available, wire normally closed contact of the shunt trip station in series with the existing generator start command. Refer to attached revised Drawing E05 issued as part of this addendum.

2. **In the tech specs on pdf pg. 6 under Description No. 4 states you are asking for "a new and sound attenuating enclosure for the existing emergency generator". Can you tell me is your existing generator CAT (Caterpillar) or Cummins?**

   Response: The Bidder's reference in question above is to Specification Section 01001 1.01.A.4. The existing emergency generator is a Cummins/Onan, Engine

Model No. VTA28G2, Serial No. 25179801 and Generator Model No. 600DFGB, Serial #K910434530.The existing generator electrical specifications can be found on Drawing E05.

3. **Drawing C01 shows line stops at the temporary bypass piping where it appears that tapping sleeves and valves should be required. Please confirm that there should be 1-12"x12" tapping sleeve, and 2-16"x12" tapping sleeves as shown on C01. Also, please confirm that ductile iron pipe and fittings are to be used for the temporary bypass piping.**

   Response: Line stops are required to plug the pipe at these locations and divert flow through the bypass piping. Line stop with an integrated gate valve is intended to be used with temporary piping connected to temporary bypass connection flange on the line stop. Line stop sizes (1 x 12" and 2 x 16") are based on best available information of the yard piping size at the locations shown on Drawing C01. Existing buried pipe sizes to be line stopped may be found to be different during the field investigation by the Contractor. Contractor shall be compensated by change order for a larger line stop size if required. Temporary bypass piping may be potable water certified ductile iron or HDPE pipe. Completion plugs will be installed by the Contractor in the line stops after use. Please note that the 12" line stop location with completion plug will be demolished during construction of the Well No. 2 improvements and the two (2) 16" line stop locations with completion plugs will remain after completion of the project.

   Drawing C01 illustrates two temporary bypass piping set-ups with the line stop required to complete work on the wells and yard piping while maintaining two (2) raw water wells operational at all times. The first temporary bypass piping set-up with a 12" line stop and 16" line stop will allow Well No. 2 and Well No.3 to fill the ground storage tank while Well No. 1 work is performed and the isolation gate valve for Well No. 2 is replaced. The second temporary bypass piping set-up with two (2) 16" line stops will allow Well No. 1 and Well No. 2 to fill the ground storage tank while Well No. 3 work is performed and the isolation valve for Well No. 3 is replaced.

4. **Section 11214 -**

   - **Paragraph 1.03.C – Please confirm that the motors not intended for VFD use do not need to be nameplated as inverter duty.**

     Response: That is correct.

   - **Paragraph 1.03.C – Please clarify the requirement "All other motors shall be nameplated as existing".**

Response: Please reference Section 16150 and the nameplates installed on the existing pump motors that are being replaced for minimum requirements.

- **Paragraph 2.01.B – Is it acceptable if the factory certified performance tests are completed at full speed (60Hz) and the affinity laws are utilized to produce the reduced speed curves?**

  Response: No. VFD driven pumps (PW-3 and PW-5) shall be tested at the speeds specified. However, it is acceptable that factory certified performance tests on the constant speed pumps (PW-1, PW-2, and PW-4) be completed at full speed and the affinity laws utilized to produce the reduced speed curves.

- **Paragraph 2.02.A – Standard warranty for this equipment is 1 year. Longer warranty periods are available but at additional cost. Please confirm a 5 year warranty is required.**

  Response: 5 year warranty is required.

- **Table 11214A – For PW-3 and PW-4, would a pump with a 6" suction / 5" discharge be acceptable if it meets the specified performance criteria and is more cost effective and more efficient than the 8" suction / 6" discharge selection?**

  Response: No.

5. **Pertaining to Florida Statute 218.80 "Public Bid Disclosure Act," please provide the permits and fees required for this project.**

   Response: Please reference Article 31 of the Instructions to Bidders and Specification Section 01065. The general building permit (Orange County Building Permit No. B16900655) has been issued and will be obtained by the Contractor. Please note that the FDEP construction permit for the project has been obtained and is included in the Specifications in Appendix C "Permits Obtained by County".

6. **Specification 11346, 2.02, B.18 calls for a solenoid valve on the Fluoride Skid. The solenoid valve is shown on M13/detail 11, however both the electrical and I&C drawings do not reflect a solenoid valve on the skid.**

   Response: The solenoid relief valves are not required on the Fluoride Skid. Specification Section 11346, Paragraph 2.02.B.18 is deleted as part of this addendum (see above).

7. **Drawing I03 calls for the Bleach Storage Tanks to be 5,000 gal each. Please confirm the tanks are to be 2,500 gal each.**

   Response: The sodium hypochlorite bulk storage tanks shall have a nominal

capacity of 2,500 gallons each per Specification Section 13209, 1.06.B. Disregard the above referenced 5,000 gallon capacity callout on Drawing I03.

8. **Please confirm if the Contractor will be required to purchase the initial fill and final top off of chemicals for the Bleach & Fluoride tanks.**

   Response: Chemical purchases are the responsibility of Orange County.

9. **Drawing I04 calls for the Bulk Fluoride Storage Tank to be 1,100 gal. Please confirm the tank is to be 1,100 gal.**

   Response: The fluoride bulk storage tanks shall have a nominal capacity of 500 gallons each per Specification Section 13210, 1.06.B. Disregard the above referenced 1,100 gallon capacity callout on Drawing I04.

10. **Please provide a sump pump specification for the sump pump shown on M08.**

    Response: The sump pump replacement will be in like kind.

11. **C01 and 01014-2, 1.04, B describe using a temporary bypass and linestop system. 1.) Is there an isolation valve for the GST prior to the tee? 2.) Are the (2 ea) 16" linestops for replacing the 12" Gate Valve as shown on C02? 3.) Is the bypass line required during R&R of Well #3? 4.) Is the term "linestop" being misused for "cut-in bypass valve?" 5.) Where does Well #3 feed into the GST?**

    Response: There is an isolation valve for the GST inlet between the pre-storage chemical injection vault and the GST. Please reference Addendum No. 4 response

    to Bidder Question #3 for more detailed description of temporary bypass piping and line stop and answers to 2), 3), and 4) above. Well # 3 header is attached is attached to the west end of the 16" tee to the GST shown on Detail 1 on Drawing C01.

12. **C02 calls for removal & replacement of the 12" Gate Valve on the GST influent line. C01 calls this line to be 16". Please confirm the size of the valve.**

    Response: The Well #3 header is 12" DIP. The gate valve to be replaced on the Well #3 header is 12" in size according to best available information. The GST inlet line and tee are 16" DIP. As-builts indicate that a 16" x 12" DIP reducer (not shown) is installed on the Well No. 3 header downstream of the gate valve to be replaced and upstream of the 16" tee for the GST inlet.

13. **Per specification section 15682 Section 1.01 A.1, it calls for 2 Air Cooled Split system condensing units whereas the HVAC Drawings show only (1) one. Please verify which is correct.**

    Response: Specification section 15682 1.01 A.1 references split systems ranging from 2-tons to 5-tons. One (1) HVAC split system shall be provided per HV04 drawings.

14. **Who is responsible for filling the new chemical tanks? The county, or the contractor?**

    Response: Orange County.

15. **Worthington/Flowserve is a named pump supplier in specification section 11214 Horizontal Split Case Centrifugal Pumps for the Orange County – Vistana Water Facility Supply Improvements project. For the Potable Water Pumps PW-3 and PW-4, we would like to offer the attached pump model 4LR-10G for acceptance to bid. The 4LR-10G horizontal split case pumps differs from the specification in that it is a 3600 RPM pump and motor and the suction and discharge flange sizes are 5" and 4", respectively. The pump meets all other specification requirements while providing the County with a very desirable performance curve for this hydraulic system.**

    Response: The pump proposed above (Flowserve Model 4LR-10G) is not accepted.

D. ACKNOWLEDGEMENT OF ADDENDA

a. The Proposer shall acknowledge receipt of this addendum by completing the applicable section in the solicitation or by completion of the acknowledgement information on the addendum. Either form of acknowledgement must be completed and returned not later than the date and time for receipt of proposal.
b. All other terms, conditions and specifications remain the same.

Receipt acknowledged by:

_____ _____

Authorized Signature **Date Signed**

_____

Title

_____

Name of Firm

SECTION 16402
UNDERGROUND SYSTEM

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Furnish and install a complete underground system of concrete encased ducts, manholes and handholes all as hereinafter specified and shown on the Drawings.

B. CONTRACTOR shall utilize a ground sensing radar or other acceptable methods, along all proposed ductbank routes, and confirm presence of existing utilities and /or conflicts. Ductbank routing is based on information found in the record drawings provided by OCU and with discussions and coordination with the Plant staff.

C. CONTRACTOR shall coordinate with OWNER representative on all routing and potential conflicts found during the use of the ground sensing radar or other acceptable methods prior to initiating any trenching and/or installation.

1.02 RELATED WORK

A. Excavation and backfilling is included in Division 2.

B. All concrete and reinforcing steel shall be included under Division 3.

C. Conduit for ducts shall be as specified under Section 16100.

D. Ground rods and other grounding materials and methods shall be as specified under other Sections of Division 16.

1.03 DEFINITIONS

A. Hand Hole: An access opening, provided in equipment, or in a below the surface enclosure used with underground lines, into which personnel can reach but do not enter, for the purpose of installing, operating or maintaining equipment, cabling or both.

B. Pull Box: An access opening, provided in a below the surface enclosure used with underground lines, into which personnel can reach but do not enter, for the purpose of installing, operating or maintaining equipment, cabling or both.

C. Duct: The general term for an electrical conduit or raceway, either metallic or nonmetallic, for use underground, embedded in earth or in concrete.

D. Ductbank: A group of two or more ducts in a continuous run between two points.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Ducts shall be PVC type DB encased in concrete.

B. Cable racks, supports, pulling-in irons, manhole steps, and hardware shall be stainless steel manufactured by Cope or approved equal. All hardware shall be 316 stainless steel.

C. Precast manholes and handholes shall be heavy duty type, designed for a Class H20 wheel load. Precast manholes and handholes shall be as manufactured by Brooks Products Co., or approved equal.

D. Handhole covers and frames shall be provided as required.

E. Concrete Encased Ducts and Ductbanks. Concrete encased ducts and ductbanks shall be used for all underground electrical power and communication systems. The top of the ductbank shall be minimum 36 inches below the finished grade. The size of the ductbanks shall be designed in accordance with latest edition of NEC and attached detail drawings.

Sufficient ducts shall be provided so that after all cables are pulled, no duct has more than 40 percentage of its cross sectional area filled. Provide minimum of one spare conduit for each size installed in concrete encased ducts and ductbanks.

2.02 ACCESSORIES

A. Cable Racks: Heavy Duty non-metallic cable racking system as specified and indicated in drawings. Manufacturer shall be “Underground Devices, Inc., or approved equal.

2.03 EQUIPMENT PADS

A. Provide steel reinforced, precast concrete equipment pads, sizes and details as indicated. Construct with chamfered edges and ground pigtail.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Ducts shall be installed to drain away from buildings; ducts between manholes or handholes shall drain toward the manholes or handholes. Duct slopes shall not be

less than 3 inches per 100 feet.

B. Duct banks shall be reinforced as shown on the Drawings.

C. Duct lines shall be laid in trenches on a clean backfill bedding not less than 6 inches thick and well graded.

D. Plastic spacers shall be used to hold ducts in place whether concrete encased or not. Spacers shall provide not less than 2-inch clearance between ducts.

E. The minimum cover for duct lines shall be 36 inches unless otherwise permitted by the Engineer.

F. Duct entrances to buildings and structures shall be made with steel conduit not less than 10 feet long.

G. PVC duct terminations at manholes shall be with PVC end bells. Steel conduits shall be terminated with insulated, grounding-type bushings.

H. Where bends in ducts are required, long radius elbows, sweeps and offsets shall be used.

I. All ducts shall be rodded and a mandrel drawn through followed by a swab to clean out any obstructions which may cause cable abrasions. The mandrel shall be 12 inches in length and the diameter 1/2 inch less than the inside diameter of the duct.

J. Spare ducts shall be plugged and sealed watertight at all manholes, buildings and structures.

K. Ducts in use shall be sealed watertight at all manholes, buildings and structures.

L. Pulling-in irons shall be installed opposite all duct entrances to manholes, equal to Cope Cat. No. 311-9.

M. Cable racks shall be cut to length for one, two, three or four vertical tiers of cables. Racks shall be mounted with 1/2 inch by 4 inch expansion bolts on manhole walls. Arms similar and equal to Cope Cat. No. 325-T4, 325-T75 and/or 325-T10 for one, two and/or three cables respectively shall be furnished and installed with Cat. No. 326-T22 porcelain insulators for support of cables. Lock clips shall be furnished and installed to secure hooks in position.

N. Cables shall be trained in manholes and supported on racks and hooks at intervals not greater than 3 feet-0 inches and supports shall be installed on each side of all splices. Furnish inserts on all manhole walls for mounting future racks as well as racks required for present installation. Branch circuit conductors shall not be run in manholes.

O. PVC coated rigid steel conduit shall be used for risers. For fiber runs, a fiber to PVC

coated rigid steel conduit adapter shall be used at the lower end of the elbow and the elbow and all exposed conduit shall be PVC coated.

P. All risers from underground shall be given a heavy coat of bitumastic paint from a point 1 foot-0-inch below grade to a point not less than 6 inches above grade or surface of slab.

Q. All joints shall be made so as to prevent the passage of concrete inside the conduit to form obstructions or cause cable abrasions.

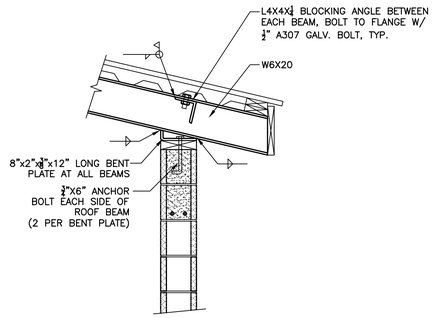
R. Manhole covers in streets shall finish flush with finished paving and in other areas shall finish 3 inches above crown of adjacent roadway. Floor elevations of manholes shall be so set that the center line of the lowest conduit entering will be not less than 1-foot above the floor and center line of the highest conduit entering will be not less than 1 foot below the roof slab.

S. Concrete monuments shall be provided at each stubbed conduit location. Monuments shall be as shown on the Drawings and shall be installed in the same manner outlined for manhole covers.

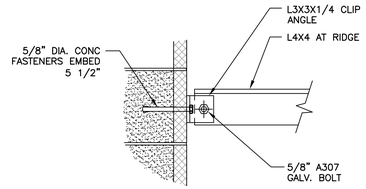
T. A #6 bare copper wire (stranded) shall be installed in each 4-inch PVC conduit.

U. A 3/4-inch by 30-foot copperclad ground rod shall be driven in the bottom of each manhole. All bond wires and galvanized steel conduits shall be bonded to the ground rod.

END OF SECTION



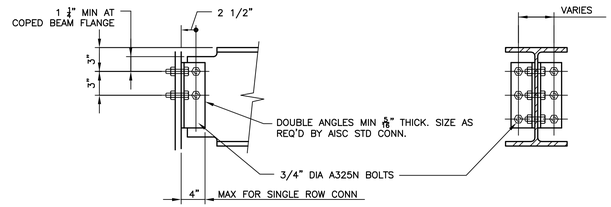
DETAIL A
NTS



DETAIL B
NTS

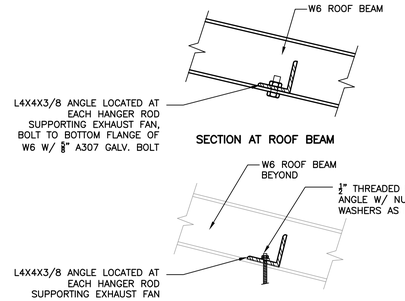
NOMINAL BEAM DEPTH, INCHES	ROWS OF BOLTS	LENGTH (3) OF ANGLE
6–10	2	5 1/2"

NOTE:
+ 3" DIMENSION TYP. EXCEPT AS RECOMMENDED BY AISC FOR LARGER MEMBERS.



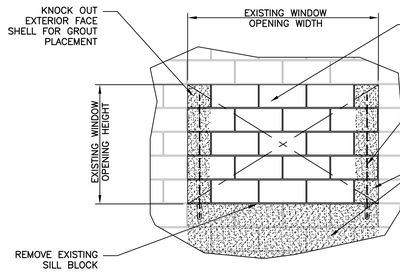
TYPICAL FRAMING CONNECTION

DETAIL C
NTS



SUPPORT AT EXHAUST FANS

DETAIL D
NTS



MASONRY INFILL AT WINDOW

DETAIL E
NTS

NOTES:
1. PAINT INTERIOR OF NEW MASONRY TO MATCH EXISTING.
2. EXTERIOR OF CMU SHALL RECEIVE A 3-COAT STUCCO WITH COLOR AND TEXTURE TO MATCH EXISTING. PROVIDE STUCCO JOINTS AT EXISTING MASONRY AND NEW MASONRY INTERFACE. NEW STUCCO TO RECEIVE WATERPROOF COATING.

REV	DATE	DESCRIPTION
E	5/2016	ADDENDUM NO 4
D	3/2016	ISSUED FOR BID
C	2/2016	100% DRAWINGS
B	7/30/15	90% DRAWINGS
A	1/16/15	60% DRAWINGS

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)

ORANGE COUNTY GOVERNMENT FLORIDA

ORANGE COUNTY
UTILITIES DEPARTMENT
ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825

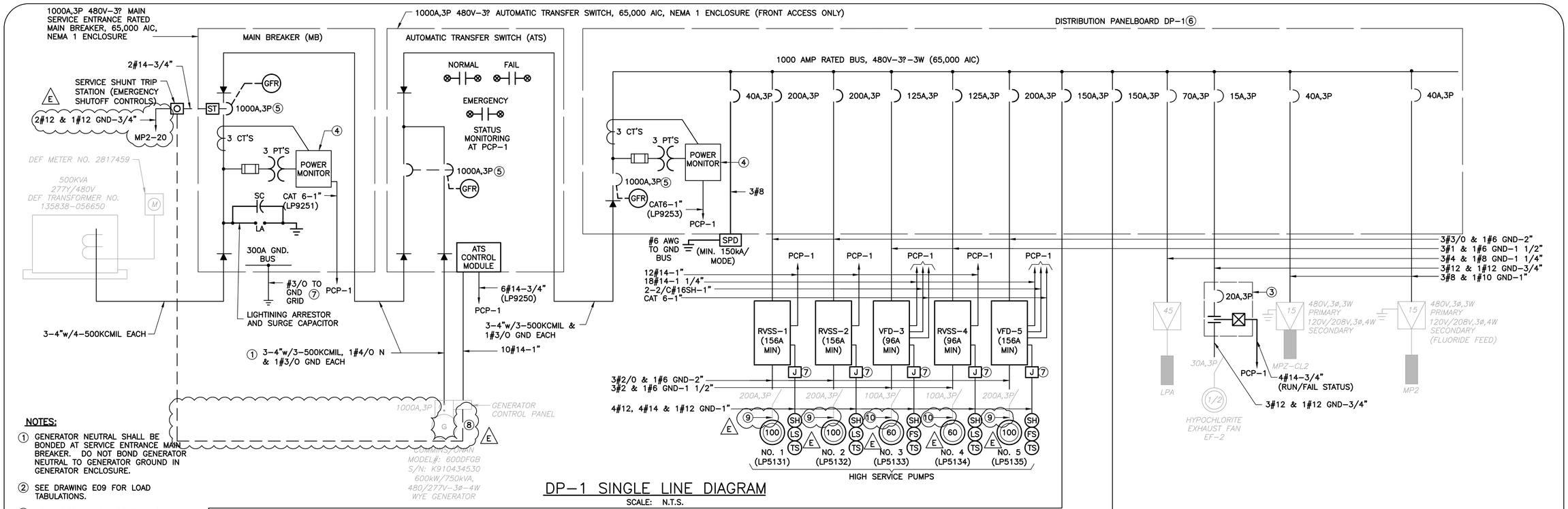
e/T Engineering Technologies, Inc.
Certificate of Authorization No. 8414
3551 W. Lake Mary Blvd, Suite 210
Lake Mary, FL 32746

ORANGE COUNTY
VISTANA WSF IMPROVEMENTS
STRUCTURAL
DETAILS

JOHN SOBCZAK, P.E.
PROFESSIONAL ENGINEER
FLORIDA LICENSE #71407

OCU FILE NO.: 68767
DESIGNED BY: JS
DRAWN BY: DM
CHECKED BY: BE
CADD FILE: S06.DWG

SCALE: NOTED
DRAWING NO.: S06
SHEET: 24 OF 75

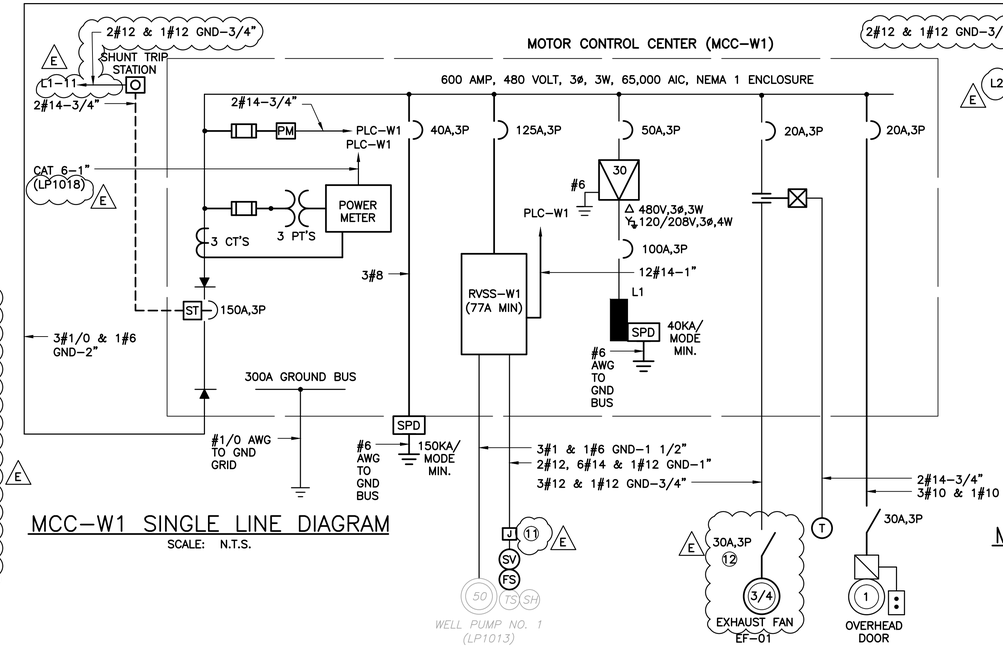


DP–1 SINGLE LINE DIAGRAM

SCALE: N.T.S.

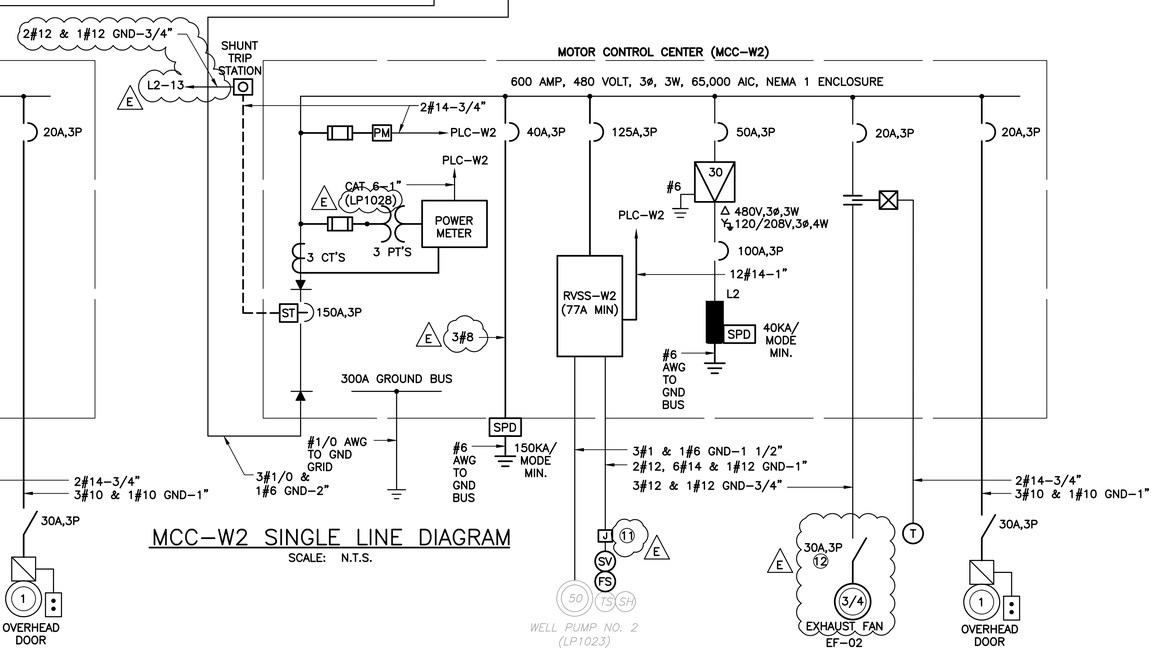
NOTES:

1. GENERATOR NEUTRAL SHALL BE BONDED AT SERVICE ENTRANCE MAIN BREAKER. DO NOT BOND GENERATOR NEUTRAL TO GENERATOR GROUND IN GENERATOR ENCLOSURE.
2. SEE DRAWING E09 FOR LOAD TABULATIONS.
3. NEMA SIZE 1 FVNR COMBINATION MOTOR STARTER/MOTOR CIRCUIT PROTECTOR IN NEMA 1 ENCLOSURE.
4. POWER MONITOR. SEE SPECIFICATION SECTION 16482 FOR REQUIREMENTS
5. 100% RATED CIRCUIT BREAKER.
6. PANELBOARD TO BE AN I–LINE HCM TYPE PANELBOARD. 1000A,3P PJ–FRAME MAIN BREAKER WITH TOTAL BREAKER MOUNTING SPACE TO BE NOT LESS THAN 72 INCHES. RATED AT 65,000 AIC. BRANCH BREAKERS RATED AT 65,000 AIC
   - 15A – 150A HJ FRAME
   - 150A – 250A JJ FRAME
   - 250A – 600A LJ FRAME
7. CONTRACTOR TO FIELD LOCATE AND TIE INTO EXISTING GROUND GRID.
8. CONTRACTOR SHALL COORDINATE WITH GENERATOR MANUFACTURER TO WIRE NORMALLY CLOSED CONTACT OF THE SHUNT TRIP STATION IN SERIES WITH THE EXISTING GENERATOR E–STOP IN THE EXISTING GENERATOR CONTROL PANEL. OR IF NOT AVAILABLE, WIRE NORMALLY CLOSED CONTACT OF THE SHUNT TRIP STATION IN SERIES WITH THE EXISTING GENERATOR START COMMAND.
9. 3#2/0 & 1#6 GND–IN EXISTING 2" CONDUIT.
10. 3#2 & 1#6 GND–IN EXISTING 1 1/2" CONDUIT.
11. NEMA 4X 316 SS J–BOX.
12. EXHAUST FAN DISCONNECT SWITCH SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR.



MCC–W1 SINGLE LINE DIAGRAM

SCALE: N.T.S.



MCC–W2 SINGLE LINE DIAGRAM

SCALE: N.T.S.

REV	DATE	DESCRIPTION
E	5/3/2016	ADDENDUM NO. 4
D	3/2016	ISSUED FOR BID
C	2/2016	100% DRAWINGS
B	7/30/15	90% DRAWINGS
A	1/16/15	60% DRAWINGS

LINE IS 2 INCHES AT FULL SIZE (IF NOT SCALE ACCORDINGLY)

ORANGE COUNTY GOVERNMENT FLORIDA

ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION

9150 CURRY FORD ROAD ORLANDO, FL. 32825

EDA Electrical Design Associates

4763 SOUTH CONWAY ROAD, STE. E
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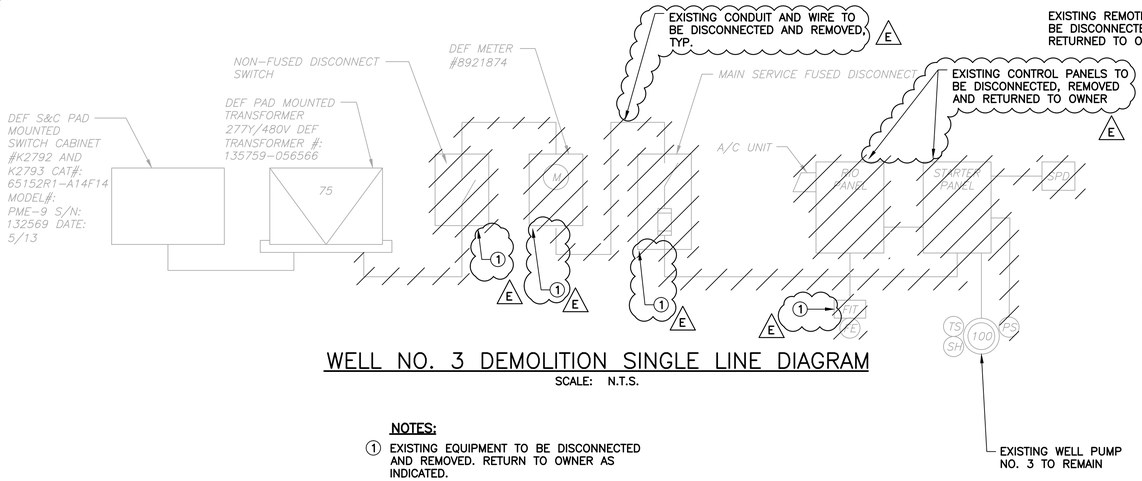
LILLIAN M. REYES, P.E.
Florida P.E. No. 50780

ORANGE COUNTY
VISTANA WSF IMPROVEMENTS
ELECTRICAL
DP-1 PROPOSED SINGLE LINE DIAGRAM

LILLIAN M. REYES, P.E.
PROFESSIONAL ENGINEER
FLORIDA LICENSE #50780

OCU FILE NO.: 68767
DESIGNED BY: DD
DRAWN BY: RRM
CHECKED BY: LMR
CADD FILE: E05.DWG

SCALE: NOTED
DRAWING NO. : E05
SHEET: 42 OF 75



WELL NO. 3 DEMOLITION SINGLE LINE DIAGRAM

SCALE: N.T.S.

NOTES:

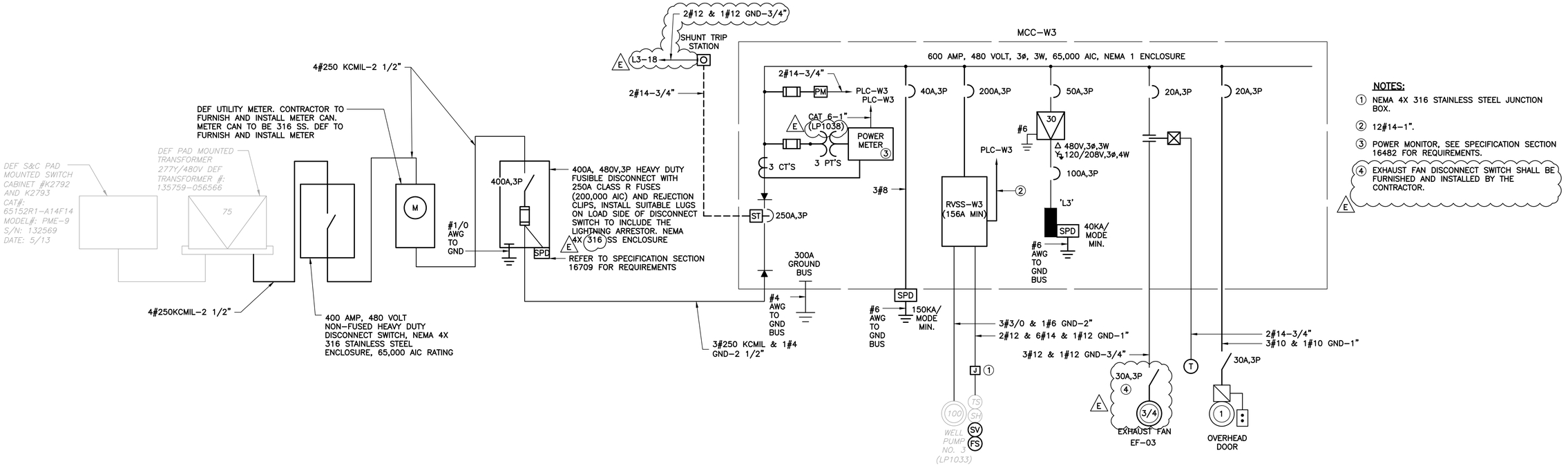
① EXISTING EQUIPMENT TO BE DISCONNECTED AND REMOVED. RETURN TO OWNER AS INDICATED.

WELL NO. 3 FIGURE NO. 1

SCALE: N.T.S.

WELL NO. 3 FIGURE NO. 2

SCALE: N.T.S.



WELL HOUSE NO. 3 MCC SINGLE LINE DIAGRAM

SCALE: N.T.S.

REV	DATE	DESCRIPTION
E	5/3/2016	ADDENDUM NO. 4
D	3/2016	ISSUED FOR BID
C	2/2016	100% DRAWINGS
B	7/30/15	90% DRAWINGS
A	1/16/15	60% DRAWINGS

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)

ORANGE COUNTY GOVERNMENT FLORIDA

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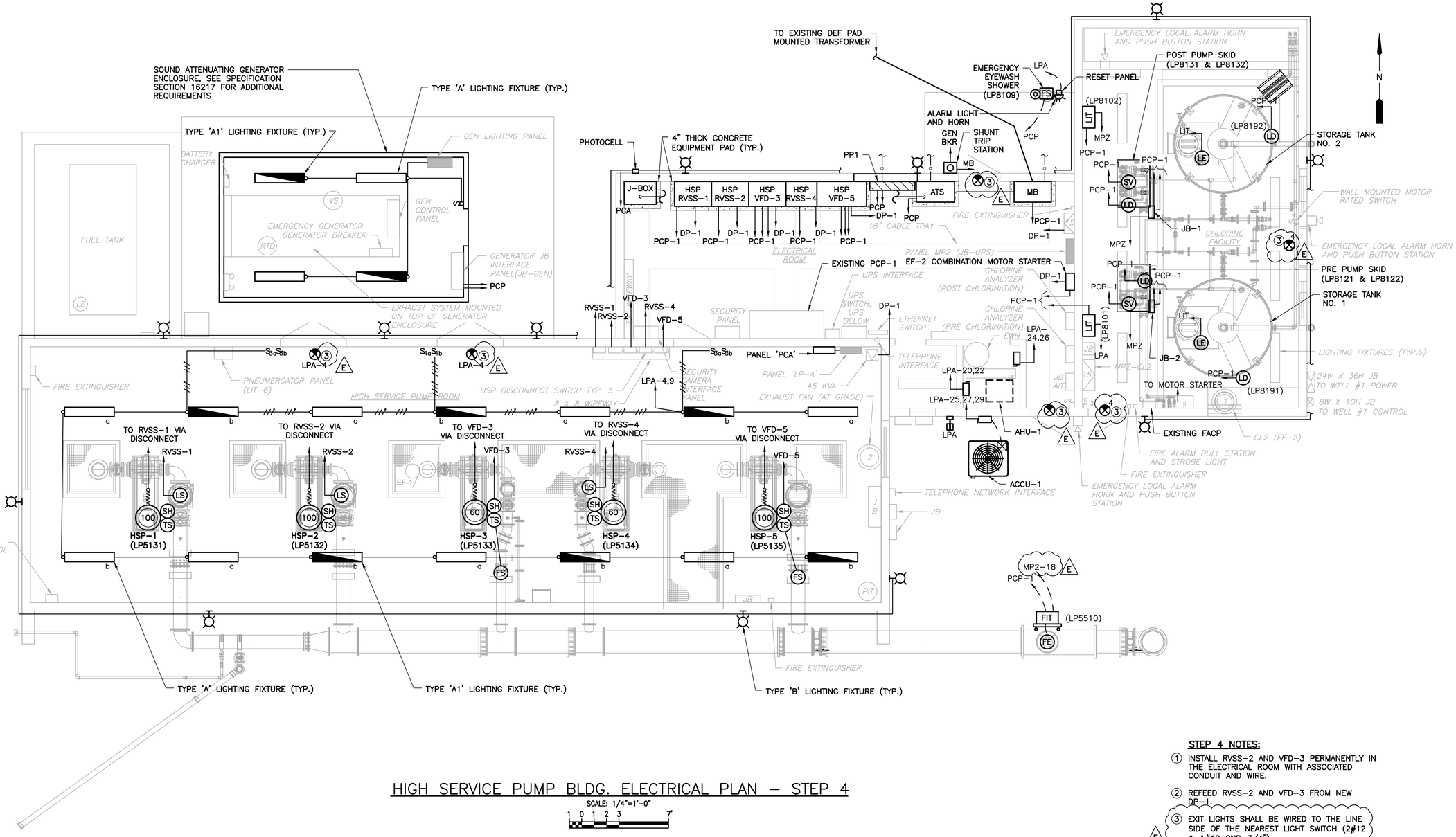
ORANGE COUNTY
VISTANA WSF IMPROVEMENTS
ELECTRICAL
WELL HOUSE NO. 3 SINGLE LINE DIAGRAM

LILLIAN M. REYES, P.E.
PROFESSIONAL ENGINEER
FLORIDA LICENSE #50780

OCU FILE NO.: 68767
DESIGNED BY: DD
DRAWN BY: RRM
CHECKED BY: LMR
CADD FILE: E06.DWG

SCALE: NOTED
DRAWING NO. : E06
SHEET: 43 OF 75



HIGH SERVICE PUMP BLDG. ELECTRICAL PLAN – STEP 4

SCALE: 1/4"=1'-0"

1 0 1 2 3 7'

STEP 4 NOTES:

1. INSTALL RVSS-2 AND VFD-3 PERMANENTLY IN THE ELECTRICAL ROOM WITH ASSOCIATED CONDUIT AND WIRE.
2. REFEED RVSS-2 AND VFD-3 FROM NEW DP-1.
3. EXIT LIGHTS SHALL BE WIRED TO THE LINE SIDE OF THE NEAREST LIGHT SWITCH (2#12 & 1#12 GND-3/4").

REV	DATE	DESCRIPTION
E	5/3/2016	ADDENDUM NO. 4
D	3/2016	ISSUED FOR BID
C	2/2016	100% DRAWINGS
B	7/30/15	90% DRAWINGS
A	1/16/15	60% DRAWINGS

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT SCALE ACCORDINGLY)

ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
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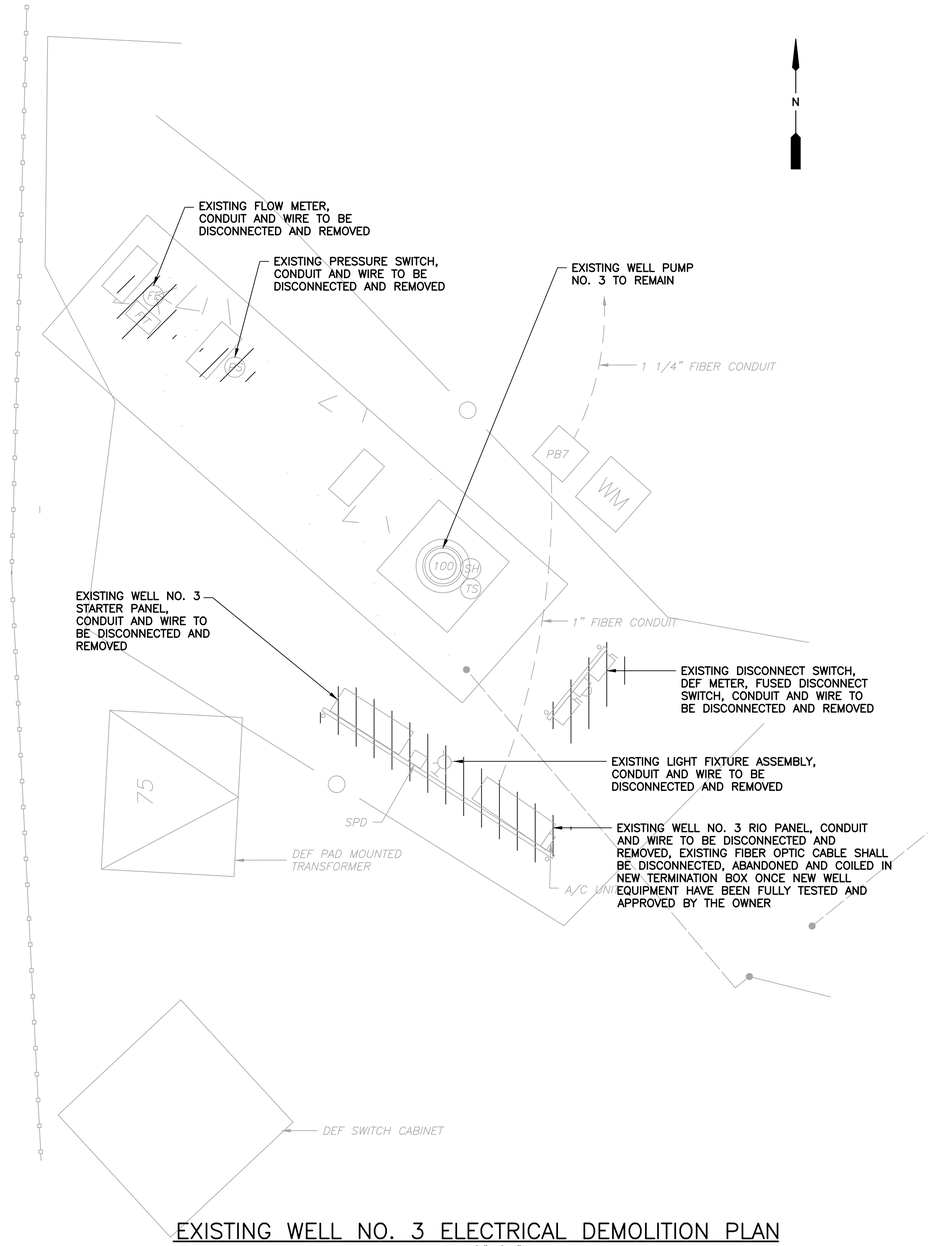
ORANGE COUNTY
VISTANA WSF IMPROVEMENTS
ELECTRICAL
HIGH SERVICE PUMP BUILDING ELECTRICAL PLAN - STEP 4

LILLIAN M. REYES, P.E.
PROFESSIONAL ENGINEER
FLORIDA LICENSE #50780

OCU FILE NO.: 68767
DESIGNED BY: DD
DRAWN BY: RRM
CHECKED BY: LMR
CADD FILE: E13.DWG

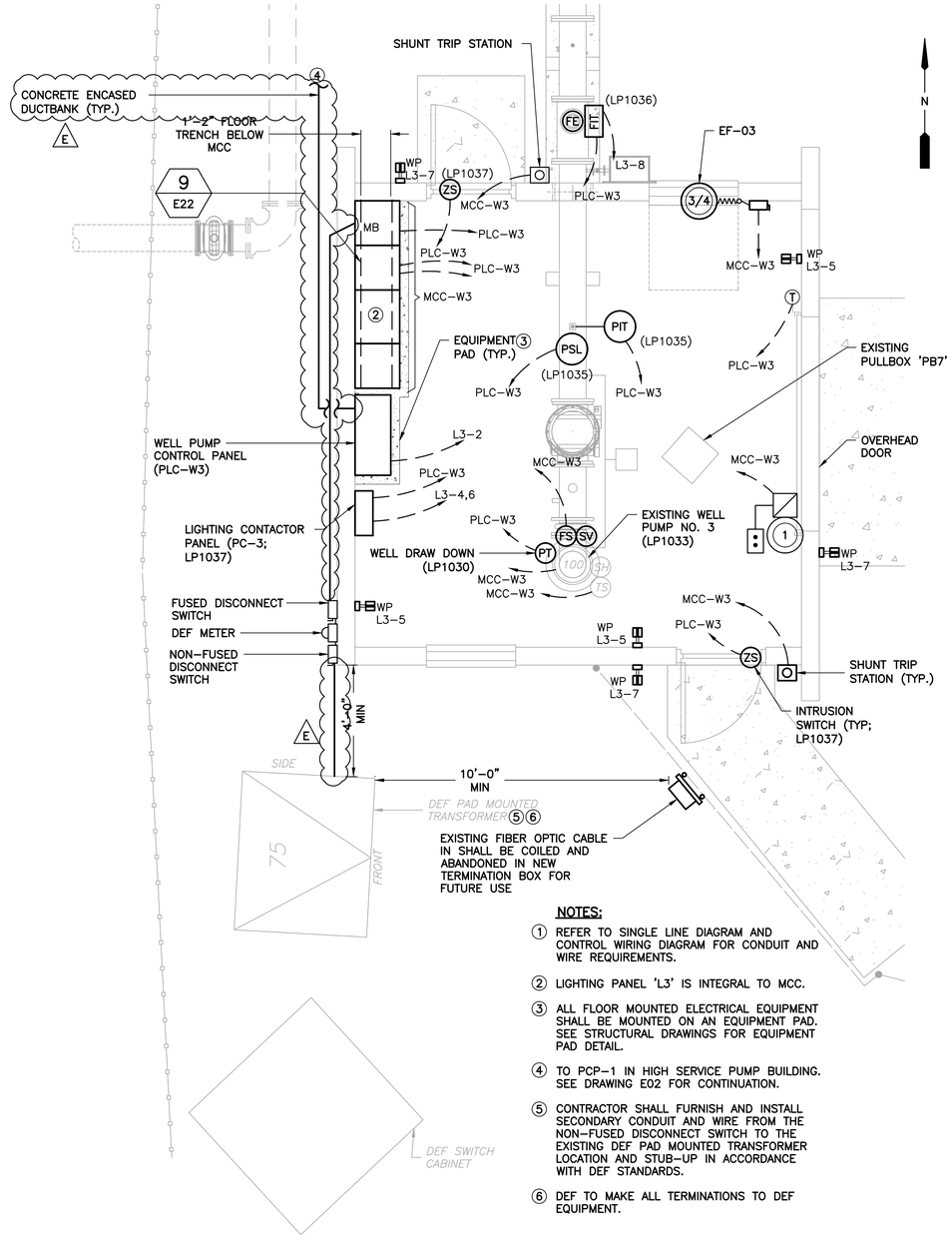
SCALE: NOTED
DRAWING NO. : E13
SHEET: 50 OF 75



EXISTING WELL NO. 3 ELECTRICAL DEMOLITION PLAN

SCALE: 3/8"=1'-0"

12" 0 1 2 4'



NOTES:

1. REFER TO SINGLE LINE DIAGRAM AND CONTROL WIRING DIAGRAM FOR CONDUIT AND WIRE REQUIREMENTS.
2. LIGHTING PANEL 'L3' IS INTEGRAL TO MCC.
3. ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT SHALL BE MOUNTED ON AN EQUIPMENT PAD. SEE STRUCTURAL DRAWINGS FOR EQUIPMENT PAD DETAIL.
4. TO PCP-1 IN HIGH SERVICE PUMP BUILDING. SEE DRAWING E02 FOR CONTINUATION.
5. CONTRACTOR SHALL FURNISH AND INSTALL SECONDARY CONDUIT AND WIRE FROM THE NON-FUSED DISCONNECT SWITCH TO THE EXISTING DEF PAD MOUNTED TRANSFORMER LOCATION AND STUB-UP IN ACCORDANCE WITH DEF STANDARDS.
6. DEF TO MAKE ALL TERMINATIONS TO DEF EQUIPMENT.

WELL HOUSE NO. 3 ELECTRICAL PLAN

SCALE: 3/8"=1'-0"

12" 0 1 2 4'

REV	DATE	DESCRIPTION
E	5/3/2016	ADDENDUM NO. 4
D	3/2016	ISSUED FOR BID
C	2/2016	100% DRAWINGS
B	7/30/15	90% DRAWINGS
A	1/16/15	60% DRAWINGS

LINE IS 2 INCHES AT FULL SIZE (IF NOT SCALE ACCORDINGLY)

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Florida P.E. No. 50780

ORANGE COUNTY
VISTANA WSF IMPROVEMENTS
ELECTRICAL
WELL HOUSE NO. 3 ELECTRICAL PLANS

LILLIAN M. REYES, P.E.
PROFESSIONAL ENGINEER
FLORIDA LICENSE #50780

OCU FILE NO.: 68767
DESIGNED BY: DD
DRAWN BY: RRM
CHECKED BY: LMR
CADD FILE: E17.DWG

SCALE: NOTED
DRAWING NO.: E17
SHEET: 54 OF 75

PANEL: EXISTING 'LPA' | BUS: 125 AMP | VOLT: 120/208–3?–4W
LOCATION: PUMP ROOM | MAINS: 125A, MB | REMARKS: –
MOUNTING: SURFACE | POLES: 30 | A.I.C. SYMM: –

AMPS	POLE	WIRE	GND.	COND.	LOAD SERVED	BUS KVA A	BUS KVA B	BUS KVA C	BUS A B C	BUS KVA A	BUS KVA B	BUS KVA C	LOAD SERVED	WIRE	GND.	COND.	POLE	AMPS	
20	1	–	–	–	OFFICE LIGHTING	0.50			1 2	0.54			OFFICE RECPT	–	–	–	1	20	
20	1	–	–	–	CL2 ROOM LIGHTS		0.50		3 4		0.70		PUMP ROOM LIGHTS	12	12	3/4"			
20	1	–	–	–	POST CL2 ANALYZER			0.10	5 6			0.30	CAMERA BOX	–	–	–	1	20	
20	1	–	–	–	OFFICE & CL2 RM RECEPT	0.90			7 8	0.50			UPS–PCP	–	–	–	1	20	
20	1	–	–	–	PUMP RM. LIGHTS		0.70		9 10		0.66		SOFFIT LIGHTS	–	–	–	1	20	
20	1	–	–	–	PUMP RM. RECEPT. EAST			0.54	11 12			0.66	SOFFIT LIGHTS	–	–	–	1	20	
20	1	–	–	–	PUMP RM. RECPT. WEST	0.54			13 14	0.50			NON–UPS PCP	–	–	–	1	20	
20	1	–	–	–	TANK RECEPT./WELL LTG.		0.30		15 16		0.16		LTG CONTACTOR PNL PCA	10	10	1"	2	30	①
20	2	–	–	–	GATE POWER			0.50	17 18			0.16	–	–	–	–	–	–	①
–	–	–	–	–	–	0.50			19 20	0.50			AHU–1	12	12	3/4"	2	15	③
20	1	–	–	–	FUEL LEVEL MONITOR		0.20		21 22		0.50		–	–	–	–	–	–	
② 20	1	10	10	1"	LIGHT POLE RECEPTACLES			1.08	23 24			0.70	WATER HEATER	–	–	–	2	30	
② –	–	–	–	–	–	0.50			25 26	0.70			–	–	–	–	–	–	
② 35	3	8	10	1"	ACCU–1		0.50		27 28		1.00		GEN LIGHTING PANEL 'LB'	–	–	–	2	50	
–	–	–	–	–	–			0.50	29 30			1.00	–	–	–	–	–	–	
TOTAL (PHASE):						2.94	2.20	2.72		2.74	3.02	2.82	NOTES:						
TOTAL KVA:									16.44										
TOTAL AMPS:									45.63										
TOTAL DEMAND AMPS:									45.63										

① EXIST. 20A,1P CIRCUIT BREAKER TO BE REPLACED WITH NEW 30A,2P BREAKER.

② EXIST. 45A,2P & 20A,2P CIRCUIT BREAKERS TO BE REPLACED WITH NEW 35A,3P CIRCUIT BREAKER.

③ EXIST. 30A,2P CIRCUIT BREAKER TO BE REPLACED WITH NEW 15A,2P CIRCUIT BREAKER.

PANEL: EXISTING MPZ–CL2 | BUS: 100 AMP | VOLT: 120/208–3?–4W
LOCATION: CL2 ROOM | MAINS: 50A–3P | REMARKS: –
MOUNTING: SURFACE | POLES: 24 | A.I.C. SYMM: –

AMPS	POLE	WIRE	GND.	COND.	LOAD SERVED	BUS KVA A	BUS KVA B	BUS KVA C	BUS A B C	BUS KVA A	BUS KVA B	BUS KVA C	LOAD SERVED	WIRE	GND.	COND.	POLE	AMPS	
–	–	–	–	–	–	–			1 2	–			N/A	–	–	–	–	–	
50	3	–	–	–	MAIN CIRCUIT BREAKER		–		3 4		–		N/A	–	–	–	–	–	
–	–	–	–	–	–			–	5 6			–	N/A	–	–	–	–	–	
20	2	–	–	–	MIXING PUMP	0.50			7 8	–			SPACE	–	–	–	–	–	
–	–	–	–	–			0.50		9 10		0.70		CONTROL PANEL	–	–	–	1	20	
20	1	12	12	3/4"	LIT–1 LP8101			0.10	11 12			0.50	POST HYPO SKID	12	12	3/4"	1	20	
20	1	12	12	3/4"	LIT–2 LP8102 E	0.10			13 14	0.50			PRE HYPO SKID	12	12	3/4"	1	20	
20	1	–	–	–	ANALYZER		0.10		15 16		0.30		FIRE ALARM	–	–	–	1	20	
20	1	–	–	–	SPARE			–	17 18			–	SPARE	–	–	–	1	20	
–	–	–	–	–	SPACE	–			19 20	–			SPACE	–	–	–			
–	–	–	–	–	SPACE		–		21 22		–		SPACE	–	–	–			
–	–	–	–	–	SPACE			–	23 24			–	SPACE	–	–	–			
TOTAL (PHASE):						0.60	0.60	0.10		0.50	1.00	0.50	NOTES:						
TOTAL KVA:									3.30										
TOTAL AMPS:									9.15										
TOTAL DEMAND AMPS:									9.15										

PANEL: L1 | BUS: 100 AMP | VOLT: 208/120V–3ø–4W
LOCATION: WELL HOUSE NO. 1 | MAINS: 100A,3P | REMARKS: PROVIDE SPD
MOUNTING: MCC | POLES: 30 | A.I.C. SYMM: 10,000

AMPS	POLE	WIRE	GND.	COND.	LOAD SERVED	BUS KVA A	BUS KVA B	BUS KVA C	BUS A B C	BUS KVA A	BUS KVA B	BUS KVA C	LOAD SERVED	WIRE	GND.	COND.	POLE	AMPS
20	2	–	–	–	SPARE	1.25			1 2	0.50			PLC–W1	12	12	3/4"	1	20
–	–	–	–	–	–		1.25		3 4		0.16		LTG. CONTACTOR (PC–1)	10	10	1"	2	30
20	1	12	12	3/4"	INTERIOR RECEPT.			0.54	5 6			0.16	–	–	–	–	–	–
20	1	12	12	3/4"	EXTERIOR RECEPT.	0.54			7 8	0.10			FIT	12	12	3/4"	1	20
20	1	12	12	3/4"	INTERIOR LIGHTING		0.29		9 10		0.10		EXIT SIGN	12	12	3/4"	1	20
20	1	12	12	3/4"	SHUNT TRIP	0.10			11 12			–	SPARE	–	–	–	1	20
20	1				SPARE E		–		13 14	–			SPARE	–	–	–	1	20
20	1	–	–	–	SPARE			–	15 16		–		SPARE	–	–	–	1	20
20	1	–	–	–	SPARE	–			17 18			–	SPARE	–	–	–	1	20
–	–	–	–	–	SPACE		–		19 20	–			SPARE	–	–	–	1	20
–	–	–	–	–	SPACE			–	21 22		–		SPACE	–	–	–		
–	–	–	–	–	SPACE	–			23 24			–	SPACE	–	–	–		
–	–	–	–	–	SPACE		–		25 26	0.10			SPD	10	10	–	3	30
–	–	–	–	–	SPACE			–	27 28		0.10		–	–	–	–	–	–
–	–	–	–	–	SPACE				29 30			0.10	–	–	–	–	–	–
TOTAL (PHASE):						1.79	1.54	1.24 E		0.70	0.36	0.26	NOTES:					
TOTAL KVA:									5.89									
TOTAL AMPS:									16.37									
TOTAL DEMAND AMPS:									16.37 E									

MIN. 40KA/MODE → SPD

PANEL: L2 | BUS: 100 AMP | VOLT: 208/120V–3?–4W
LOCATION: WELL HOUSE NO. 2 | MAINS: 100A,3P | REMARKS: PROVIDE SPD
MOUNTING: MCC | POLES: 30 | A.I.C. SYMM: 10,000

AMPS	POLE	WIRE	GND.	COND.	LOAD SERVED	BUS KVA A	BUS KVA B	BUS KVA C	BUS A B C	BUS KVA A	BUS KVA B	BUS KVA C	LOAD SERVED	WIRE	GND.	COND.	POLE	AMPS
20	2	–	–	–	SPARE	1.25			1 2	0.50			PLC–W2	12	12	3/4"	1	20
–	–	–	–	–	–		1.25		3 4		0.16		LTG. CONTACTOR (PC–2)	10	10	1"	2	30
20	1	12	12	3/4"	INTERIOR RECEPT.			0.54	5 6			0.16	–	–	–	–	–	–
20	1	12	12	3/4"	EXTERIOR RECEPT.	0.54			7 8	0.10			FIT	12	12	3/4"	1	20
20	1	12	12	3/4"	INTERIOR LIGHTING		0.29		9 10		0.10		EXIT SIGN	12	12	3/4"	1	20
20	1	12	12	3/4"	EMERGENCY EYEWASH			0.60	11 12			–	SPARE	–	–	–	1	20
20	1	12	12	3/4"	SHUNT TRIP	0.10			13 14	–			SPARE	–	–	–	1	20
20	1				SPARE E		–		15 16		–		SPARE	–	–	–	1	20
20	1	–	–	–	SPARE			–	17 18			–	SPARE	–	–	–	1	20
20	1	–	–	–	SPARE	–			19 20	–			SPARE	–	–	–	1	20
–	–	–	–	–	SPACE		–		21 22		–		SPACE	–	–	–		
–	–	–	–	–	SPACE			–	23 24			–	SPACE	–	–	–		
–	–	–	–	–	SPACE	–			25 26	0.10			SPD	10	10	–	3	30
–	–	–	–	–	SPACE		–		27 28		0.10		–	–	–	–	–	–
–	–	–	–	–	SPACE				29 30			0.10	–	–	–	–	–	–
TOTAL (PHASE):						1.89 E	1.54	1.14		0.70	0.36	0.26	NOTES:					
TOTAL KVA:									5.89									
TOTAL AMPS:									16.37									
TOTAL DEMAND AMPS:									16.37 E									

MIN. 40KA/MODE → SPD

PANEL: L3 | BUS: 100 AMP | VOLT: 208/120V–3?–4W
LOCATION: WELL HOUSE NO. 3 | MAINS: 100A,3P | REMARKS: PROVIDE SPD
MOUNTING: MCC | POLES: 30 | A.I.C. SYMM: 10,000

AMPS	POLE	WIRE	GND.	COND.	LOAD SERVED	BUS KVA A	BUS KVA B	BUS KVA C	BUS A B C	BUS KVA A	BUS KVA B	BUS KVA C	LOAD SERVED	WIRE	GND.	COND.	POLE	AMPS
20	2	–	–	–	SPARE	1.25			1 2	0.50			PLC–W3	12	12	3/4"	1	20
–	–	–	–	–	–		1.25		3 4		0.59		LTG. CONTACTOR (PC–3)	10	10	1"	2	30
20	1	12	12	3/4"	INTERIOR RECEPT.			0.54	5 6			0.16	–	–	–	–	–	–
20	1	12	12	3/4"	EXTERIOR RECEPT.	0.54			7 8	0.10			FIT	12	12	3/4"	1	20
20	1	12	12	3/4"	INTERIOR LIGHTING		0.29		9 10		0.10		EXIT SIGN	12	12	3/4"	1	20
20	1	12	12	3/4"	EMERGENCY EYEWASH			0.60	11 12			–	SPARE	–	–	–	1	20
20	1	12	12	3/4"	SHUNT TRIP	0.10			13 14	–			SPARE	–	–	–	1	20
20	1				SPARE E		–		15 16		–		SPARE	–	–	–	1	20
20	1	–	–	–	SPARE			–	17 18			–	SPARE	–	–	–	1	20
20	1	–	–	–	SPARE	–			19 20	–			SPARE	–	–	–	1	20
–	–	–	–	–	SPACE		–		21 22		–		SPACE	–	–	–		
–	–	–	–	–	SPACE			–	23 24			–	SPACE	–	–	–		
–	–	–	–	–	SPACE	–			25 26	0.10			SPD	10	10	–	3	30
–	–	–	–	–	SPACE		–		27 28		0.10		–	–	–	–	–	–
–	–	–	–	–	SPACE				29 30			0.10	–	–	–	–	–	–
TOTAL (PHASE):						1.89 E	1.54	1.14		0.70	0.79	0.26	NOTES:					
TOTAL KVA:									5.89									
TOTAL AMPS:									16.37									
TOTAL DEMAND AMPS:									16.37 E									

MIN. 40KA/MODE → SPD

PANEL: EXISTING 'MP2' | BUS: 100 AMP | VOLT: 120/208–3ø–4W
LOCATION: HSP BLDG. ELECTRICAL ROOM | MAINS: 60A, MB | REMARKS: –
MOUNTING: SURFACE | POLES: 30 | A.I.C. SYMM: –

AMPS	POLE	WIRE	GND.	COND.	LOAD SERVED	BUS KVA A	BUS KVA B	BUS KVA C	BUS A B C	BUS KVA A	BUS KVA B	BUS KVA C	LOAD SERVED	WIRE	GND.	COND.	POLE	AMPS	
60	3	–	–	–	MAIN	–			1 2	–			SPACE	–	–	–	–	–	
–	–	–	–	–	–		–		3 4		–		SCAPE	–	–	–	–	–	
–	–	–	–	–	–			–	5 6			–	SPACE	–	–	–	–	–	
20	1	12	12	3/4"	FLUORIDE LIGHTS	0.22			7 8	0.50			FLUORIDE SKID E	12	12	3/4"	1	20	
20	1	12	12	3/4"	FLUORIDE RECEPTS		0.36		9 10		0.10		FLUORIDE FIRE ALARM				1	20	
20	1	12	12	3/4"	FLUORIDE LIT (LP8201)			0.10	11 12			0.20	FLUORIDE EYEWASH	12	12	3/4"	1	20	
20	1	12	12	3/4"	FLUORIDE SCALE	0.10			13 14	0.50			JB GEN	–	–	–	1	20	
20	1	12	12	3/4"	HOT BOX ENCLOSURE RECEPT		0.18		15 16	1.00			FLUORIDE SPRINKLER COMP	12	12	3/4"	1	20	
20	2	–	–	–	SPARE			–	17 18		0.10		FIT LP5510	12	12	3/4"	1	20	
–	–	–	–	–	SPACE	–			19 20	0.10			MAIN SHUNT TRIP	12	12	3/4"	1	20	E
–	–	–	–	–	SPACE		–		21 22				SPARE						
–	–	–	–	–	SPACE			–	23 24			–	SPACE	–	–	–			
–	–	–	–	–	SPACE	–			25 26	–			SPACE	–	–	–			
–	–	–	–	–	SPACE		–		27 28		–		SPACE	–	–	–			
–	–	–	–	–	SPACE			–	29 30			–	SPACE	–	–	–			
TOTAL (PHASE):						0.32	0.54	0.10		1.10 E	0.20 E	0.30 E	NOTES:						
TOTAL KVA:									2.56										
TOTAL AMPS:									7.11										
TOTAL DEMAND AMPS:									7.11 E										

REV	DATE	DESCRIPTION
E	5/3/2016	ADDENDUM NO. 4
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B	7/30/15	90% DRAWINGS
A	1/16/15	60% DRAWINGS

LINE IS 2 INCHES AT FULL SIZE (IF NOT SCALE ACCORDINGLY)

ORANGE COUNTY GOVERNMENT FLORIDA

ORANGE COUNTY UTILITIES DEPARTMENT ENGINEERING DIVISION
9150 CURRY FORD ROAD ORLANDO, FL. 32825

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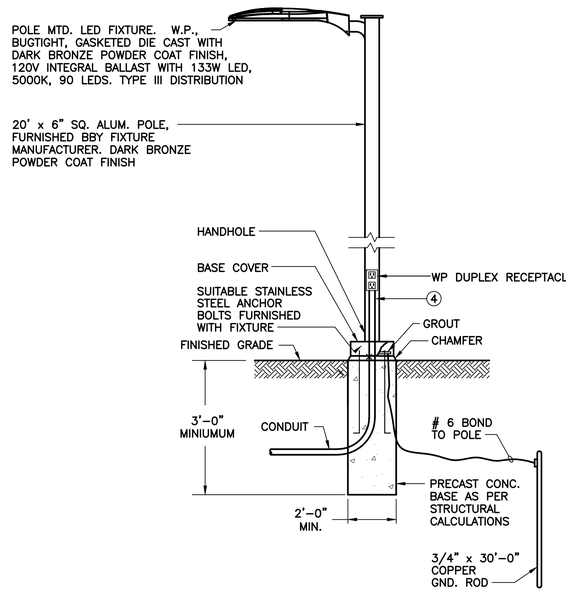
ORANGE COUNTY
VISTANA WSF IMPROVEMENTS
ELECTRICAL
PANEL SCHEDULES

LILLIAN M. REYES, P.E.
PROFESSIONAL ENGINEER
FLORIDA LICENSE #50780

OCU FILE NO.: 68767
DESIGNED BY: DD
DRAWN BY: RRM
CHECKED BY: LMR
CADD FILE: E19.DWG

SCALE: NOTED
DRAWING NO.: E19
SHEET: 56 OF 75

F:\Active Projects\Reiss Engineering\Orange County (FL)-900_PH\Vistana WSP\11_Addendum No. 3\dwgs\E19.dwg, R17, 5/3/2016 3:51:11 PM, dmartin



1 / E20 TYPE 'C' SITE LIGHTING POLE DETAIL

SCALE: N.T.S.

NOTES:

1. LIGHT SHALL BE FUSED IN-LINE WITH BUSS TRON IN-LINE WP. FUSEHOLDER WITH WEATHERPROOF BOOT CAP AND 10 AMP ONE TIME FUSE.
2. CONTRACTOR TO PROVIDE STRUCTURAL AND FOOTING DETAILED DRAWINGS AND WIND LOAD CALCULATIONS SIGNED AND SEALED BY A LICENSED STATE OF FLORIDA STRUCTURAL ENGINEER IN ACCORDANCE WITH THE FLORIDA BUILDING CODE.
3. DETAIL AS SHOWN IS NOT INTENDED AS AN INSTALLATION BUT RATHER A GUIDE. ACTUAL INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED BY THE STRUCTURAL CALCULATIONS, SEE NOTE 2.
4. CONDUIT SHALL BE INSTALLED EXTERIOR OF POLE.

LIGHTING FIXTURE SCHEDULE

TYPE	WATT	DESCRIPTION
A	50	4 FT. ONE-PIECE SEAM WRAP AROUND POLYCARBONATE LENS, SURFACE MOUNTED FIXTURE WITH 16 GAUGE COLD ROLLED STEEL BASEPLATE WITH SIX-POINT MOUNTING, 5000K LED 5W WITH DIMMER CONSTANT CURRENT LED DRIVER, U.L. LISTED FOR DAMP AND WET LOCATIONS 120V.
A1	50	SAME AS TYPE 'A', EXCEPT WITH EMERGENCY BATTERY PACK. E
B	71	FULL CUT-OFF WALLPACK. DECORATIVE, DIE-CAST ALUMINUM HOUSING AND DOOR. WHITE POWDER PAINT FINISHES PROVIDING A LASTING APPEARANCE IN OUTDOOR ENVIRONMENTS. 30 HIGH POWER LEDS, 4673 LUMENS. 4000K/70 CRI. 120V, TYPE III DISTRIBUTION.
C	133	SEE TYPE 'C' SITE LIGHTING POLE DETAIL, THIS SHEET.
D	50	4 FT. LONG, SURFACE MOUNTED, 4100K LED, 120V, ONE PIECE 5VA FIBERGLASS HOUSING, LOW-PROFILE ENCLOSED AND GASKETED INDUSTRIAL FIXTURE, POLYCARBONATE LATCHES, 100% IMPACT MODIFIED FROSTED ACRYLIC LENS WITH LINEAR RIBS, U.L. LISTED FOR DAMP AND WET LOCATIONS.
4X	36	LED EMERGENCY FIXTURE WITH FULLY GASKETED NEMA 4X RATED PVC HOUSING. LEAD ACID BATTERY FOR 90 MINUTES MINIMUM EMERGENCY AUTO-CHARGING BACKUP WITH TEST SWITCH, TWO HEADS W/18 WATT PER HEAD, 120V, CORROSION RESISTANT HARDWARE.
	5	LED EXIT SIGN WITH CAST ALUMINUM HOUSING AND ALUMINUM STENCIL FACE, BLACK BAKED ENAMEL FINISH, SEALED NICKEL CADMIUM BATTERY, SELF CONTAINED AND AUTO-CHARGING, WALL OR CEILING MOUNTED AS REQUIRED, 120V.
4		NEMA 4X, SUITABLE FOR USE IN DAMP LOCATIONS, WATERTIGHT AND DUST-TIGHT SEAL, CORROSION RESISTANT POLYCARBONATE HOUSING AND COVER, RED HIGH OUTPUT LEDS, MAINTENANCE FREE NICKEL CADIUM BATTERY, EXIT SIGNS. 120VOLTS

E

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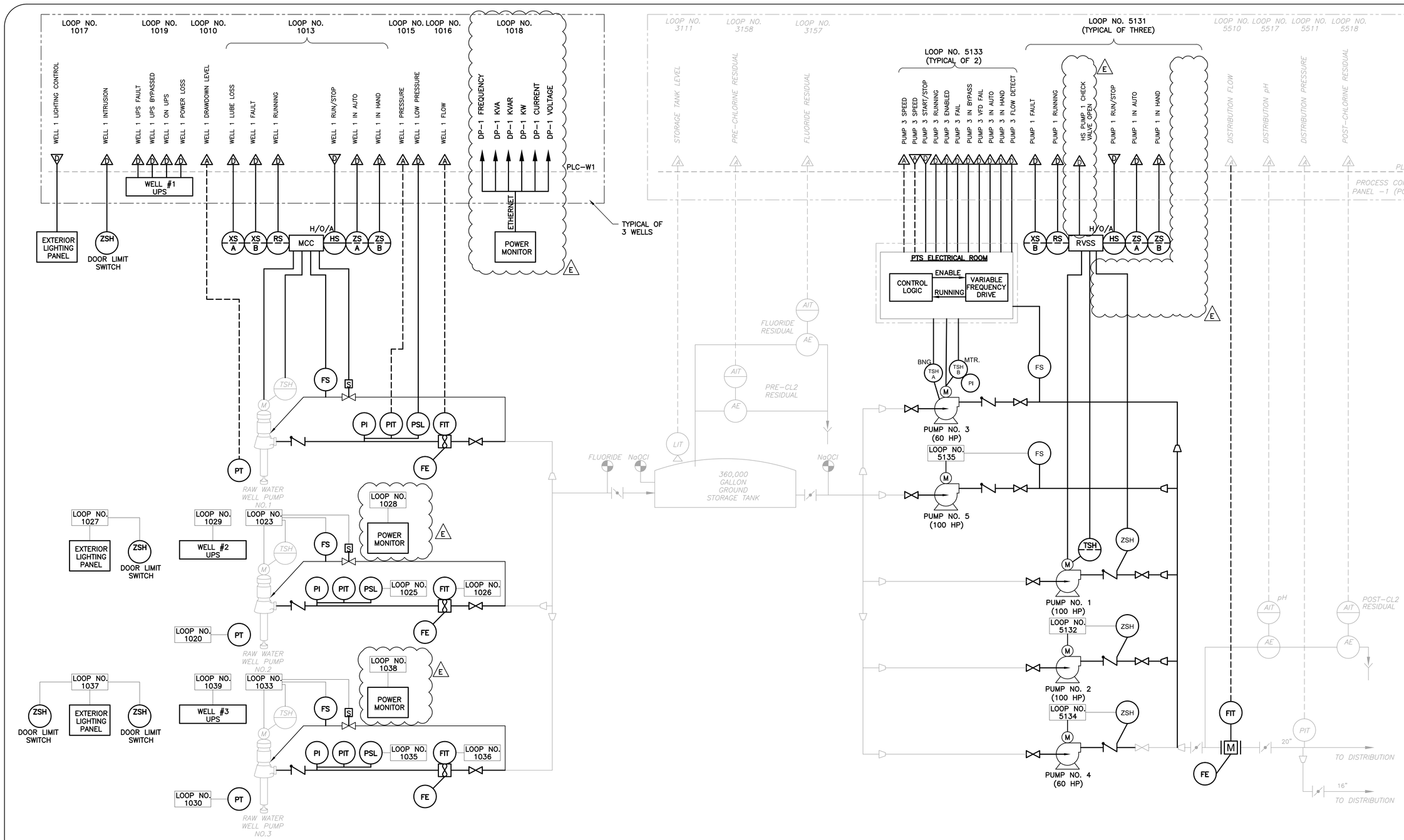
ORANGE COUNTY
VISTANA WSF IMPROVEMENTS
ELECTRICAL
LIGHTING FIXTURE SCHEDULE AND DETAILS

LILLIAN M. REYES, P.E.
PROFESSIONAL ENGINEER
FLORIDA LICENSE #50780

OCU FILE NO.: 68767
DESIGNED BY: DD
DRAWN BY: RRM
CHECKED BY: LMR
CADD FILE: E20.DWG

SCALE: NOTED
DRAWING NO. : E20
SHEET: 57 OF 75



TREATMENT PROCESSES

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ORANGE COUNTY
VISTANA WSF IMPROVEMENTS
INSTRUMENTATION & CONTROLS
P&ID SHEET 1

LILLIAN M. REYES, P.E.
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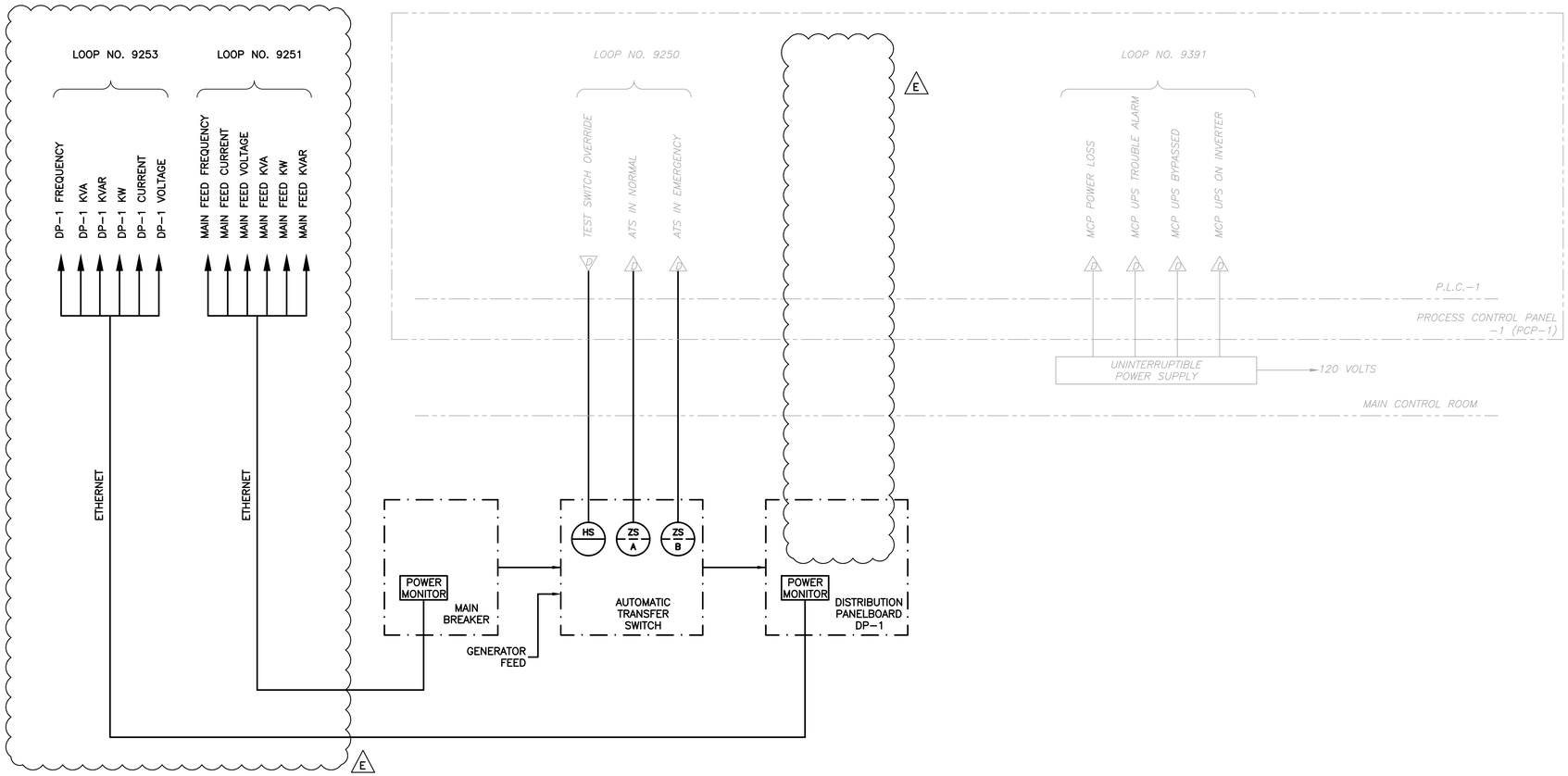
FLORIDA LICENSE #50780

OCU FILE NO.: 68767
DESIGNED BY: JRN
DRAWN BY: JRN
CHECKED BY: LMR
CADD FILE: I02.DWG

SCALE: NOTED
DRAWING NO.: I02
SHEET: 61 OF 75



POWER FEEDERS

REV	DATE	DESCRIPTION
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ORANGE COUNTY GOVERNMENT FLORIDA

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ORANGE COUNTY
VISTANA WSF IMPROVEMENTS
INSTRUMENTATION & CONTROLS
P&ID SHEET 4

LILLIAN M. REYES, P.E.
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FLORIDA LICENSE #50780

OCU FILE NO.: 68767
DESIGNED BY: JRN
DRAWN BY: JRN
CHECKED BY: LMR
CADD FILE: I05.DWG

SCALE: NOTED
DRAWING NO. : I05
SHEET: 64 OF 75

EXISTING PROCESS CONTROL PANEL NO. 1 (PCP–1)

VISTANA PROCESS CONTROL PANEL–1 (PCP–1) (DROP #2)

VISTANA PROCESS CONTROL PANEL–1 (PCP–1) (DROP #1)

MODICON 16 POSITION BACKPLANE 140XBP01600

MODICON QUANTUM PLC 140CPU11303

MODICON ETHERNET MODULE 140NOE77101

MODICON REMOTE I/O HEAD 140CRP93100

RJ–45

SW–2

MODICON F CONNECTOR MA–0329–001

MODICON F CONNECTOR MA–0329–001

MODICON TAP PORT TERMINATOR 52–0402–000

(IN) (OUT)

MODICON I/O TAP MA–185–100

MODICON F CONNECTOR MA–0329–001

MODICON 10 POSITION BACKPLANE 140XBP01000

MODICON REMOTE I/O DROP 140CRA93100

MODICON F CONNECTOR MA–0329–001

POWERLOGIC ETHERNET GATEWAY EGX100SD

RS232

RS422/485

RJ–45

TO ATS

SW–1

RJ–45

ENET

TO PANEL PC

TO ROUTER SYSTEM

TO SECURITY SYSTEM

NOE

COMP

ROUT

SEC

1 2 3 4 5 6 7 8

RJ–45 (TYPICAL)

CATALYST 2940 SWITCH

EGX

1 2 3 4 5 6 FIBER PORT #1 Tx Rx 5 6 FIBER PORT #2 Tx Rx 7 FIBER PORT #3 Tx Rx 8 FIBER PORT #4 Tx Rx

TO WELL #2 PLC–W2

TO WELL #3 PLC–W3

CORNING WIC–012 FIBER BOX

H.S. PUMP NO. 3 VFD

H.S. PUMP NO. 5 VFD

MAIN BREAKER POWER MONITOR

DIST. PANEL DP–1 POWER MONITOR

E

RAW WATER WELL NO. 1 PLC (PLC–W1)

WELL NO.1 POWER MONITOR

1 2 3 4 FIBER PORT #1 Tx Rx

RAW WATER WELL NO. 1 (TYPICAL OF THREE WELLS)

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ORANGE COUNTY
VISTANA WSF IMPROVEMENTS
INSTRUMENTATION & CONTROLS
CONTROL SYSTEM COMMUNICATIONS

LILLIAN M. REYES, P.E.
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FLORIDA LICENSE #50780

OCU FILE NO.: 68767
DESIGNED BY: JRN
DRAWN BY: JRN
CHECKED BY: LMR
CADD FILE: I07.DWG

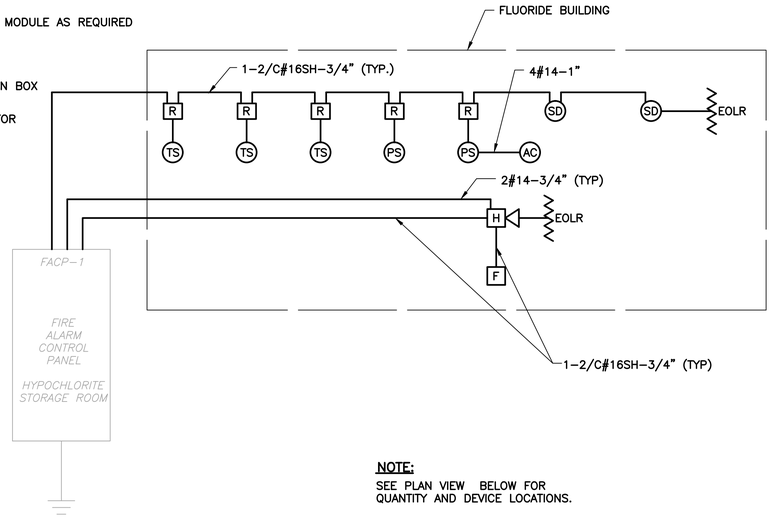
SCALE: NOTED
DRAWING NO. : I07
SHEET: 66 OF 75

FIRE EQUIPMENT FUNCTION SYMBOLS

FACP	FIRE ALARM CONTROL PANEL	I	ISOLATION MODULE
FAAP	FIRE ALARM ANNUNCIATOR PANEL	CR	ADDRESSABLE RELAY MODULE AS REQUIRED
H	HORN / STROBE	MX	ADDRESSABLE INPUT MODULE AS REQUIRED
L	STROBE LIGHT	R	CONTROL RELAY
F	PULL STATION	FAJB	FIRE ALARM JUNCTION BOX
SD	SMOKE DETECTOR	EOLR	END OF LINE RESISTOR
DD	DUCT DETECTOR	AC	AIR COMPRESSOR
FS	FLOW SWITCH		
TS	TAMPER SWITCH		
PS	PRESSURE SWITCH		

FUNCTION SYMBOLS AND ABBREVIATIONS

ELOR END OF LINE RESISTOR
TP TWISTED PAIR CABLE
TSP TWISTED SHIELDED PAIR CABLE
TYP TYPICAL

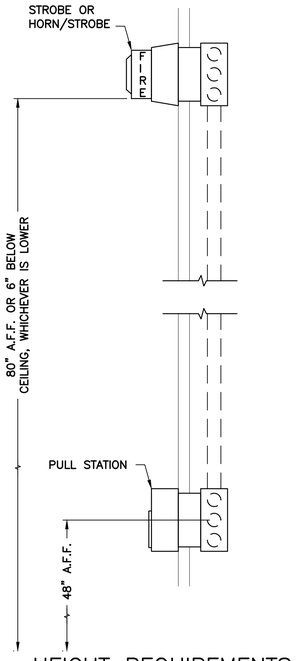


NOTE:
SEE PLAN VIEW BELOW FOR QUANTITY AND DEVICE LOCATIONS.

NORTH HYPOCHLORITE STORAGE BUILDING FIRE ALARM RISER DIAGRAM

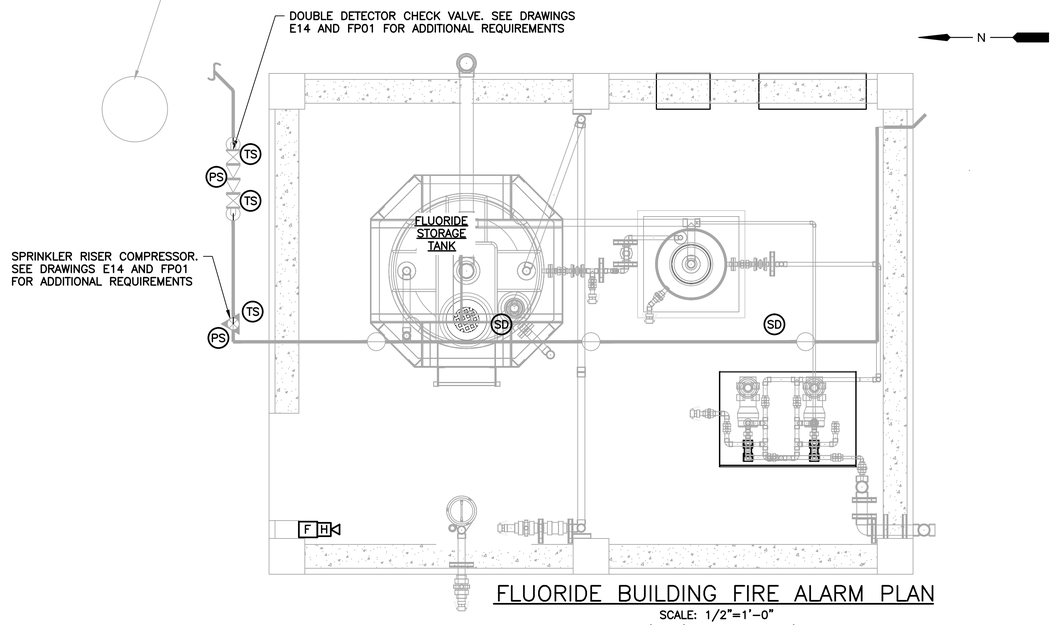
FIRE ALARM SYSTEM NOTES:

1. PROVIDE FULLY OPERABLE ADDRESSABLE, ANALOG FIRE ALARM SYSTEM DEVICES IN ACCORDANCE TO N.F.P.A. 2010 EDITION CODE AND ANY APPLICABLE LOCAL CODES AND ORDINANCES.
2. CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ORANGE COUNTY FIRE MARSHAL.
3. PROVIDE ANNUNCIATION AS FOLLOWS:
   A. EACH DEVICE SHALL HAVE A SEPARATE ADDRESS WITH AN ENGLISH READ OUT AT ELECTRICAL MAIN FIRE ALARM PANEL.
4. ON ALARM INITIATION MANUAL OR AUTOMATIC, THE FOLLOWING FUNCTIONS SHALL OCCUR ON THE EXISTING FACP:
   A. SOUND ALL AUDIBLE/VISIBLE STROBE LIGHTING ALARMS IN BUILDING.
   B. INDICATE WHICH DEVICE INITIATED ALARM.
   C. ACTIVATE ALARM TO MAIN FIRE ALARM PANEL.
5. HORN STROBE SHALL BE AT LEAST 15 DBA ABOVE THE AMBIENT SOUND AND SHALL HAVE A DURATION OF NO LESS THAN 60 SECONDS MEASURED 5 FOOT ABOVE THE FLOOR IN THE OCCUPIED AREA. THE CONTRACTOR IS REQUIRED TO CERTIFY THE DBA LEVEL WITH AN APPROVED DBA METER PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.
6. ALL COMPONENTS SHALL BEAR UL LABEL FOR FIRE SERVICE USE AND SHALL BE COMPATIBLE.
7. BEFORE THIS INSTALLATION SHALL BE CONSIDERED COMPLETE AND ACCEPTABLE TO THE COUNTY AND ENGINEER, A COMPLETE TEST ON THE SYSTEM SHALL BE PERFORMED, AND A NFPA 72 CERTIFICATE OF COMPLETION SHALL BE RECEIVED FROM THE MANUFACTURER'S REPRESENTATIVE.
8. PROVIDE SIX (6) SETS OF POINT-TO-POINT WIRING DIAGRAMS, OWNER MANUALS, INSTALLATION INSTRUCTIONS, BATTERY CALCULATIONS, AND RECORD DRAWINGS.
9. DEALER SHALL INCLUDE AT NO CHARGE TO THE OWNER A ONE-YEAR FULL MAINTENANCE SERVICE CONTRACT TO PROVIDE ALL MANUFACTURER'S RECOMMENDED SERVICES WITH A MINIMUM OF FOUR INSPECTIONS PER YEAR. THE DEALER SHALL MAKE AVAILABLE TO THE OWNER AFTER THE FIRST YEAR AN EXTENSION OF THE CONTRACT AT THE DEALER'S REGULAR RATE.
10. SIGNALS (HORN/STROBE AND STROBES) TO BE MOUNTED AT 80" AFF. TO BOTTOM OF DEVICE TO MEET ADA.
11. PULL STATIONS TO BE MOUNTED AT 48" AFF.
12. MANUFACTURER SHALL PROVIDE A THREE YEAR WARRANTY ON ALL FIRE ALARM PARTS.
13. FLOW AND TAMPER SWITCHES TO BE SUPPLIED BY THE SPRINKLER CONTRACTOR, INSTALLED IN THE PIPING BY THE SPRINKLER CONTRACTOR, AND WIRED BY THE ELECTRICAL CONTRACTOR.



HEIGHT REQUIREMENTS

SCALE: N.T.S.



FLUORIDE BUILDING FIRE ALARM PLAN

SCALE: 1/2"=1'-0"
2' 1' 0 2'

GENERAL NOTES:

1. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL CONDUIT AND CABLE REQUIREMENTS AND INSTALLATION DETAILS.
2. CONTRACTOR SHALL REVIEW THE DRAWINGS OF ALL DISCIPLINES AND APPROVED SHOP DRAWINGS AND COORDINATE THE INSTALLATION OF CONDUIT, CABLE AND TERMINATION REQUIREMENTS FOR EQUIPMENT BEING SUPPLIED AS PART OF OTHER SPECIFICATION SECTION.
3. ADJUST LOCATION OF FIRE ALARM DEVICES TO PROVIDE MAXIMUM COVERAGE AND MEET THE REQUIREMENTS OF THE LATEST CODES FOR FIRE ALARM SYSTEMS.
4. PROVIDE CONDUIT AND CABLES AS PER MANUFACTURERS REQUIREMENTS AND APPROVED SHOP DRAWINGS. CABLES SHALL BE RATED FOR THE ENVIRONMENT INSTALLED. WET LOCATION FOR ALL CABLES INSTALLED IN BELOW GRADE CONDUIT SYSTEMS. MINIMUM SIZE CONDUIT 3/4", SEE ELECTRICAL SPECIFICATIONS FOR CONDUIT APPLICATIONS.

SCOPE:

1. THE FACP IS EXISTING, LOCATED IN THE HYPOCHLORITE ROOM. ALL FIRE ALARM SYSTEM DEVICES SHALL COMMUNICATE TO THE EXISTING FACP. CONTRACTOR SHALL PROVIDE ASSOCIATED PROGRAMMING AND/OR MODIFICATIONS TO ACCOMMODATE THE NEW DEVICES FOR THE FLUORIDE BUILDING. PROVIDE AND INSTALL FIRE ALARM SYSTEM DEVICES AS SHOWN ON THE PLANS AND SPECIFICATIONS.
2. PROVIDE ALL HARDWARE, SOFTWARE AND PROGRAMMING REQUIRED FOR COMPLETE AND WORKING SYSTEMS.
3. PROVIDE AND INSTALL ALL DEVICES, POWER SUPPLIES, CONDUIT, CABLE AND TERMINATIONS AS REQUIRED FOR COMPLETE AND WORKING SYSTEMS.
4. THE FIRE ALARM SYSTEM SHALL BE COORDINATED WITH THE COUNTY AND THE FIRE MARSHALL AND SHALL MEET THE REQUIREMENTS OF EACH OFFICE. CONTRACTOR SHALL INCLUDE IN HIS BID ALL HARDWARE AND SOFTWARE REQUIRED FOR U.L. CERTIFICATION OF THE SYSTEM.

E * ENTIRE SHEET RE-ISSUED

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ORANGE COUNTY
VISTANA WSF IMPROVEMENTS
ELECTRICAL
FLUORIDE BUILDING FIRE ALARM PLAN

LILLIAN M. REYES, P.E.
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OCU FILE NO.: 68767
DESIGNED BY: DD
DRAWN BY: RRM
CHECKED BY: LMR
CADD FILE: FA01.DWG

SCALE: NOTED
DRAWING NO. :
FA01
SHEET: 75 OF 75