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Engineering Division
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Kathleen M. Cryan

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Hydrogeologist
Brynn Bemis

August 28, 2014

**NOTICE OF ADDENDUM-2
LAKEVIEW RESERVOIR RECONSTRUCTION
CONTRACT NO. 7339**

Revise and amend the contract document(s) for the above project as stated in this addendum, otherwise, the original document shall remain in effect.

A. SPECIFICATIONS

1. Page 00 73 00.13-8, SECTION 00 73 00.13-SUPPLEMENTARY CONDITIONS

CHANGE Paragraph 1.10. A. SC 13.10 1. A. “three year warranty” to “two year warranty”.

2. DIVISION 1 – GENERAL REQUIREMENTS

a. Page 01 52 13 – 1, SECTION 01 52 13 – FIELD OFFICE, PART 1 – GENERAL, PARAGRAPH 1.01 SUMMARY

ADD Item D. “Field office is optional”

3. DIVISION 3 – CONCRETE

a. Page 03 31 20 – 1, SECTION 03 31 20 – CONCRETE FOUNDATION FOR STORAGE TANKS, PART 1 – GENERAL, PARAGRAPH 1.03 DESIGN REQUIREMENTS

REPLACE Item A. 2. with the following:

“Include allowances for pressure resulting from a 90-mph wind load on surfaces in accordance with AWWA D100, section 3.1.4, figure 1.”

4. DIVISION 9 – FINISHES

a. Page 09 97 13 – 3, SECTION 09 97 13 – COATING SYSTEMS FOR WATER STORAGE TANKS, PART 1 – GENERAL, PARAGRAPH 1.07 PROJECT CONDITIONS

REPLACE Item B.3.a, with the following:

“Class 3A including specific components, A2, C2, E3, G2”

REPLACE Item B.3.b. with the following:

“bonnet is not required, however if paint product and spent abrasive is detected on surfaces outside the fenced in project site area, contractor shall utilize bonnet at no additional cost”

- b. Page 09 97 13 – 8, SECTION 09 97 13 – COATING SYSTEMS FOR WATER STORAGE TANKS, PART 3 – EXECUTION, PARAGRAPH 3.08 COATING SYSTEM SCHEDULE

REMOVE Item A.3 in its entirety.

REMOVE Item B.3 in its entirety.

5. DIVISION 33 – UTILITIES

- a. Page 33 16 20-2, SECTION 33 16 20 – WELDED STEEL STORAGE TANKS, PART 1 – GENERAL, PARAGRAPH 1.04 DESCRIPTION

CHANGE Item D.9. “AWWA D100-05” to “AWWA D-100-11”

- b. Page 33 16 20-6, SECTION 33 16 20 – WELDED STEEL STORAGE TANKS, PART 2 – PRODUCTS, PARAGRAPH 2.02 COMPONENTS

REPLACE Item B.9. with the following:

“9. Ladder Safety Devices:

- a. LAD-SAF Fall Prevention System as manufactured by Capital Safety Products.

b. Required components:

- 1) Top bracket, galvanized, 6116280.
- 2) Bottom bracket, galvanized w/ built-in tension indicator, 6100090.
- 3) Cable lifeline, galvanized, 3/8” diameter, 6110000.
- 4) Cable guide and hardware, 6110400.
- 5) Cable sleeve, detachable, 6160030. Provide 3 each.
- 6) Safety Harness, Exofit, 1108651. Provide 3 OSHA approved harnesses.

c. Provide on the following ladders:

- 1) Ladders from grade to walkway.
- 2) Ladder inside the access tube from the walkway to the roof.”

- c. Page 33 16 20-7, SECTION 33 16 20 – WELDED STEEL STORAGE TANKS, PART 3 – EXECUTION, PARAGRAPH 3.03 STEEL TANK

ADD to the end of the sentence in Item A.4. with the following:

“including condensate ceiling and tank roof”

- d. Page 33 16 20-8, SECTION 33 16 20 – WELDED STEEL STORAGE TANKS, PART 3 – EXECUTION, PARAGRAPH 3.03 STEEL TANK

CHANGE Item C.2.b. “complete” to “modular”

B. DRAWINGS

1. SHEET NO. C2 - SITE PLAN

REPLACE with the attached SHEET NO. C2 - SITE PLAN

2. SHEET NO. L1 - LANDSCAPING PLAN

REPLACE with the attached SHEET NO. L1 LANDSCAPING PLAN

3. SHEET NO. D3 – PROCESS PIPING DETAILS

REPLACE with the attached SHEET NO. D3 – PROCESS PIPING DETAILS

4. SHEET NO. D4 – VALVE HOUSE PLAN AND SECTIONS

REPLACE with the attached SHEET NO. D4 – VALVE HOUSE PLAN AND SECTIONS

5. SHEET NO. 02 – STEEL TANK ELEVATION AND PLAN VIEW

CHANGE inside diameter of lower 1,000,000 gallon tank to 50 ft.

CHANGE service door dimensions from 3' x 7' to 30" x 60"

CHANGE dimensions from 3' x 7' to 30" x 60" on service openings that provide access to interior platform and at top of pilasters.

ADD gate and landing on service openings that provide access to interior platform and at top of pilasters.

ADD 30" x 60" service opening w/ gate and landing in the main climbing pilaster at the condensate ceiling elevation.

ADD 30" x 60" service opening w/ gate and landing in the 12" watermain riser pilaster at the condensate ceiling elevation.

ADD dimension of 7ft. width for the circular catwalk and 4 ft. width for the connecting catwalk on the shaft orientation plan.

6. SHEET NO. 05 – STEEL TANK DETAILS

REPLACE with the attached SHEET NO. 05 – STEEL TANK DETAILS

7. SHEET NO. 08 – CONCRETE TANK ELEVATION AND PLAN VIEW

CHANGE inside diameter of lower 1,000,000 gallon tank to 50 ft.

CHANGE service door dimensions from 3' x 7' to 30" x 60"

CHANGE dimensions from 3' x 7' to 30" x 60" on service openings that provide access to interior platform and at top of pilasters.

ADD gate and landing on service openings that provide access to interior platform and at top of pilasters.

ADD 30" x 60" service opening w/ gate and landing in the main climbing pilaster at the condensate ceiling elevation.

ADD 30" x 60" service opening w/ gate and landing in the 12" watermain riser pilaster at the condensate ceiling elevation.

ADD dimension of 7ft. width for the circular catwalk and 4 ft. width for the connecting catwalk on the shaft orientation plan.

8. SHEET NO. E3 – PROPOSED ELECTRICAL WATER TOWER PLANS

REPLACE with the attached SHEET NO. E3 – PROPOSED ELECTRICAL WATER TOWER PLANS

9. SHEET NO. E4 – VALVE BUILDING ELECTRICAL PLAN

REPLACE with the attached SHEET NO. E4 – VALVE BUILDING ELECTRICAL PLAN

10. SHEET NO. E5 – ELECTRICAL KEYED NOTES

REPLACE with the attached SHEET NO. E5 – ELECTRICAL KEYED NOTES

11. SHEET NO. E7 – ELECTRICAL SCHEDULES AND ONE-LINE DIAGRAM

REPLACE with the attached SHEET NO. E7 – ELECTRICAL SCHEDULES AND ONE-LINE DIAGRAM

12. SHEET NO. E9 – ELECTRICAL DETAILS

REPLACE with the attached SHEET NO. E9 – ELECTRICAL DETAILS

Please acknowledge this addendum on page E1 of the contract documents and/or in Section E: Bidder's Acknowledgement on Bid Express.

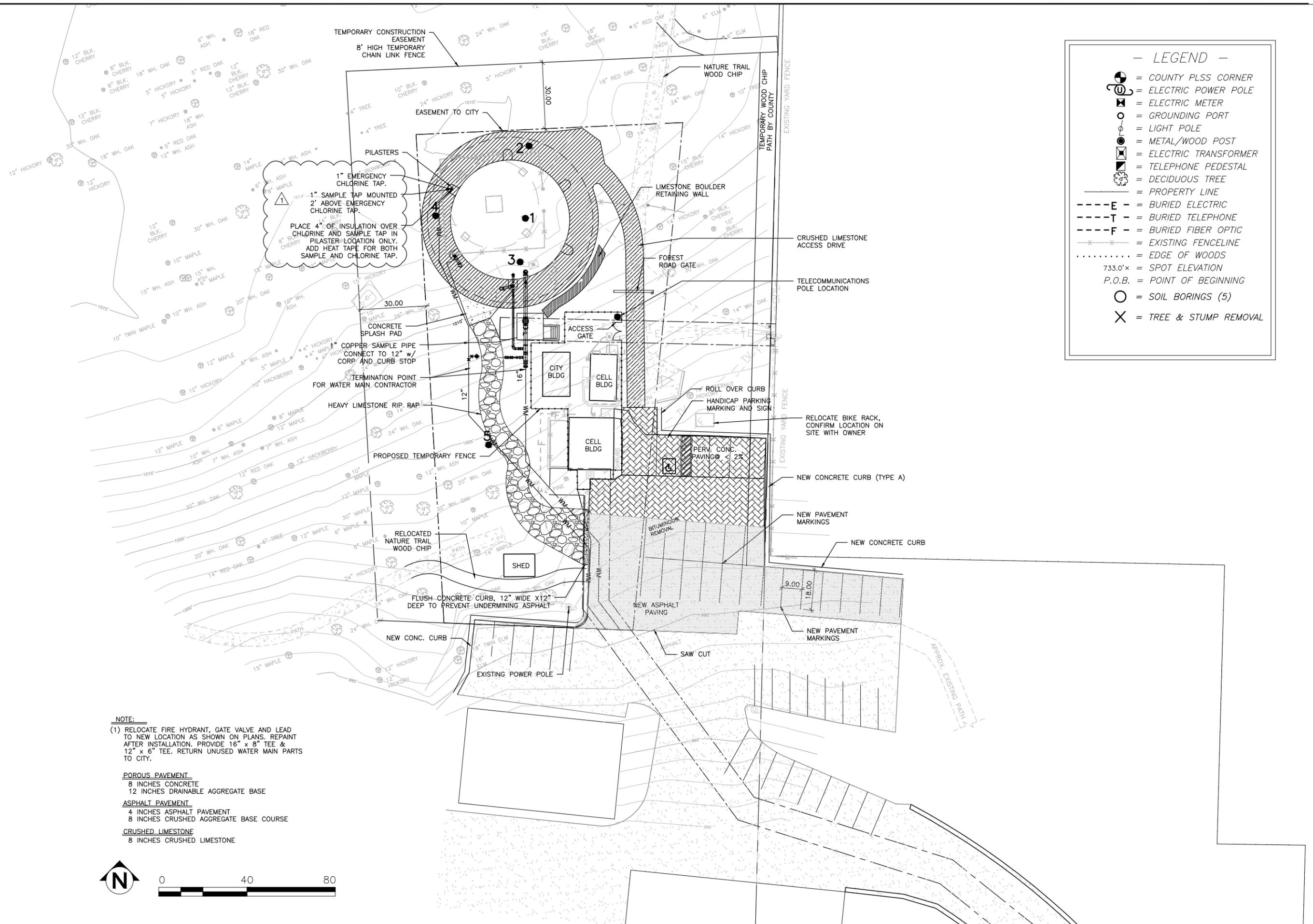
Electronic version of these documents can be found on the Bid Express web site at:

<http://www.bidexpress.com>

If you are unable to download plan revisions associated with the addendum, please contact the Engineering office at 608-266-4751 receive the material by another route.

Dennis M. Cawley, P.E., Engineer 4

PLOTTED: 8-28-2014 12:23 PM
 PLOT SCALE:
 USER: CHRIS EPSTEIN
 DRAWN BY: JON STRAND
 DESIGNED BY: SID LARSON
 PROJECT NO.: 07-25-14
 SHEET TITLE: SITE PLAN
 SHEET: C2



— LEGEND —

- = COUNTY PLS CORNER
- = ELECTRIC POWER POLE
- = ELECTRIC METER
- = GROUNDING PORT
- = LIGHT POLE
- = METAL/WOOD POST
- = ELECTRIC TRANSFORMER
- = TELEPHONE PEDESTAL
- = DECIDUOUS TREE
- = PROPERTY LINE
- = BURIED ELECTRIC
- = BURIED TELEPHONE
- = BURIED FIBER OPTIC
- = EXISTING FENCELINE
- = EDGE OF WOODS
- = SPOT ELEVATION
- = POINT OF BEGINNING
- = SOIL BORINGS (5)
- = TREE & STUMP REMOVAL

NOTE:

(1) RELOCATE FIRE HYDRANT, GATE VALVE AND LEAD TO NEW LOCATION AS SHOWN ON PLANS. REPAINT AFTER INSTALLATION. PROVIDE 16" x 8" TEE & 12" x 6" TEE. RETURN UNUSED WATER MAIN PARTS TO CITY.

POROUS PAVEMENT
 8 INCHES CONCRETE
 12 INCHES DRAINABLE AGGREGATE BASE

ASPHALT PAVEMENT
 4 INCHES ASPHALT PAVEMENT
 8 INCHES CRUSHED AGGREGATE BASE COURSE

CRUSHED LIMESTONE
 8 INCHES CRUSHED LIMESTONE



**LAKEVIEW RESERVOIR REPLACEMENT PROJECT
MADISON, WISCONSIN**

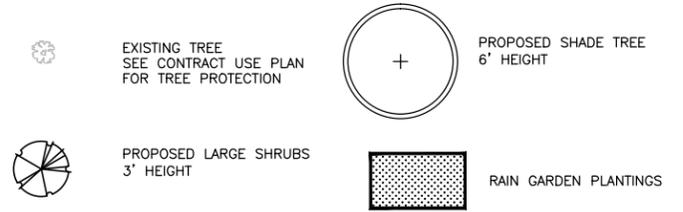
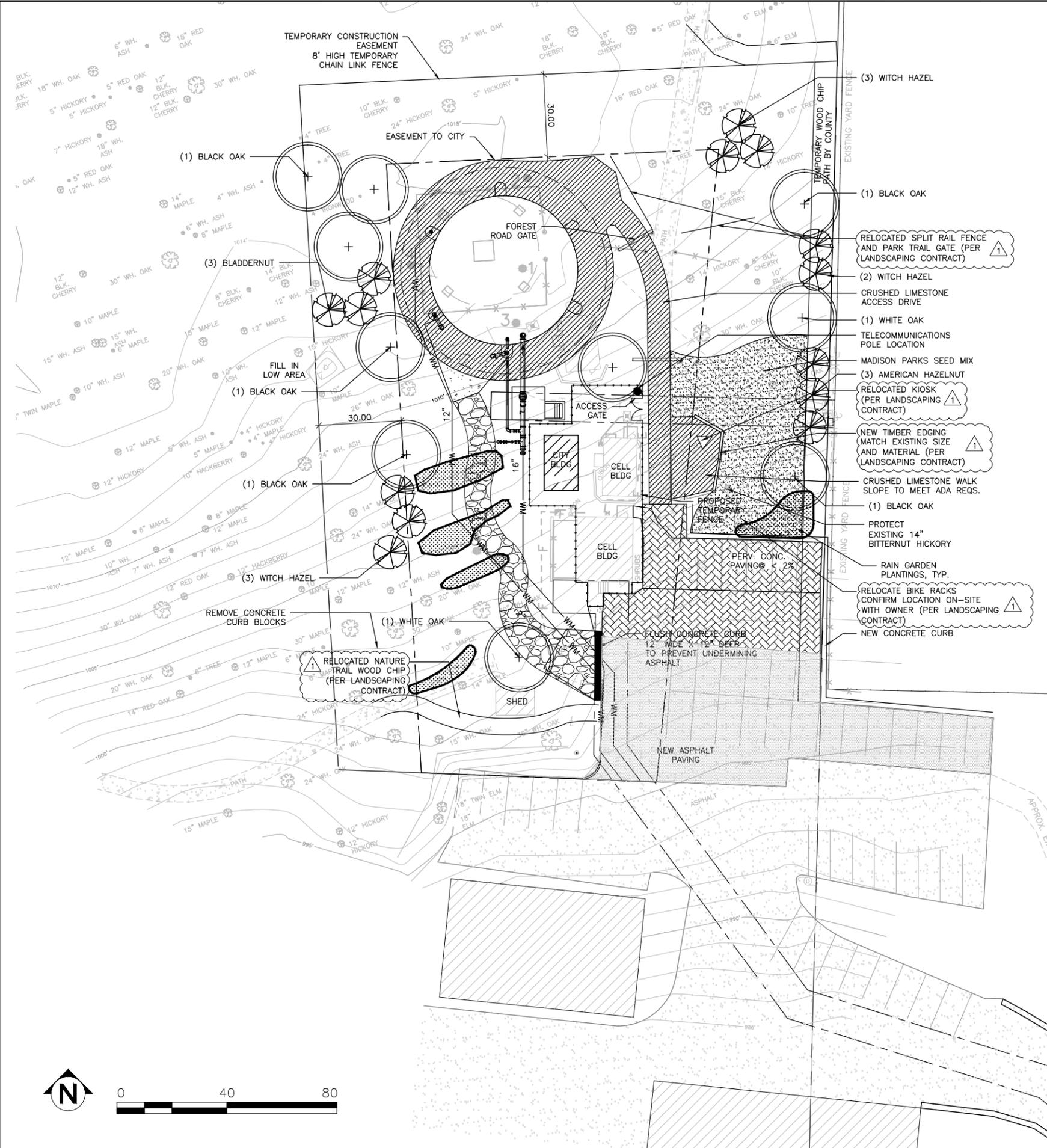
MARK	DATE	REVISIONS	APPENDUM NO. 2
1	8-25-14	REVISIONS	2

MADWU 126154
 SEH FILE NO. 07-25-14
 PROJECT NO. JON STRAND
 ISSUE DATE: SID LARSON
 DESIGNED BY: SID LARSON
 DRAWN BY: Short Elliott Hendrickson, Inc. © (SEH)
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SHEET TITLE: SITE PLAN

SHEET: C2

8-28-2014 9:07 AM
 P:\V\Madison\126154\5-Design\51-drawings\1-landscaping\1-landscaping.dwg
 USER: CHRIS EPSTEIN
 8-28-2014 9:10 AM
 PLOT SCALE: 1/2" = 1'-0"



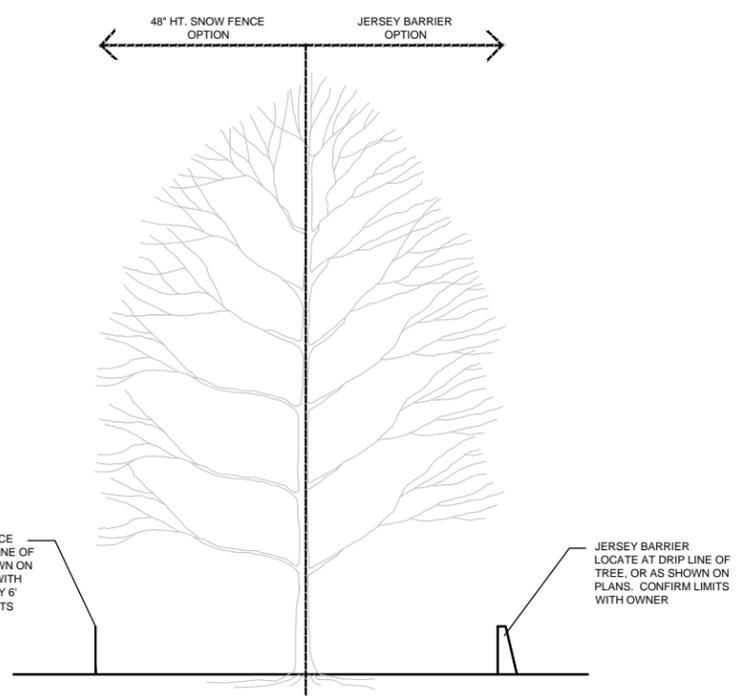
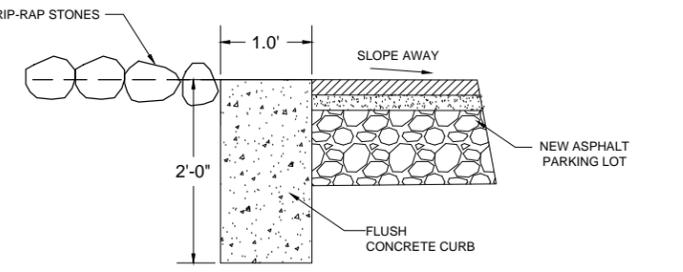
- NOTE:**
- RESTORE WITH MADISON PARKS SEED MIX LAWN WHERE INDICATED ON PLANS AND CONFIRM LIMITS OF MIX WITH OWNER. SEED MIX SHALL BE PER MADISON PARKS STANDARDS, OR APPROVED EQUAL.
 - DISTURBED AREAS NOT INDICATED SHALL BE RE-SEEDING WITH WOODLAND EDGE SEED MIX BY PRAIRIE NURSERY.
 - ALL PLANT MATERIALS SHALL BE OBTAINED FROM NATIVE STOCK NURSERIES WITHIN THE SAME PLANT ZONE & 100 MILES OF THE JOB SITE.
 - LANDSCAPING (TREES, SHRUBS, SEEDING) BY OTHERS.
 - ALL OTHER WORK ITEMS BY GENERAL CONTRACTOR.

Lakeview Reservoir Replacement Project Planting List

Code	QTY	Botanical Name	Common Name	Size	Spacing
SHADE TREES					
QUE-A	2	<i>Quercus alba</i>	White Oak	6' Ht.	
QUE-V	8	<i>Quercus velutina</i>	Black Oak	6' Ht.	
SHRUBS					
COR-A	3	<i>Corylus americana</i>	American Hazelnut	#5	6'
HAM-V	8	<i>Hamamelis virginiana</i>	American Witch Hazel	#5	6'
STA-T	3	<i>Staphylea trifolia</i>	American Bladdernut	#5	6'

Landscape Worksheet

Element	Point Value	Quantity Proposed	Quantity Existing	Points
Overstory Deciduous Tree	35	10		350
Shrub, deciduous	2	14		28
TOTAL				378






**LAKEVIEW RESERVOIR REPLACEMENT PROJECT
MADISON, WISCONSIN**

MARK 1

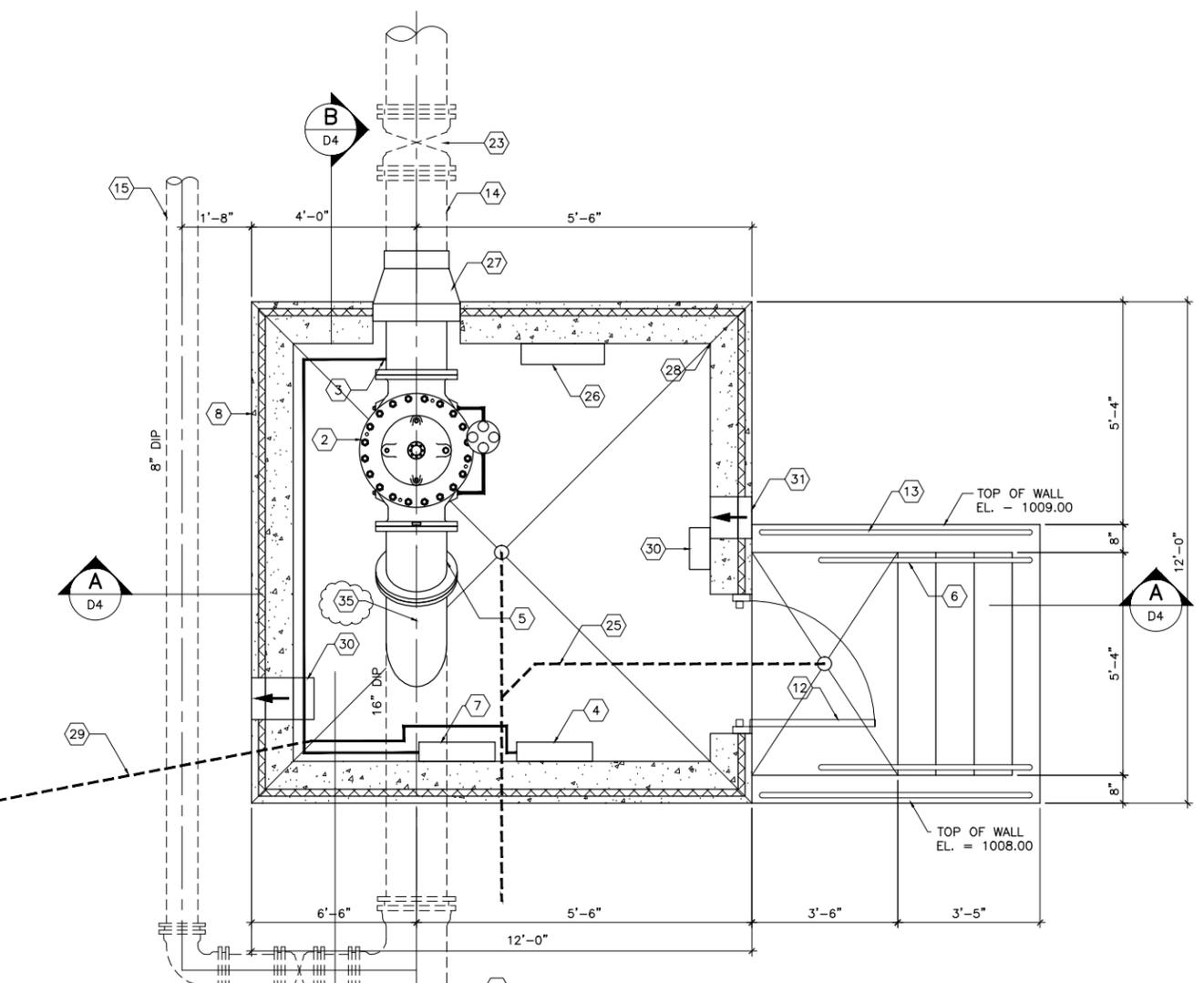
8-25-14 ADDENDUM NO. 2 DESCRIPTION

DATE REVISIONS

SEH FILE NO. MADWU 126154
 PROJECT NO. 07-25-14
 ISSUE DATE JON STRAND
 DESIGNED BY SID LARSON
 DRAWN BY Short Elliott Hendrickson, Inc. © (SEH)
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SHEET TITLE
LANDSCAPE PLAN

SHEET
L1



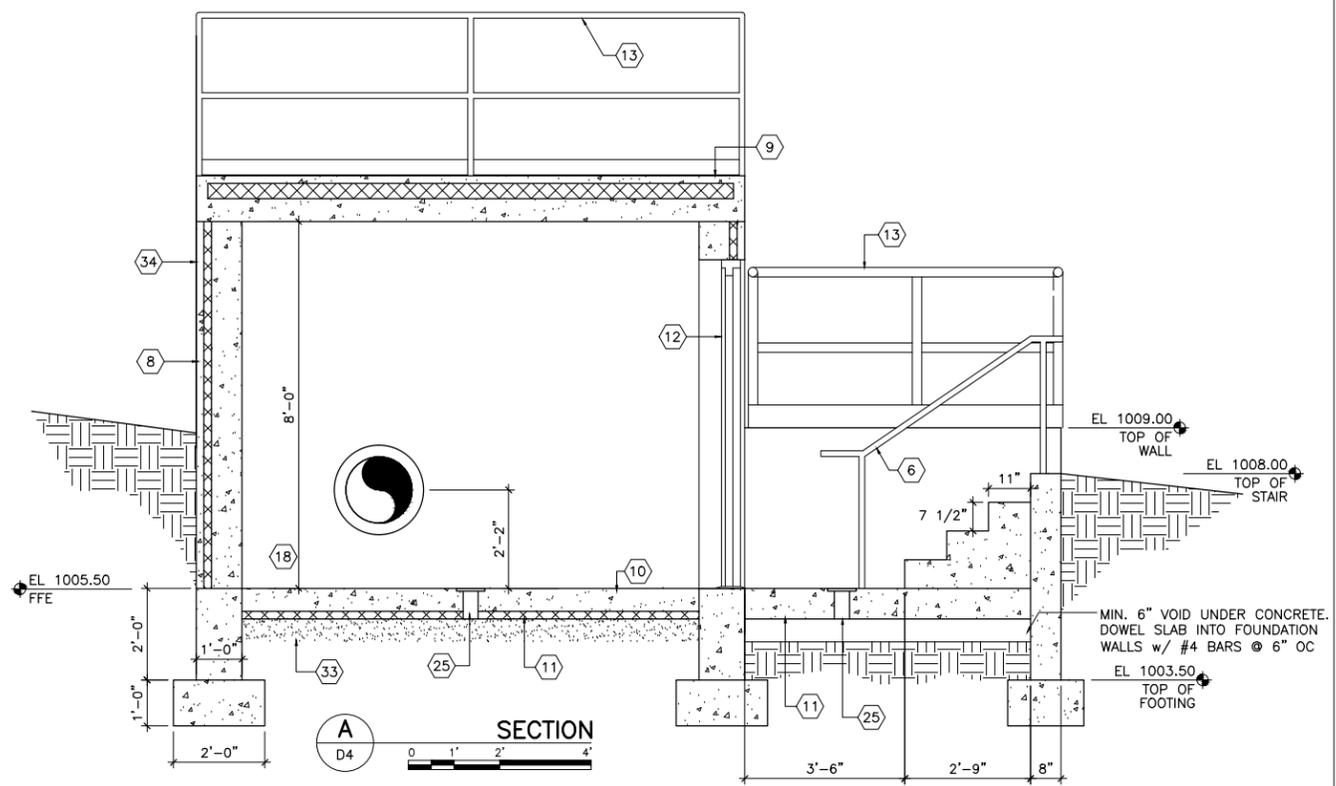
VALVE HOUSE BELOW GRADE PLAN
 0 1' 2' 4'

KEYED NOTES:

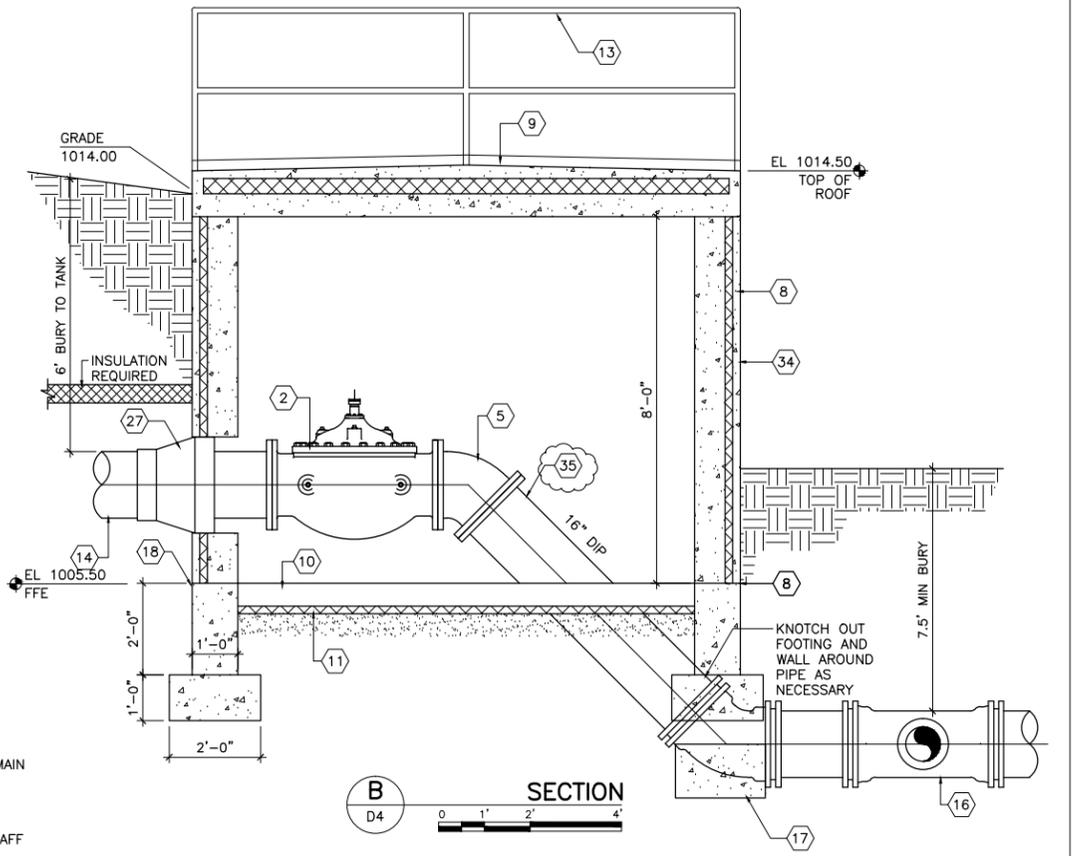
- | | | | |
|----|--|----|---|
| 1 | 8" GATE VALVE W/ BOX | 18 | WATERTIGHT SEAL AT ALL WALL TO SLAB JOINTS |
| 2 | 16" CA-VAL ALTITUDE VALVE | 19 | 16" MJ TEE W/ 8" BRANCH |
| 3 | TAP PIPE, INSTALL 1" STAINLESS STEEL TO SAMPLE TAP | 20 | 8" TO 6" MJ REDUCER |
| 4 | LOWER TANK SAMPLING TAP - SEE DETAIL C/D3 | 21 | 6" GATE VALVE W/ BOX |
| 5 | 16" 45 DEGREE BEND | 22 | FLUSHING HYDRANT, SEE SITE PLAN FOR LOCATION |
| 6 | GALVANIZED HAND RAIL | 23 | 16" GATE VALVE W/ BOX |
| 7 | UPPER TANK SAMPLING TAP - SEE DETAIL C/D3 | 24 | 16" PIPE FROM VALVE HOUSE TO WATER SYSTEM |
| 8 | 12" THICK PRECAST WALLS W/ 2" INSULATION | 25 | DRAIN TO DAYLIGHT - SEE C4 FOR CONTINUATION |
| 9 | 12" THICK PRECAST ROOF W/ 4" INSULATION
TAPER ROOF TOWARD NORTH & SOUTH 1/4"/FT | 26 | ELECTRICAL PANEL - SEE ELECTRICAL |
| 10 | 6" CONCRETE SLAB W/ REINFORCEMENT | 27 | PIPE BOOT SEAL |
| 11 | 2" INSULATION UNDER 6" CONCRETE SLAB | 28 | WATERTIGHT JOINTS AT ALL WALL INTERSECTIONS |
| 12 | 3'-0" x 7'-0" DOOR AND FRAME | 29 | 1" COPPER SAMPLE LINE FROM BUILDING TO 12" WATER MAIN
SEE SITE PLAN FOR CONTINUATION |
| 13 | GALVANIZED SAFETY RAILING W/ TOE PLATE | 30 | WALL MOUNTED ELECTRIC UNIT HEATER |
| 14 | 16" PIPE FROM VALVE HOUSE TO TANK RISER PIPE | 31 | 12" SQUARE INSULATED VANE GRAVITY INTAKE DAMPER 7' AFF |
| 15 | 8" PIPE FROM VALVE HOUSE TO TANK DRAIN | 32 | 12" EXHAUST FAN WITH LOUVER 7' AFF |
| 16 | 16" PIPE FROM VALVE HOUSE TO WATER SYSTEM | 33 | 60 MIL POLY VAPOR BARRIER OVER 6" COMPACTED SAND FILL |
| 17 | 45 DEGREE BEND W/ THRUST BLOCK REQ'D | 34 | PROVIDE LANNON STONE FINISH ON EXPOSED EXTERIOR WALLS |



REBAR SCHEDULE:
 FOOTINGS: (2) #4 BARS CONT.
 WALLS: #4 BARS @ 6" E.W. CENTERED
 FLOORS: #4 BARS @ 6" E.W.



SECTION A-A
 0 1' 2' 4'



SECTION B-B
 0 1' 2' 4'



LAKEVIEW RESERVOIR
 REPLACEMENT PROJECT
 MADISON, WISCONSIN

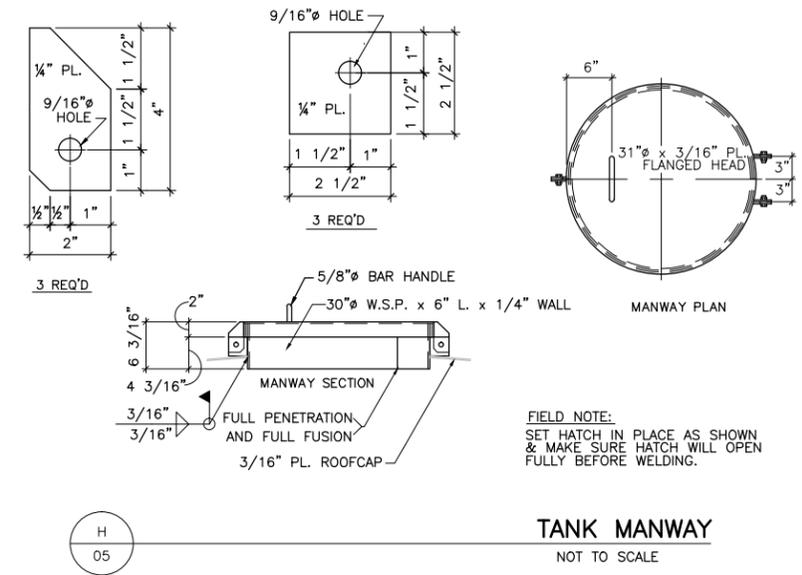
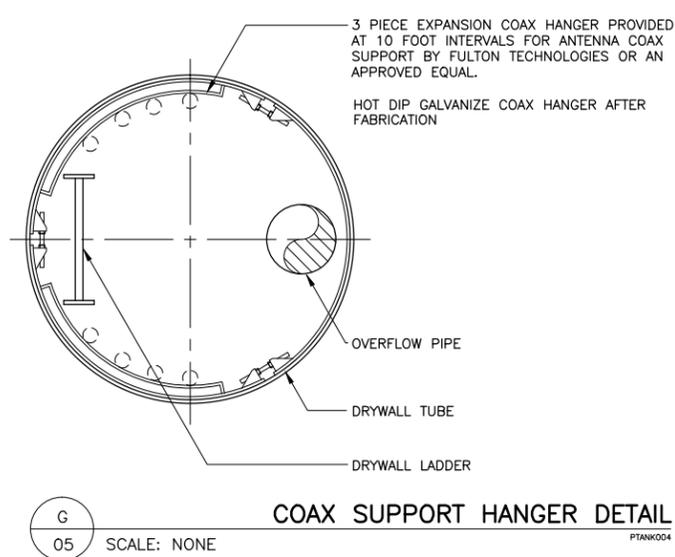
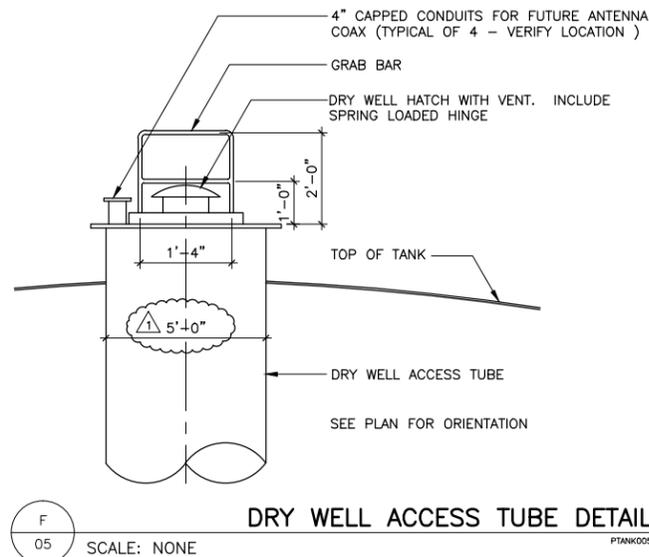
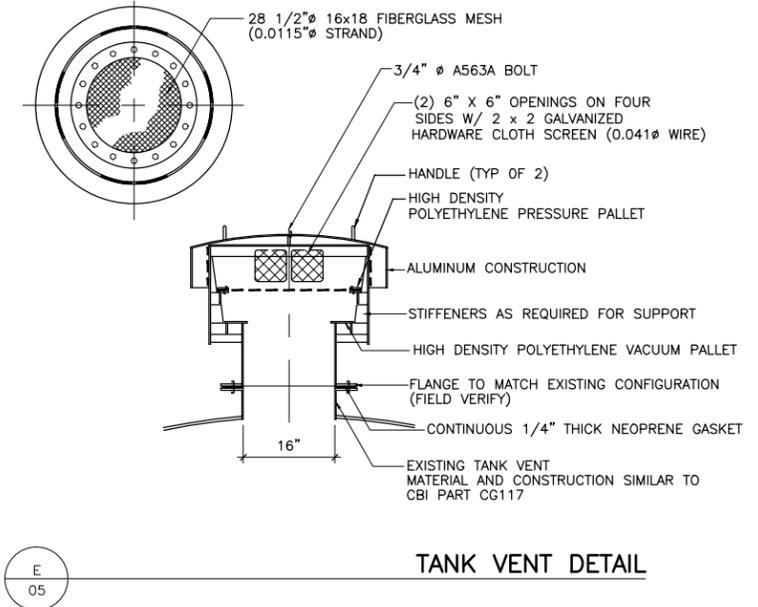
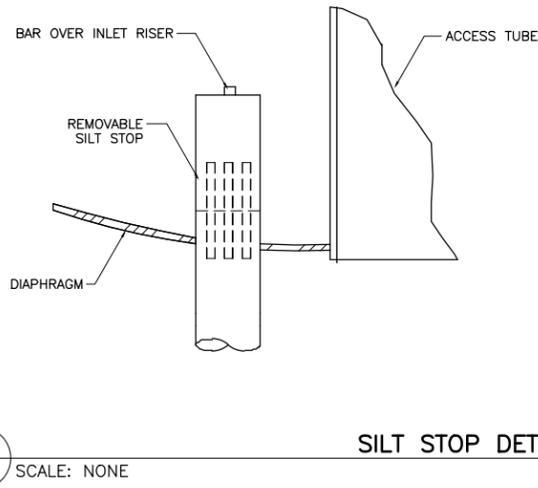
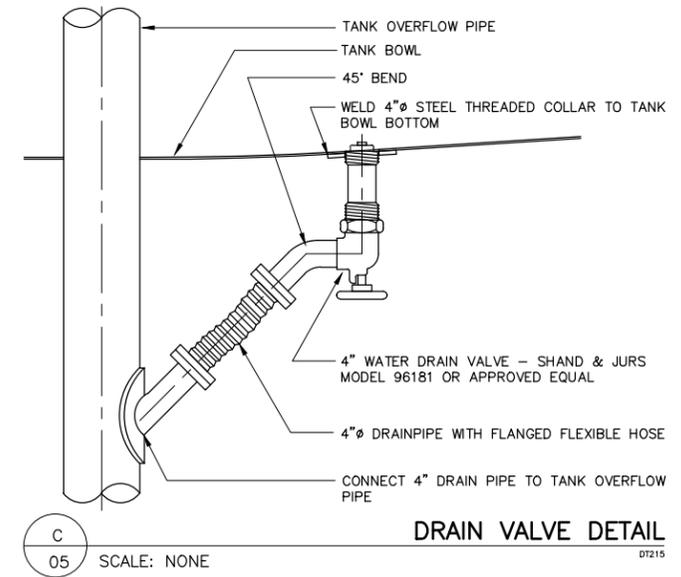
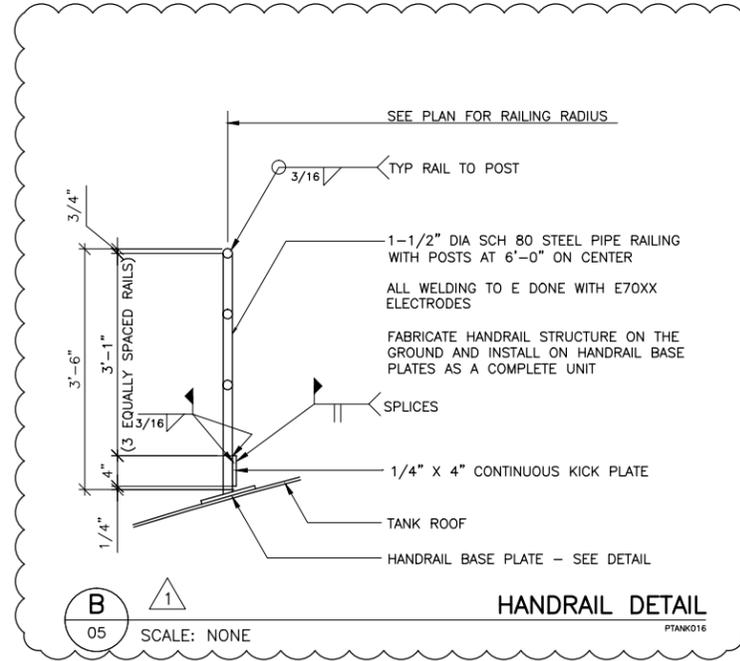
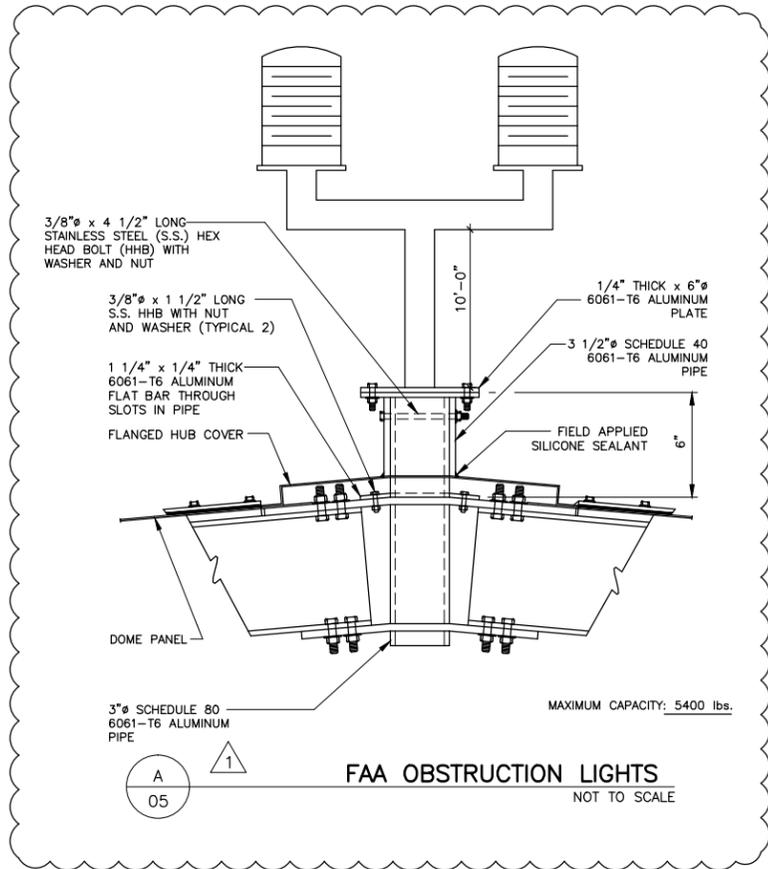
MARK	DATE	REVISIONS	DESCRIPTION
Δ	8-25-14	ADDENDUM NO. 2	

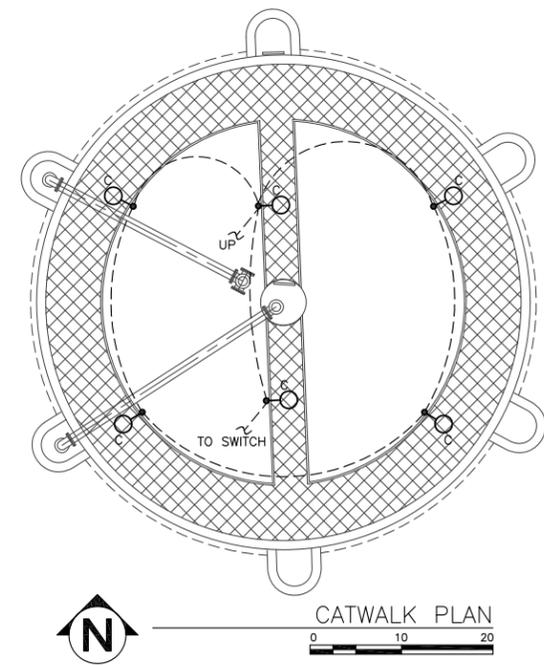
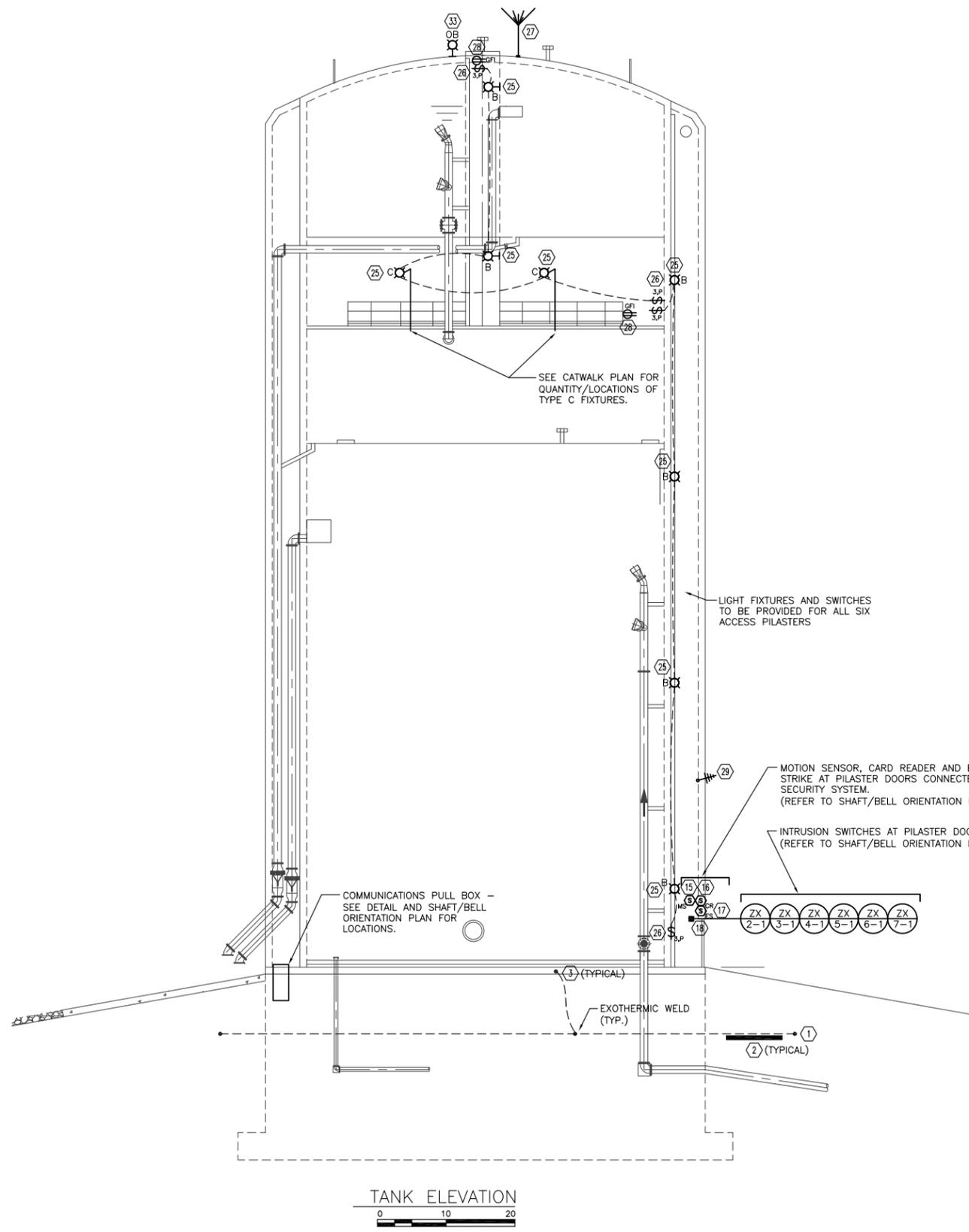
MADWU 126154
 PROJECT NO. 07-25-14
 ISSUE DATE JON STRAND
 DESIGNED BY SID LARSON
 DRAWN BY Short Elliott Hendrickson, Inc. (SEH)
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SHEET TITLE
VALVE HOUSE PLAN AND SECTIONS

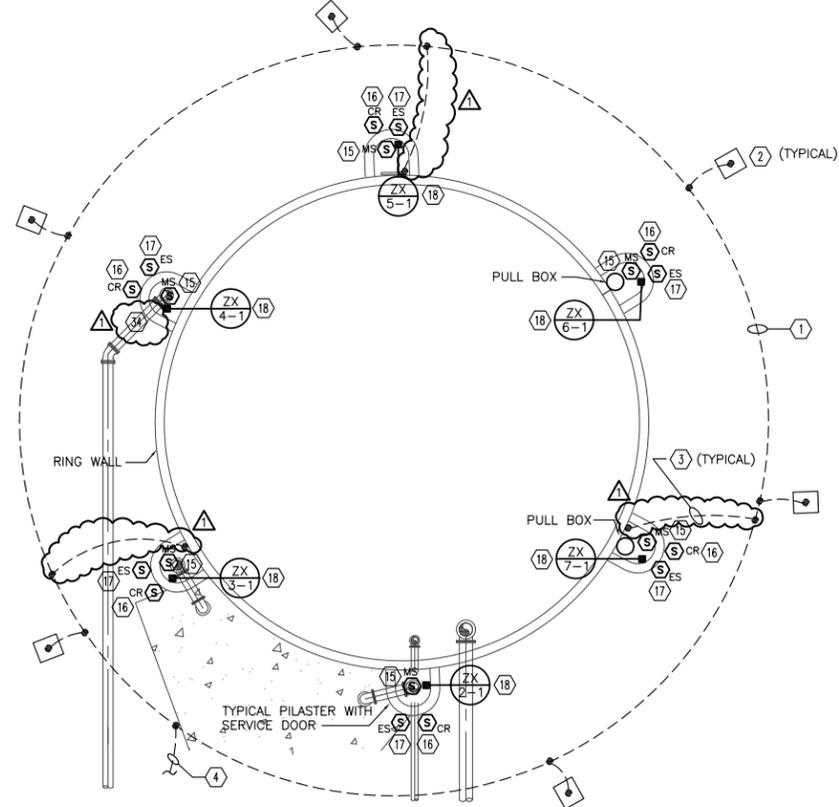
SHEET

D4





- NOTES:**
- SEE SHEET E5 FOR KEYED NOTES.
 - OWNER'S SCADA INTEGRATOR IS LW ALLEN.
 - OWNER'S SECURITY SYSTEM INTEGRATOR IS INNOVATIVE SYSTEMS (9880 SOUTH RIDGEWAY DRIVE, OAK CREEK, WI, 53154, 1-800-750-7350). A \$20,000 ALLOWANCE SHALL BE INCLUDED IN BID TO BE ADJUSTED AT FINAL PAYMENT IN ACCORDANCE WITH THE ACTUAL CHARGES FOR ALL EQUIPMENT REQUIRED FOR A COMPLETE SYSTEM.
 - PROVIDE REQUIRED CONDUIT/WIRING BETWEEN SCADA AND SECURITY PANELS AS REQUIRED FOR OPERATION OF ACCESS/INTRUSION CONTROLS. COORDINATE EXACT INSTALLATION REQUIREMENTS WITH SCADA AND SECURITY INTEGRATORS FOR ALL WORK.
 - DRAWINGS ARE BASED ON STEEL TANK STRUCTURE. ANY ADDITION GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE PROVIDED AS APPROPRIATE FOR A CONCRETE TANK STRUCTURE.



Powrtek Engineering, Inc.
 20711 WATERTOWN RD., SUITE C
 WAUKESHA, WI 53186
 VOICE: 262-827-9575
 FAX: 262-827-9615



LAKEVIEW RESERVOIR REPLACEMENT PROJECT
 MADISON, WISCONSIN

MARK	DATE	DESCRIPTION
	08-25-14	REVISIONS
		APPENDIX NO. 2

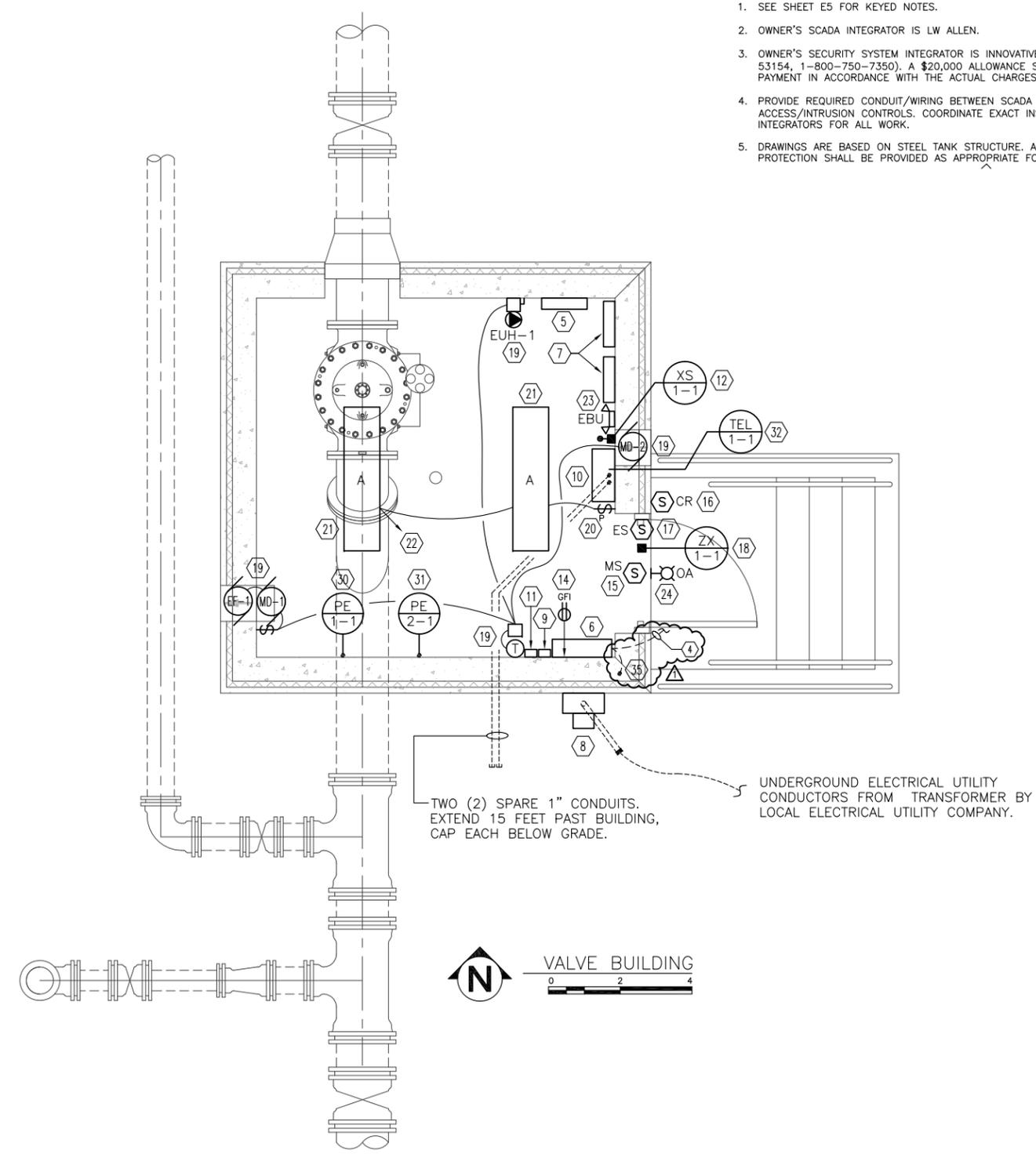
SEH FILE NO. MADWU 126154
 PROJECT NO. 07-25-14
 ISSUE DATE R.J.B.
 DESIGNED BY B.L.F.
 DRAWN BY
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SHEET TITLE
 PROPOSED ELECTRICAL
 WATER TOWER PLANS

SHEET
 E3

NOTES:

1. SEE SHEET E5 FOR KEYED NOTES.
2. OWNER'S SCADA INTEGRATOR IS LW ALLEN.
3. OWNER'S SECURITY SYSTEM INTEGRATOR IS INNOVATIVE SYSTEMS (9880 SOUTH RIDGEWAY DRIVE, OAK CREEK, WI, 53154, 1-800-750-7350). A \$20,000 ALLOWANCE SHALL BE INCLUDED IN BID TO BE ADJUSTED AT FINAL PAYMENT IN ACCORDANCE WITH THE ACTUAL CHARGES FOR ALL EQUIPMENT REQUIRED FOR A COMPLETE SYSTEM.
4. PROVIDE REQUIRED CONDUIT/WIRING BETWEEN SCADA AND SECURITY PANELS AS REQUIRED FOR OPERATION OF ACCESS/INTRUSION CONTROLS. COORDINATE EXACT INSTALLATION REQUIREMENTS WITH SCADA AND SECURITY INTEGRATORS FOR ALL WORK.
5. DRAWINGS ARE BASED ON STEEL TANK STRUCTURE. ANY ADDITION GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE PROVIDED AS APPROPRIATE FOR A CONCRETE TANK STRUCTURE.



SPHEROID TANK KEYED NOTES:

- 1 PROPOSED 4/0 BARE COPPER GROUND LOOP (COUNTERPOISE) LOCATED 60 INCHES DEEP, EXOTHERMICALLY WELD CONDUCTOR ENDS TOGETHER. THE DIAMETER OF THE COUNTERPOISE SHALL BE 80 FEET.
- 2 PROPOSED 36 INCH SQUARE X 1/8 INCH THICK TINNED COPPER GROUND PLATES INSTALLED 60 DEGREES APART AS SHOWN. THE 4/0 CONDUCTOR COUNTERPOISE SHALL BE EXOTHERMICALLY WELDED TO THE PLATES. THE PLATES SHALL BE BURIED A MINIMUM OF 60 INCHES BELOW FINISHED GRADE PER THE DETAIL.
- 3 PROPOSED 4/0 BARE COPPER GROUND CONDUCTOR FROM THE COUNTERPOISE TO THE STEEL TANK. EXOTHERMICALLY WELD TO THE STEEL TANK AND COUNTERPOISE CONDUCTOR. CONDUCTOR TO STUB UP INSIDE PILASTER AT LEAST 12" AWAY FROM OUTER EDGE (OF PILASTER) FOR PROTECTION.
- 4 PROPOSED #2 AWG BARE COPPER GROUNDING CONDUCTOR ROUTED FROM THE COUNTERPOISE TO PANELBOARD A.
- 5 PROPOSED SECURITY PANEL AND POWER SUPPLY PROVIDED BY THE OWNER'S SYSTEM INTEGRATOR.
THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #12 CONDUCTORS AND 1 #12 GROUND FROM PANELBOARD A, CKT. ?? TO POWER THE SECURITY CONTROL PANEL AND POWER SUPPLY.
- 6 PROPOSED PANELBOARD A FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. MOUNT THE PANELBOARD 60 INCHES ABOVE FINISHED FLOOR, MEASURED TO TOP OF ENCLOSURE. SEE ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.
- 7 CATHODIC PROTECTION (RECTIFIER) PANEL. (TYPICAL OF 2).
THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #10 CONDUCTORS AND 1 #10 GROUND FROM PANELBOARD A, CKTS #16 & 18 TO POWER THE RECTIFIER PANELS.
- 8 PROPOSED SERVICE ENTRANCE 0-200 AMP RATED METER SOCKET WITH LEVER BYPASS FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. COORDINATE METER SOCKET MANUFACTURER & MODEL NUMBER WITH LOCAL ELECTRICAL UTILITY COMPANY. THE UTILITY METER WILL BE FURNISHED AND INSTALLED BY LOCAL ELECTRICAL UTILITY COMPANY. THE CONDUIT STUB OUT SHALL EXTEND 5 FEET BEYOND UNDERGROUND COUNTERPOISE CONDUCTOR, AND SECONDARY CONDUCTORS WILL BE FURNISHED, INSTALLED AND TERMINATED BY LOCAL ELECTRICAL UTILITY COMPANY. PROVIDE TEMPORARY CONDUIT CAP DURING CONSTRUCTION FOR CONDUIT BELOW GRADE, NO GLUE, PRESSURE FIT ONLY, PROVIDE PLASTIC BUSHING BEFORE UTILITY CONDUCTORS ARE INSTALLED.
- 9 PROPOSED SURGE ARRESTOR FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. MOUNT THE SURGE ARRESTOR UNDER THE PANELBOARD AS SHOWN WITH THE SHORTEST POSSIBLE LEAD LENGTH. THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 3 #10 CONDUCTORS & 1 #10 GROUND FROM THE SURGE ARRESTOR TO PANELBOARD A, CIRCUITS #2 & 4.
- 10 PROPOSED SCADA PANEL FURNISHED BY THE OWNERS SYSTEM INTEGRATOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. MOUNT THE SCADA PANEL 60 INCHES ABOVE FINISHED FLOOR, MEASURED TO TOP OF ENCLOSURE. SEE SCADA PANEL DETAILS FOR I/O LIST AND REQUIRED FIELD EQUIPMENT WIRING. THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #12 CONDUCTORS & 1 #12 GROUND FROM THE SCADA PANEL TO PANELBOARD A, CIRCUIT #13.
- 11 PROPOSED PHASE LOSS RELAY WITH ENCLOSURE FURNISHED BY THE OWNERS SYSTEM INTEGRATOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. SEE DIAGRAM FOR INFORMATION.
- 12 PROPOSED WATER BUG XS-1-1 FURNISHED BY THE OWNERS SYSTEM INTEGRATOR, INSTALLED AND WIRED TO THE SCADA PANEL BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 4 #14 CONDUCTORS & 1 #14 GROUND TO THE SCADA PANEL.
- 13 PROPOSED LOW TEMPERATURE THERMOSTAT TEL-1-1 FURNISHED, INSTALLED AND WIRED ON THE FRONT OF SCADA PANEL BY THE OWNERS SYSTEM INTEGRATOR.
- 14 PROPOSED RECEPTACLE (GFI CB PROTECTED) LOCATED IN THE VALVE BUILDING FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. THE RECEPTACLES SHALL BE MOUNTED AT THE LOCATIONS SHOWN AND SHALL INCLUDE METAL COVERS.
THE RECEPTACLES SHALL BE WIRED TO PANELBOARD A, CIRCUIT #5 AS SHOWN ON THE PANEL SCHEDULE WITH 3/4 INCH CONDUIT WITH 2 #10 CONDUCTORS & 1 #10 GROUND. NOTE THE CIRCUIT BREAKER IS A GFI TYPE PER THE SCHEDULE.
- 15 PROPOSED SECURITY MOTION DETECTOR FURNISHED BY THE OWNER'S SECURITY SYSTEM INTEGRATOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
THE MOTION SENSOR SHALL BE GE SECURITY MODEL 6187CTXN OR ENGINEER APPROVED EQUAL.
THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT FOR 4 #14 CONDUCTORS (2 FOR POWER/2 FOR CONTROL) FROM THE MOTION DETECTOR TO THE SECURITY CONTROL PANEL.
- 16 PROPOSED SECURITY CARD READER LOCATED AT EXTERIOR OF BUILDING OR PILASTER DOOR. PROVIDED BY THE OWNER'S SECURITY SYSTEM INTEGRATOR.
THE CARD READERS SHALL BE INDALA TYPE.
THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT FOR CARD READER CABLE FROM THE CARD READER TO THE SECURITY CONTROL PANEL.
- 17 ELECTRIC STRIKE. STRIKE PROVIDED BY OTHERS.
THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT FOR 2 #14 CONDUCTORS FROM THE ELECTRIC STRIKE TO THE SECURITY CONTROL PANEL.
- 18 PROPOSED INTRUSION SWITCH MOUNTED AT BUILDING OR PILASTER DOOR. FURNISHED BY THE OWNERS SYSTEM INTEGRATOR AND INSTALLED AND WIRED TO THE SCADA PANEL BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #14 CONDUCTORS TO THE SCADA PANEL.
- 19 PROPOSED 5 KW, 240 VOLT 1 PHASE ELECTRIC UNIT HEATER WITH INTEGRAL DISCONNECT SWITCH, EXHAUST FAN EF-1 WITH FILTERED MOTORIZED INTAKE DAMPER MD-2 AND EXHAUST DAMPER MD-1 AND THERMOSTAT, FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
THE OWNER'S SYSTEM INTEGRATOR SHALL FURNISH THE HEATING AND COOLING CONTROL ENCLOSURE AS SHOWN ON THE HEAT/COOL CONTROL DIAGRAM. THE HEATER SHALL BE PROVIDED BY A 5.0 KW VERTICAL DELIVERY PROJECTION UNIT. THE UNIT HEATER SHALL BE Q-MARK MODEL MUH05-21, WITH NO SHARP EDGES ON ITS OUTER SHELL OR ENGINEER APPROVED EQUAL. THE HEATER SHALL BE COMPLETE WITH INTEGRAL AUTOMATIC RESET HIGH LIMIT THERMAL CUTOFFS, CONTACTOR WITH 24-VOLT COIL, 24 VOLT CONTROL TRANSFORMER, INTEGRAL DISCONNECT SWITCH AND NECESSARY WALL MOUNTING BRACKET(S) AND HARDWARE. THE AIR DISCHARGE SHALL INCLUDE ADJUSTABLE DIRECTIONAL LOUVERS.
THE HEATER SHALL BE DESIGNED FOR 240 VOLT, SINGLE-PHASE OPERATION. THE HEATER SHALL BE LOCATED AS SHOWN ON THE PLANS AND SHALL BE INSTALLED ON THE INTERIOR WALL USING THE MANUFACTURER'S STANDARD WALL BRACKET. THE ELECTRICAL CONTRACTOR SHALL INSTALL A JUNCTION BOX ON THE WALL NEAR THE HEATER LOCATION AND ROUTE A 3/4 INCH CONDUIT WITH 2 #10 CONDUCTORS AND 1 #10 GROUND FROM PANELBOARD A, CKT #6 & 8 TO THE UNIT HEATER'S INTEGRAL DISCONNECT SWITCH. THE ELECTRICAL CONTRACTOR SHALL INSTALL THE JUNCTION BOX ON THE WALL, 84 INCHES AFF TO CONVERT FROM CONDUIT TO FLEXIBLE LIQUID TIGHT CONDUIT. THE ELECTRICAL CONTRACTOR SHALL FURNISH 18 INCHES OF LIQUID-TIGHT FLEXIBLE METAL CONDUIT TO THE ELECTRIC UNIT HEATER FOR FLEXIBILITY.
VENTILATION SHALL BE PROVIDED BY A 500 CFM OR HIGHER AT .250" S.P. WALL MOUNTED EXHAUST FAN WITH FACTORY ELECTRICALLY OPERATED DAMPERS WITH MOTORS, OSHA FAN GUARD, WALL MOUNT COLLAR AND WEATHER HOOD IN CONJUNCTION WITH TWO (2) 120V MOTORIZED DAMPER DEEP STORM PROOF ALUMINUM LOUVER/DAMPERS WITH FLANGE. THE EXHAUST FAN SHALL BE GREENHECK OR ENGINEER APPROVED EQUAL MOUNTED 7'-0" ABOVE FINISHED FLOOR AND THE LOUVER SHALL BE AMERICAN WARMING OR ENGINEER APPROVED EQUAL FACTORY PAINTED WHITE ENAMEL AND MOUNTED 7'-0" ABOVE FINISHED FLOOR. THE INTAKE AND EXHAUST SHALL BE EQUIPPED WITH BUG SCREENS AND THE INTAKE SHALL INCLUDE A REPLACEABLE AIR FILTER WITH EASY ACCESS.
THE ELECTRICAL CONTRACTOR SHALL INSTALL THE EXHAUST FAN SYSTEM AND ROUTE 3/4 INCH CONDUIT WITH 2 #12 CONDUCTORS & 1 #12 GROUND FROM EACH MOTORIZED DAMPER AND THE EXHAUST FAN TO THE HEATING AND COOLING CONTROL ENCLOSURE AND A 3/4 INCH CONDUIT WITH 2 #12 & 1 #12 GROUND FROM PANEL L1, CKT #19 TO THE DISCONNECT SWITCH. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL THE 15 AMP, 120, 1 PHASE, NEMA 1, DISCONNECT SWITCH FOR THE EXHAUST FAN AND MOTORIZED DAMPERS FROM THE HEATING AND COOLING CONTROL PANEL.
THE ELECTRICAL CONTRACTOR SHALL MOUNT AN ELECTRICAL JUNCTION BOX ON THE WALL FOR THE THERMOSTAT AND INSTALL THE CONDUIT FOR THE THERMOSTAT AND ALL RELATED CONTROL WIRING FROM THE HEATING AND COOLING CONTROL ENCLOSURE. THE LOW VOLTAGE WIRING (24VAC) SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL A LINE VOLTAGE RATED THERMOSTAT WITH AUTOMATIC CHANGEOVER HEATING-COOLING CONTROL AND MANUAL FAN SWITCH. THERMOSTAT SHALL BE RATED 8 AMPERES AT 240-VOLTS WITH 46 TO 84 DEGREE FAHRENHEIT RANGE. THERMOSTAT SHALL BE HONEYWELL T605B1013 WITH 0651A1009 SUB-BASE OR ENGINEER APPROVED EQUAL. THE THERMOSTAT SHALL OPERATE ON 24 VAC. THE UNIT HEATER SHALL BE SET TO OPERATE AT 55 DEGREES OR LOWER AND THE FAN/LOUVER SHALL BE SET TO OPERATE AT 80 DEGREES.
- 20 PROPOSED SINGLE POLE LIGHT SWITCH WITH PILOT LIGHT THAT IS ON WHEN THE SWITCH IS IN THE OFF POSITION FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. THE SWITCH SHALL BE LOCATED NEAR THE ENTRANCE (MANDOOR) 48 INCHES ABOVE FINISHED FLOOR, MEASURED TO TOP OF THE BACK BOX.
- 21 PROPOSED CEILING MOUNTED LIGHT FIXTURES PER THE FIXTURE SCHEDULE FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR.
- 22 THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #12 CONDUCTORS AND 1 #12 GROUND TO EACH FIXTURE AND FROM THE LIGHT SWITCH AND CIRCUIT BREAKER LOCATED IN PANELBOARD A, CIRCUIT #1.
- 23 PROPOSED INTERIOR MOUNTED TYPE EBU EMERGENCY LIGHT FIXTURE FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. MOUNT 8 FEET AFF. THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #12 CONDUCTORS AND 1 #12 GROUND TO THE FIXTURE AND FROM THE LIGHT SWITCH AND CIRCUIT BREAKER LOCATED IN PANELBOARD A, CIRCUIT #1.

- 24 PROPOSED EXTERIOR MOUNTED TYPE OA LIGHT FIXTURE FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. MOUNT 1-FOOT ABOVE DOOR. THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #12 CONDUCTORS AND 1 #12 GROUND TO EACH FIXTURE AND FROM THE LIGHT SWITCH AND CIRCUIT BREAKER LOCATED IN PANELBOARD A, CIRCUIT #3.
- 25 PROPOSED LIGHT FIXTURE MOUNTED ALONG THE LENGTH OF THE SHAFT OR CATWALK, FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #12 CONDUCTORS AND 1 #12 GROUND TO EACH FIXTURE AND FROM THE LIGHT SWITCH AND CIRCUIT BREAKER LOCATED IN PANELBOARD A, CIRCUIT #11.
- 26 PROPOSED 3-WAY LIGHT SWITCH(ES) AS INDICATED WITH PILOT LIGHTS THAT ARE ON WHEN THE SWITCHES ARE IN THE OFF POSITION FOR THE FIXTURE(S) TYPE 'B' FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. THE SWITCH SHALL BE LOCATED NEAR THE LADDER IN AN ACCESSIBLE LOCATION.
THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 3 #12 CONDUCTORS AND 1 #12 GROUND FROM EACH SWITCH IN THE PROPER WIRING METHODS TO THE CIRCUIT BREAKER LOCATED IN PANELBOARD A, CIRCUIT #11 AND TO THE LIGHT FIXTURES.
- 27 PROPOSED STATIC DISSIPATOR FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AS SHOWN ON THE DETAIL. THE STATIC DISSIPATOR SHALL BE THE MANUFACTURER AND MODEL SHOWN OR ENGINEER APPROVED EQUAL.
- 28 PROPOSED RECEPTACLE (GFI CB PROTECTED) LOCATED IN THE WATER TOWER FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. THE RECEPTACLES SHALL BE MOUNTED AT THE LOCATIONS SHOWN AND SHALL INCLUDE METAL COVERS.
THE RECEPTACLES SHALL BE WIRED TO PANELBOARD A, CIRCUIT #12 AS SHOWN ON THE PANEL SCHEDULE WITH 3/4 INCH CONDUIT WITH 2 #10 CONDUCTORS & 1 #10 GROUND. NOTE THE CIRCUIT BREAKER IS A GFI TYPE PER THE SCHEDULE.
- 29 PROPOSED SCADA ANTENNA AND ANTENNA CABLE FURNISHED BY THE OWNER'S SYSTEM INTEGRATOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL INSTALL A 2" SCHEDULE 80 PVC CONDUIT AS A CONTINUOUS SLEEVE FOR SUPPORTING THE CABLE AND TIE THE CABLE TO THE REMAINING STRUCTURE AS DIRECTED BY THE TANK MANUFACTURER AND OWNER'S SYSTEM INTEGRATOR.
- 30 PROPOSED UPPER ELEVATED TANK LEVEL TRANSDUCER PE-1-1 WITH GATE VALVE FURNISHED BY THE OWNER'S SYSTEM INTEGRATOR AND MOUNTED BY THE ELECTRICAL CONTRACTOR.
THE TRANSDUCER SHALL BE FOXBORO MODEL IGP20 OR ENGINEER APPROVED EQUAL WITH 4/20 MADC OUTPUT, LOOP POWERED MADE FROM 316L STAINLESS STEEL, SILICON FILLED FLUID, 0-180 DEGREES F AND 0-100% HUMIDITY WITH A +/- .10% ACCURACY AND LESS THAN 1% DRIFT OVER A 12 MONTH PERIOD. THE TRANSDUCER SHALL INCLUDE A 1/2 INCH CONDUIT CONNECTION. THE TRANSDUCER SHALL INCLUDE THE APPROPRIATE LENGTH OF CABLE FROM THE TRANSDUCER LOCATION TO THE SCADA CONTROL PANEL. THE OWNER'S SYSTEM INTEGRATOR SHALL FIELD VERIFY IN THE FIELD BEFORE ORDERING.
THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT TO A NEMA 4X PVC JUNCTION BOX TO THE SCADA CONTROL PANEL AND A 1/2 INCH LIQUID TIGHT FLEXIBLE METAL CONDUIT TO THE TRANSDUCER FROM THE JUNCTION BOX. THE ELECTRICAL CONTRACTOR SHALL ROUTE THE TRANSDUCER CABLE INTO THE SCADA CONTROL PANEL FOR THE OWNER'S SYSTEM INTEGRATOR TO TERMINATE.
- 31 PROPOSED LOWER ELEVATED TANK LEVEL TRANSDUCER PE-2-1 WITH GATE VALVE FURNISHED BY THE OWNER'S SYSTEM INTEGRATOR AND MOUNTED BY THE ELECTRICAL CONTRACTOR.
THE TRANSDUCER SHALL BE FOXBORO MODEL IGP20 OR ENGINEER APPROVED EQUAL WITH 4/20 MADC OUTPUT, LOOP POWERED MADE FROM 316L STAINLESS STEEL, SILICON FILLED FLUID, 0-180 DEGREES F AND 0-100% HUMIDITY WITH A +/- .10% ACCURACY AND LESS THAN 1% DRIFT OVER A 12 MONTH PERIOD. THE TRANSDUCER SHALL INCLUDE A 1/2 INCH CONDUIT CONNECTION. THE TRANSDUCER SHALL INCLUDE THE APPROPRIATE LENGTH OF CABLE FROM THE TRANSDUCER LOCATION TO THE SCADA CONTROL PANEL. THE OWNER'S SYSTEM INTEGRATOR SHALL FIELD VERIFY IN THE FIELD BEFORE ORDERING.
THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT TO A NEMA 4X PVC JUNCTION BOX TO THE SCADA CONTROL PANEL AND A 1/2 INCH LIQUID TIGHT FLEXIBLE METAL CONDUIT TO THE TRANSDUCER FROM THE JUNCTION BOX. THE ELECTRICAL CONTRACTOR SHALL ROUTE THE TRANSDUCER CABLE INTO THE SCADA CONTROL PANEL FOR THE OWNER'S SYSTEM INTEGRATOR TO TERMINATE.
- 32 PROPOSED LOW TEMPERATURE THERMOSTAT TEL-1-1 FURNISHED, INSTALLED AND WIRED ON THE FRONT OF SCADA PANEL BY THE OWNERS SYSTEM INTEGRATOR.
- 33 PROPOSED OBSTRUCTION LIGHT/PHOTOCONTROL
THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #12 CONDUCTORS AND 1 #12 GROUND TO THE CIRCUIT BREAKER LOCATED IN PANEL A, CKT. #7.

- 34 THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL RAYCHEM (PENTAIR) BTV SELF-REGULATING HEAT TRACE ON CHLORINE AND SAMPLE TAP PIPE.
THE HEAT TRACE SHALL BE WRAPPED AROUND THE PIPE AND THE VALVE AS RECOMMENDED BY THE HEAT TRACE MANUFACTURER. THE HEAT TRACE SHALL BE HELD IN PLACE WITH RAYCHEM PART NUMBER GT-66 GLASS TAPE AND THEN INSULATED WITH AT LEAST 1 INCH THICK FIBERGLASS INSULATION. THE HEAT TRACE SHALL BE 58TV AT 120 VOLTS AS MANUFACTURED BY RAYCHEM. THE HEAT TRACE SHALL BE CONTROLLED USING A DIGITRACE AMC-1A AMBIENT SENSING THERMOSTAT. THE ELECTRICAL CONTRACTOR SHALL FIELD VERIFY THE LENGTH OF CABLE REQUIRED AND ALL OTHER MATERIALS TO COMPLETE THE INSTALLATION. THE THERMOSTAT SHALL BE MOUNTED NEAR THE PIPE ON A STAND OR OTHER APPROVED METHOD (CONDUIT SHALL NOT BE THE ONLY MEANS OF SUPPORT).
THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #12 CONDUCTORS AND 1 #12 GROUND FROM PANELBOARD A, CKT #9 TO POWER THE HEAT TRACE.
- 35 PROPOSED #2 AWG BARE COPPER GROUNDING CONDUCTOR ROUTED FROM THE FOOTING REBAR TO PANELBOARD A. REBAR IN FOOTING SHALL BE MADE TO BE CONTINUOUS FOR LEAST 20 FEET.



LAKEVIEW RESERVOIR REPLACEMENT PROJECT MADISON, WISCONSIN

ADDITIONAL NO. 2 DESCRIPTION
08-25-14 DATE REVISIONS
MARK

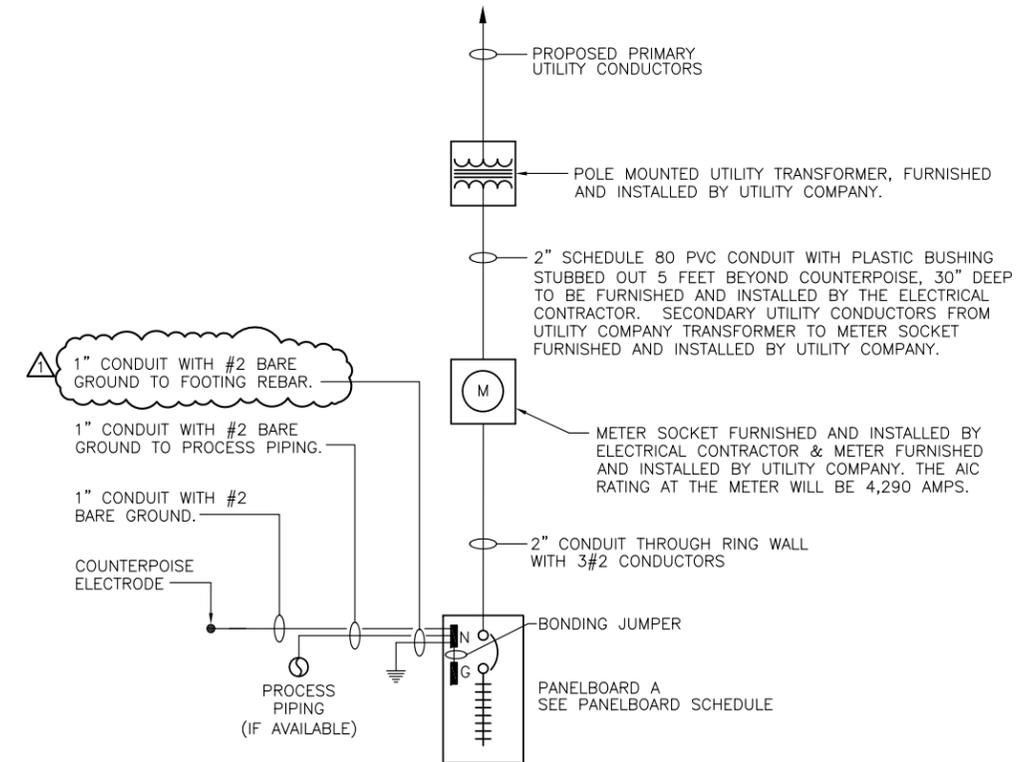
SEH FILE NO. MADWU 126154
PROJECT NO. 07-25-14
ISSUE DATE R.L.B.
DESIGNED BY B.L.F.
DRAWN BY Short Elliott Hendrickson, Inc. © (SEH)
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SHEET TITLE
ELECTRICAL KEYED
NOTES

SHEET
E5

PANELBOARD A	BUS AMPS:	125	MAIN:		MOUNTING:	NOTES: 1. PANELBOARD IS 10KAIC RATED. 2. PROVIDE 4 KEYS FOR LOCK. 3. PROVIDE TINNED COPPER BUSSING (ALL)			
	VOLTAGE:	120/240	CIRCUIT BREAKER:	100	SURFACE:	X			
	PHASE:	1	MAIN LUG ONLY:		FLUSH:				
	WIRE:	3	SUB-FEED LUGS:		AIC RATING:				
CIRCUIT DESCRIPTION	AMPS	AMPS	CB	CKT	CKT	CB	AMPS	AMPS	CIRCUIT DESCRIPTION
INTERIOR LIGHTING	8.00		20/1	1	2	20	0.00		SURGE ARRESTOR
EXTERIOR DOOR LIGHTING		0.10	20/1	3	4	2	0.00		SURGE ARRESTOR
VALVE BUILDING RECEPT. (1)	1.50		20/1	5	6	30	21.00		ELECTRIC UNIT HEATER NO.1
OBSTRUCTION LIGHT		1.00	20/1	7	8	2	21.00		ELECTRIC UNIT HEATER NO.1
HEAT TRACE (2)	2.00		15/1	9	10	20/1	0.01		PHASE LOSS RELAY POWER
WATER TOWER LIGHTING		1	20/1	11	12	20/1	7.50		TANK RECEPTACLES (1)
SCADA PANEL	5		20/1	13	14	20/1	5.00		SECURITY PANEL/POWER SUPPLY
PHASE LOSS RELAY (PLR)		0.1	15	15	16	30/1	10.00		CATHODIC PROTECTION PANEL NO.1
PHASE LOSS RELAY (PLR)	0.1		2	17	18	30/1	10.00		CATHODIC PROTECTION PANEL NO.2
EXHAUST FAN NO.1 AND MOTORIZED DAMPERS		10	20/1	19	20	20/1			SPARE
SPARE			20/1	21	22	20/1			SPARE
SPARE			20/1	23	24	20/1			SPARE
SPARE			20/1	25	26	20/1			SPARE
SPARE			20/1	27	28	20/1			SPARE
SPARE			20/1	29	30	20/1			SPARE
SUB-TOTAL:	16.60	12.20			SUB-TOTAL:		36.01	38.50	
					TOTAL:		52.61	50.70	

- (1) PROVIDE 4-5MA GFI CIRCUIT BREAKER TO PROTECT CIRCUIT SHOWN.
(2) PROVIDE 30MA GROUND FAULTY CIRCUIT BREAKER TO PROTECT CIRCUIT SHOWN.



ONE-LINE DIAGRAM
N.T.S.

RESERVOIR I/O LIST

PLC INPUT	LOCATION OF EQUIPMENT:	CONDITION:	VOLTAGE:	CONDUCTORS:	DEVICE:
PLC INPUT 0	BUILDING LOW TEMPERATURE	BUILDING LOW TEMPERATURE	24VDC	2 #14 CONDUCTORS	THERMOSTAT
PLC INPUT 1	SCADA PANEL	CONTROL POWER FAILURE	24VDC	2 #14 CONDUCTORS	PHASE LOSS RELAY
PLC INPUT 2	SCADA PANEL	UPS FAILURE	24VDC	2 #14 CONDUCTORS	UPS RELAY CARD
PLC INPUT 3	VALVE BLDG.	FLOOD	24VDC	2 #14 CONDUCTORS	WATER BUG
PLC INPUT 4	SCADA PANEL	COMMUNICATION FAILURE	24VDC	2 #14 CONDUCTORS	PLC/WATCHDOG
PLC INPUT 5	VALVE BLDG. DOOR	INTRUSION SWITCH	24VDC	2 #14 CONDUCTORS	DOOR LIMIT SWITCH
PLC INPUT 6	PILASTER SERVICE DOOR NO.1	INTRUSION SWITCH	24VDC	2 #14 CONDUCTORS	DOOR LIMIT SWITCH
PLC INPUT 7	PILASTER SERVICE DOOR NO.2	INTRUSION SWITCH	24VDC	2 #14 CONDUCTORS	DOOR LIMIT SWITCH
PLC INPUT 8	PILASTER SERVICE DOOR NO.3	INTRUSION SWITCH	24VDC	2 #14 CONDUCTORS	DOOR LIMIT SWITCH
PLC INPUT 9	PILASTER SERVICE DOOR NO.4	INTRUSION SWITCH	24VDC	2 #14 CONDUCTORS	DOOR LIMIT SWITCH
PLC INPUT 10	PILASTER SERVICE DOOR NO.5	INTRUSION SWITCH	24VDC	2 #14 CONDUCTORS	DOOR LIMIT SWITCH
PLC INPUT 11	PILASTER SERVICE DOOR NO.6	INTRUSION SWITCH	24VDC	2 #14 CONDUCTORS	DOOR LIMIT SWITCH
PLC INPUT 12	SURGE ARRESTOR	FAILURE	24VDC	2 #14 CONDUCTORS	SURGE ARRESTOR
PLC INPUT 13	CATHODIC PROTECTION PANEL NO.1	FAILURE	24VDC	2 #14 CONDUCTORS	PANEL
PLC INPUT 14	CATHODIC PROTECTION PANEL NO.2	FAILURE	24VDC	2 #14 CONDUCTORS	PANEL
PLC INPUT 15	SPARE				
PLC INPUT 16	SPARE				
PLC INPUT 17	SPARE				
PLC OUTPUT	LOCATION OF EQUIPMENT:	CONDITION:	VOLTAGE:	CONDUCTORS:	DEVICE:
PLC OUTPUT 0	SPARE				
PLC OUTPUT 1	SPARE				
PLC OUTPUT 3	SPARE				
PLC OUTPUT 4	SPARE				
ANALOG INPUTS:	LOCATION OF EQUIPMENT:	CONDITION:	VOLTAGE:	CONDUCTORS:	DEVICE:
PLC INPUT 0	PRESSURE TRANSDUCER PE-1-1	UPPER RESERVOIR LEVEL	4-20MA	2/C TRANSMITTER CABLE	TRANSDUCER
PLC INPUT 1	PRESSURE TRANSDUCER PE-2-1	LOWER RESERVOIR LEVEL	4-20MA	2/C TRANSMITTER CABLE	TRANSDUCER
PLC INPUT 2	SPARE				
ANALOG OUTPUTS:	LOCATION OF EQUIPMENT:	CONDITION:	VOLTAGE:	CONDUCTORS:	DEVICE:
PLC OUTPUT 0	SPARE				
PLC OUTPUT 1	SPARE				
PLC OUTPUT 3	SPARE				

- NOTES:
1. EQUIPMENT GROUNDING CONDUCTORS NOT SHOWN, BUT ARE REQUIRED.
2. NOT ALL SPARE INPUTS OR OUTPUTS ARE SHOWN, USING STANDARD 8 OR 16 POINT CARDS.

LIGHTING FIXTURE SCHEDULE

DES.	DESCRIPTION	LAMP DATA		VOLT	DEPTH	LIGHTING FIXTURE		MTG.	SURF.	SEE NOTE
		NO.	TYPE			MFR.	CAT. NO.			
A	8' FIBERGLASS INDUSTRIAL	-	L.E.D.	MVOLT	-	LITHONIA	FEM4LED-4L-IMAFL-WLFEND	S	ES	
B	ENCLOSED VAPORTIGHT - WALL MOUNT	1	L.E.D. LAMP	120	-	CROUSE-HINDS	VXHB22GP	W	ES	1
C	ENCLOSED VAPORTIGHT - STANCHION MOUNT	1	L.E.D. LAMP	120	-	CROUSE-HINDS	VXHA42GP	PIPE	RAIL	1,2
EBU	12V EMERGENCY BATTERY UNIT	2	50 PAR36	120	-	LITHONIA	IND12100-H5012S-ULT	W	ES	
OA	CUTOFF WALL LIGHT WITH MOTION/LIGHT SENSOR	-	L.E.D.	MVOLT	-	LITHONIA	DSXW1LED-10C-530-40K-TFTM-MVOLT-PIR-DEBXD	W	C	
OB	OBSTRUCTION LIGHT WITH PHOTOCONTROL	-	L.E.D.	120	-	DIALIGHT UNIMAR	860-1R01-002 18001-001	S	ES	3

- LIGHTING FIXTURE SCHEDULE NOTES:**
- FIXTURE TO INCLUDE PENNSYLVANIA ULTRA L.E.D. OMNI DIRECTIONAL, 2700K COLOR TEMPERATURE, 1600 LUMENS, 20 WATT, 25,000 HOUR RATED, CATALOG #LED20A21/DIM/0/827, NO APPROVED EQUAL.
 - PROVIDE 1-1/4" ALUMINUM PIPE FOR SUPPORT FOR FIXTURE. ATTACH TO RAIL WITH STAINLESS STEEL HARDWARE AND SUPPORTS. FIXTURE TO BE MOUNTED 8 FEET ABOVE CATWALK.
 - MOUNT LIGHT TO (ABOVE) PHOTOCONTROL.

Powrtek Engineering, Inc.
20711 WATERTOWN RD., SUITE C
WAUKESHA, WI 53186
VOICE: 262-827-9575
FAX: 262-827-9615



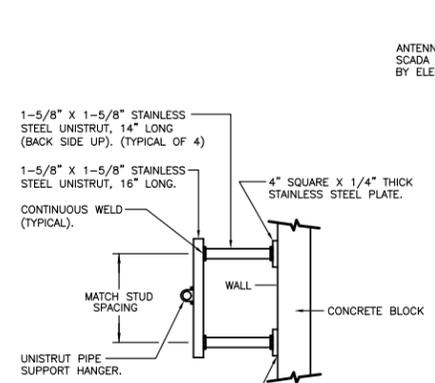
LAKEVIEW RESERVOIR REPLACEMENT PROJECT
MADISON, WISCONSIN

08-25-14 DATE
REVISIONS

MADWU 126154
PROJECT NO. 07-25-14
R.J.B. B.L.F.
DESIGNED BY
DRAWN BY
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SHEET TITLE
ELECTRICAL SCHEDULES AND ONE-LINE DIAGRAM

SHEET
E7

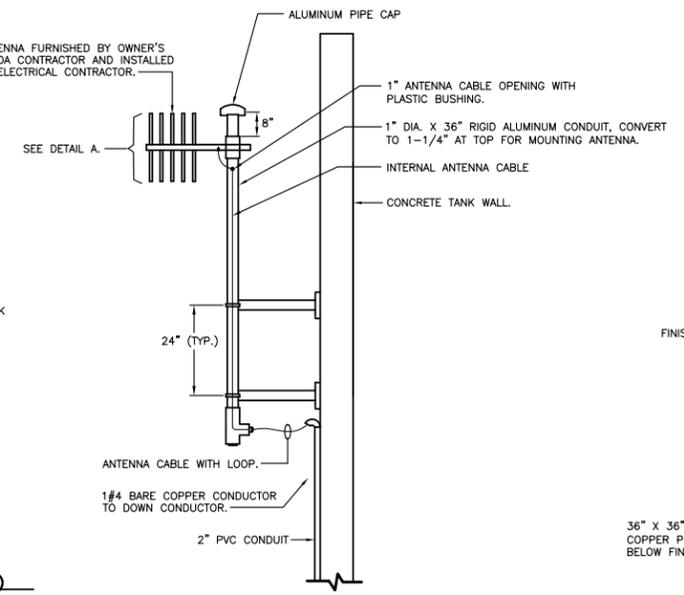


PLAN VIEW

ANTENNA MOUNTING DETAIL
N.T.S.

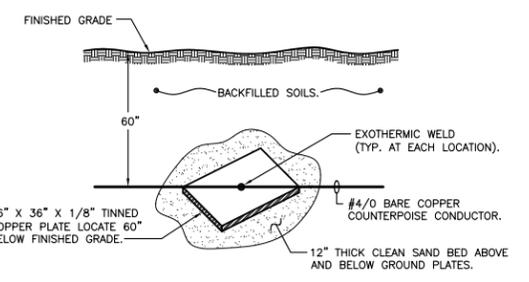
GENERAL NOTES: (WELL HOUSE ANTENNA)

1. INSTALL ALL EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. FURNISH AND INSTALL ALL CONNECTORS, STRAPS, AND ECT TO PROVIDE A COMPLETE INSTALLATION.
2. ALL STAINLESS STEEL TO BE TYPE 316L.

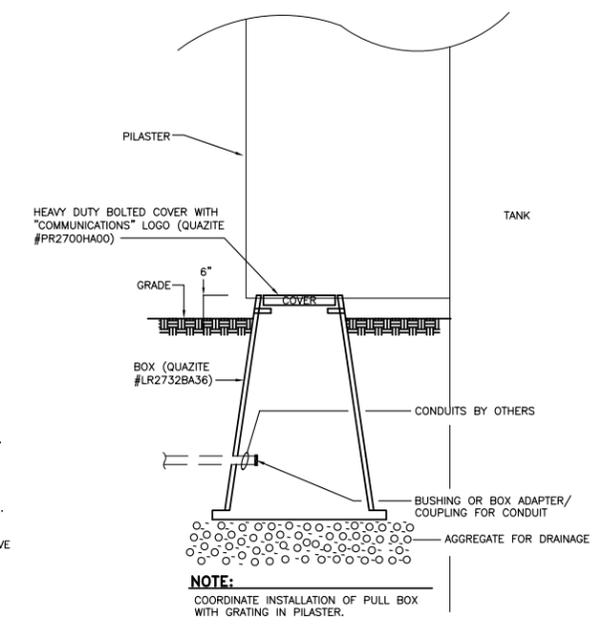


ANTENNA VIEW

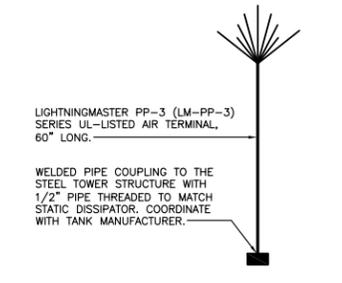
CONCRETE TANK ANTENNA MOUNTING DETAIL
N.T.S.



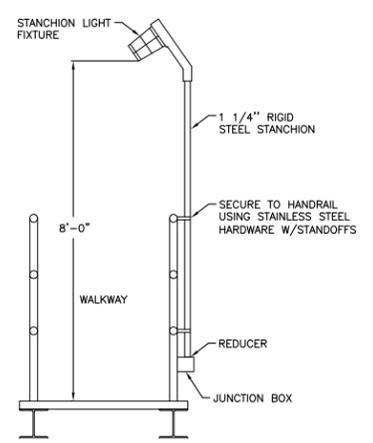
COUNTERPOISE GROUND PLATE INSTALLATION DETAIL
N.T.S.



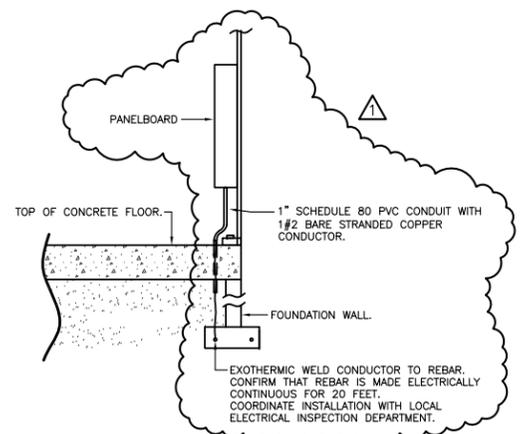
COMMUNICATIONS PULL BOX DETAIL
NO SCALE



WATER TOWER STATIC DISSIPATOR DETAIL
N.T.S.

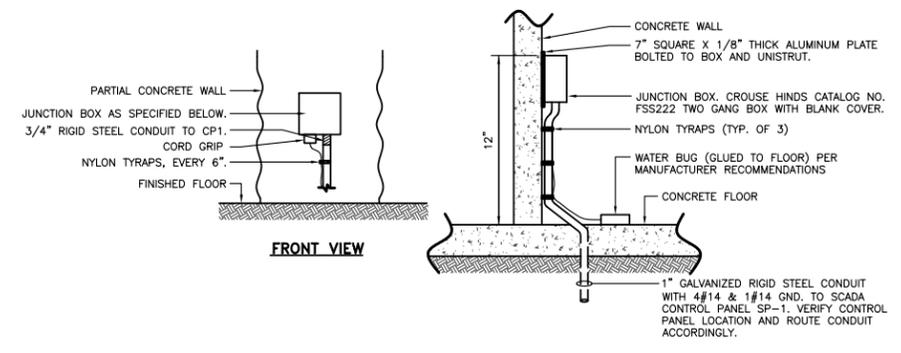


STANCHION LIGHT FIXTURE DETAIL
N.T.S.



- NOTES:**
1. SEE TANK MANUFACTURER'S FOOTING DESIGN FOR EXACT INFORMATION AND LOCATION OF REBAR.

TYPICAL CONCRETE ENCASED ELECTRODES
N.T.S.



- NOTE:**
1. ALL MOUNTING HARDWARE SHALL BE 316 SST. USE WASHERS AND SPLIT LOCK WASHERS UNDER ALL NUTS AND BOLTS.

TYPICAL MOISTURE SENSOR (WATER BUG) MOUNTING DETAIL
N.T.S.