

CITY OF ANN ARBOR, MICHIGAN MANCHESTER TANK MISCELLANEOUS IMPROVEMENTS AND TANK COATING PROJECT

710 AVIS DRIVE, SUITE 100
ANN ARBOR, MI 48108
Tel. 734.665.6000 Fax. 734.213.3003



TETRA TECH

DIXON ENGINEERING, INC.
Ann Arbor, MI 0.50 MG Spheroid

www.tetrattech.com

PROJECT LOCATION:

2011 MANCHESTER RD
ANN ARBOR, MI 48104

CLIENT INFORMATION:

CITY OF ANN ARBOR
WATER TREATMENT SERVICES UNIT

Tt PROJECT No.:

200-31537-15001

CLIENT PROJECT No.:

CONTRACT NO. 1 - ITB #: 4399, FILE #: 16001
CONTRACT NO. 2 - ITB #: 4400, FILE #: 16002

PROJECT DESCRIPTION / NOTES:

THIS PROJECT IS DIVIDED INTO TWO (2) CONTRACTS:
CONTRACT NO. 1 - MECHANICAL, ELECTRICAL AND MISCELLANEOUS WORK

CONTRACT NO. 2 - TANK COATING, ART PAINTING, METAL REPAIRS AND MISCELLANEOUS WORK

ISSUED:

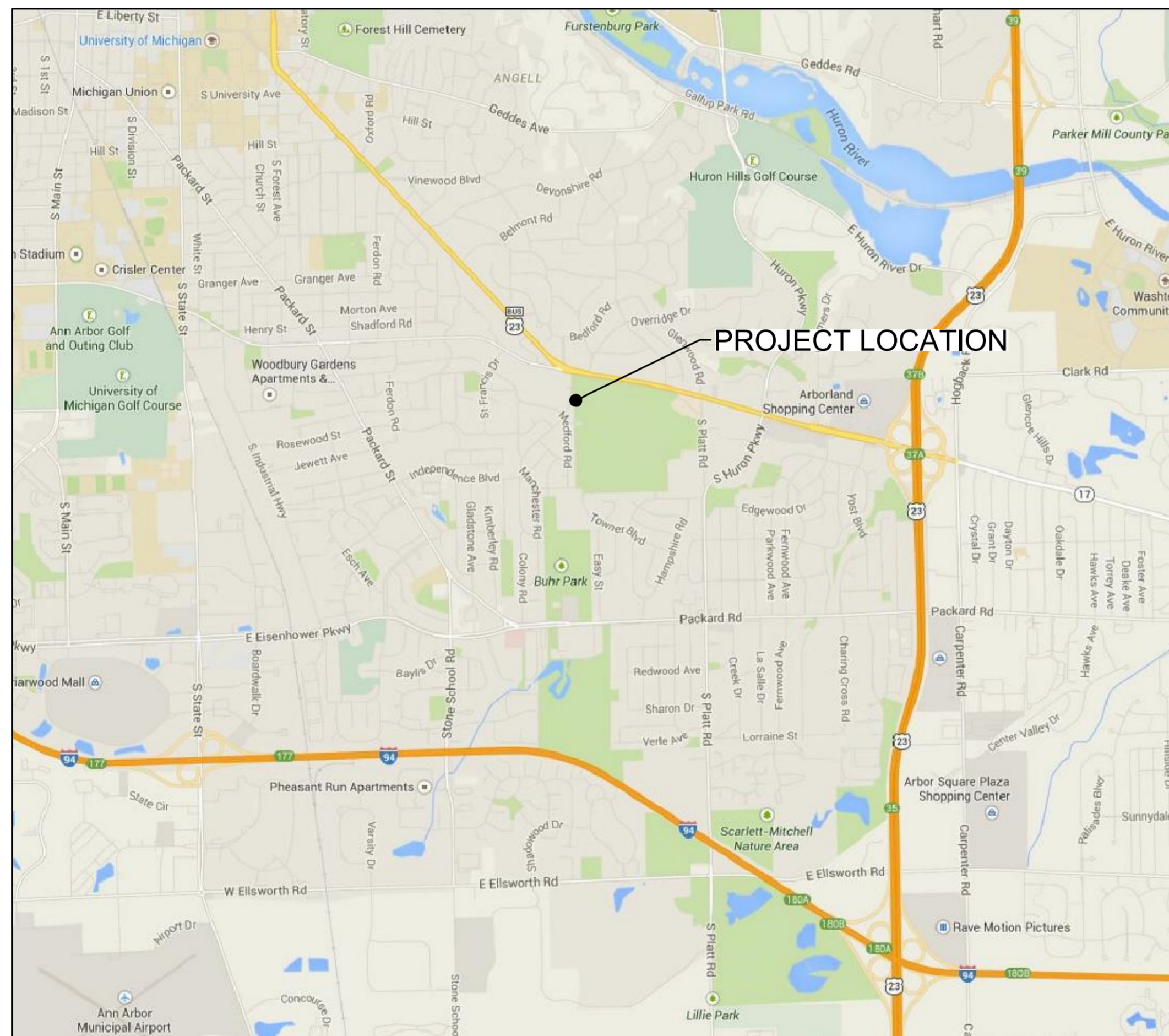
AUGUST 6, 2015 - ISSUED FOR BIDS

VICINITY MAP:



ANN ARBOR, MICHIGAN

SHEET INDEX	
SHEET NO.	SHEET TITLE
GENERAL	
G-000	COVER
G-001	GENERAL NOTES AND LEGEND
CIVIL	
C-101	SITE PLAN
C-301	TANK ELEVATION PROPOSED IMPROVEMENTS
C-500	SITE DETAILS
PROCESS	
D-001	PIPING LEGEND
D-101	TANK FLOOR PLAN - INTERIOR AND SITE
D-102	TANK INTERIOR GROUND LEVEL DEMOLITION
D-103	TANK INTERIOR GROUND LEVEL PROPOSED
D-500	PIPING DETAILS
D-501	PIPING DETAILS
STRUCTURAL	
S-101	STRUCTURAL PLAN AND SECTIONS
S-500	PLATFORM AND HATCH DETAILS
ELECTRICAL	
E-001	ELECTRICAL LEGEND
E-101	ELECTRICAL SITE PLAN
E-102	ELECTRICAL WATER TOWER PLAN
E-103	INSTRUMENTATION WATER TOWER PLAN
E-500	ELECTRICAL HEAT TRACE
E-501	ELECTRICAL HEAT TRACE
E-502	ELECTRICAL DETAILS
E-601	ELECTRICAL SCHEDULE
E-801	ELECTRICAL CONTROL PANEL
E-802	ELECTRICAL CONTROL PANEL
ED-101	ELECTRICAL REMOVAL PLAN
ED-102	ELECTRICAL DEMO PLAN



LOCATION MAP

SCALE: NONE



SITE LEGEND (NOTE: NOT ALL SYMBOLS MAY BE USED)

SITE SYMBOLS	UTILITY SYMBOLS	UTILITY SYMBOLS (CONT'D.)	FEATURE HATCHING
FEATURES	WATER	ELECTRICAL	EXISTING ASPHALT TO BE DEMOLISHED
EXISTING SIGN	DRINKING FOUNTAIN	METER	EXISTING CONCRETE TO BE DEMOLISHED
PROPOSED SIGN	EXISTING VALVE IN BOX	TRANSFORMER	PROPOSED PAVEMENT
TRASH RECEPTACLE	PROPOSED VALVE IN BOX	BOX OR RISER	PROPOSED CONCRETE PAVEMENT
PICNIC TABLE	EXISTING CURB STOP	LOCATION FLAG	PROPOSED LIGHT DUTY ASPHALT PAVEMENT
POST	PROPOSED CURB STOP	LIGHT POLE	PROPOSED HEAVY DUTY ASPHALT PAVEMENT
MAIL BOX	METER	EXTERIOR BUILDING LIGHT	PROPOSED GRAVEL
POWER METER	EXISTING VALVE MANHOLE	TRAFFIC SIGNAL POLE	WETLAND AREA
FLAG POLE	PROPOSED VALVE MANHOLE	TRAFFIC SIGNAL CONTROL (BOX)	PROPOSED SOD
ROCK	EXISTING WELL	RAIL ROAD SIGNAL	
GUY WIRE	PROPOSED WELL	MANHOLE	
UTILITY POLE	EXISTING FIRE HYDRANT	JUNCTION BOX	
DECIDUOUS TREE	PROPOSED FIRE HYDRANT		
EVERGREEN TREE	SPRINKLER HEAD		
PALM TREE	IRRIGATION BOX		
BUSH	SPIGOT		
STUMP	LOCATION FLAG		
STORM / DRAINAGE	SANITARY SEWER	FEATURES & FEATURE LINES	
EXISTING MANHOLE	EXISTING MANHOLE	GRADING LIMITS	
PROPOSED MANHOLE	PROPOSED MANHOLE	RIGHT OF WAY LINE	
EXISTING CULVERT	EXISTING AIR RELEASE STRUCTURE	SECTION LINE	
PROPOSED CULVERT	PROPOSED AIR RELEASE STRUCTURE	UTILITY EASEMENTS	
EXISTING INLET BASIN	EXISTING IN-LINE FLUSH CONNECTION	EXISTING CONTOUR - MAJOR	
PROPOSED INLET BASIN	PROPOSED IN-LINE FLUSH CONNECTION	EXISTING CONTOUR - MINOR	
PROPOSED INLET BASIN	EXISTING CLEAN OUT	PROPOSED CONTOUR - MAJOR	
PROPOSED INLET BASIN	PROPOSED CLEAN OUT	PROPOSED CONTOUR - MINOR	
PROPOSED INLET BASIN	EXISTING SEWER VALVE	EROSION SILT FENCE	
PROPOSED INLET BASIN	PROPOSED SEWER VALVE	EROSION SUPER SILT FENCE	
PROPOSED INLET BASIN	EXISTING CURB STOP	FENCE (WOOD)	
PROPOSED INLET BASIN	PROPOSED CURB STOP	FENCE (STEEL)	
PROPOSED INLET BASIN	PUMP STATION (SIMPLEX)	FLOOD HAZARD AREA	
PROPOSED INLET BASIN	PUMP STATION (DUPLIX)	FLOW ARROW	
PROPOSED INLET BASIN	SEWER LATERAL	GUARD RAILING	
PROPOSED INLET BASIN	LOCATION FLAG	GRAVEL ROAD OR DRIVE	
PROPOSED INLET BASIN	NATURAL GAS MARKER	RAIL ROAD TRACKS	
PROPOSED INLET BASIN	LOCATION FLAG	ROCK RETAINING WALL	
PROPOSED INLET BASIN	VALVE	TREE / BRUSH LINES	
PROPOSED INLET BASIN	CABLE TV RISER	CLEARING & GRUBBING LIMITS	
PROPOSED INLET BASIN	CABLE TV LOCATION FLAG	WATER EDGES	
PROPOSED INLET BASIN	CABLE TV JUNCTION BOX	DITCH CENTER LINE	
PROPOSED INLET BASIN	TELEPHONE	WETLAND BOUNDARY	
PROPOSED INLET BASIN	BOX OR RISER	PROPOSED SUPERSTRUCTURE	
PROPOSED INLET BASIN	JUNCTION BOX	EXISTING SUPERSTRUCTURE	
PROPOSED INLET BASIN	FIBER OPTIC BOX	STRUCTURE (TANKS, ETC.)	
PROPOSED INLET BASIN	LOCATION FLAG	EXISTING UNDERGROUND STRUCTURE	
PROPOSED INLET BASIN	FIBER OPTIC FLAG	FUTURE STRUCTURE	
PROPOSED INLET BASIN	MANHOLE		
PROPOSED INLET BASIN	VAULT	UTILITY LINES	
PROPOSED INLET BASIN	SATELLITE DISH	CABLE TV OVERHEAD	
PROPOSED INLET BASIN		CABLE TV UNDERGROUND	
PROPOSED INLET BASIN		COMMUNICATION FIBER OPTIC	
PROPOSED INLET BASIN		COMMUNICATION OVERHEAD	
PROPOSED INLET BASIN		COMMUNICATION UNDERGROUND	
PROPOSED INLET BASIN		ELECTRIC OVERHEAD	
PROPOSED INLET BASIN		ELECTRIC UNDERGROUND	
PROPOSED INLET BASIN		NATURAL GAS	
PROPOSED INLET BASIN		NATURAL GAS HIGH PRESSURE	
PROPOSED INLET BASIN		JET FUEL	
PROPOSED INLET BASIN		SANITARY FORCEMAIN	
PROPOSED INLET BASIN		SANITARY SEWER LINE	
PROPOSED INLET BASIN		STORM DRAIN	
PROPOSED INLET BASIN		STORM ROOF DRAIN	
PROPOSED INLET BASIN		STEAM	
PROPOSED INLET BASIN		FIRE PROTECTION	
PROPOSED INLET BASIN		WATER MAIN	
PROPOSED INLET BASIN		UTILITY LINE 36" AND LARGER	
PROPOSED INLET BASIN			

NOTE: HEAVIER LINE WEIGHTS INDICATE PROPOSED WORK.

GENERAL NOTES

- THREE FULL WORKING DAYS PRIOR TO ANY EXCAVATION; THE CONTRACTOR SHALL CONTACT MISS DIG (1-800-482-7171) FOR LOCATION OF UNDERGROUND UTILITIES LOCATED IN THE VICINITY OF THE WORK. THE CONTRACTOR SHALL MAKE ANY NECESSARY ARRANGEMENTS WITH UTILITY COMPANIES FOR RELOCATION OF EXISTING UTILITIES, IF REQUIRED.
- UNDERGROUND UTILITIES AS SHOWN HEREON WERE TAKEN FROM EXISTING PLANS AND ARE APPROXIMATE LOCATIONS ONLY. UNDERGROUND UTILITY LOCATIONS HAVE NOT BEEN FIELD VERIFIED.
- UNLESS SPECIFICALLY NOTED FOR REMOVAL ON THE CONSTRUCTION PLANS, ALL SIDEWALK, DRIVES, CULVERTS, GUARDRAILS AND ABOVE GROUND UTILITIES DAMAGED OR DESTROYED DURING CONSTRUCTION SHALL BE REMOVED AND REPLACED, INCIDENTAL TO THE COST OF CONSTRUCTION, AT NO EXPENSE TO THE OWNER.
- EXISTING WATER MAINS, GAS MAINS AND UNDERGROUND TELEPHONE, ELECTRIC AND CABLE TELEVISION CONDUITS AND/OR LINES ARE SHOWN ONLY IN THE PLAN VIEW OF THE CONSTRUCTION DRAWINGS. THE EXACT DEPTH OF THESE UTILITIES IS NOT KNOWN AND THEREFORE, NO ATTEMPT HAS BEEN MADE TO SHOW SUCH UTILITIES IN THE PROFILE OF THE CONSTRUCTION DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THESE UTILITIES WHICH ARE NOT WITHIN THE SPACE OCCUPIED BY COMPLETED PIPES OR STRUCTURES THAT ARE A PART OF THIS CONTRACT. DURING CONSTRUCTION, IF DAMAGED OR DESTROYED DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COSTS TO REPAIR OR REPLACE THEM AT NO ADDITIONAL EXPENSE TO THE OWNER.
- THE CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN A MANNER ACCEPTABLE TO THE ENGINEER DURING THE PROPOSED CONSTRUCTION. ANY UTILITY, WHICH IS TO REMAIN IN SERVICE, THAT IS DAMAGED OR DESTROYED DURING CONSTRUCTION SHALL BE REPLACE BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT POINTS OF POSSIBLE CONFLICT SO THAT THESE CONFLICTS CAN BE RESOLVED.
- CONTRACTOR SHALL INSTALL SILT FENCING ALONG THE DOWN SLOPE SIDE OF ALL EXCAVATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE TELECOM COMPANIES AND THEIR EXISTING EQUIPMENT ON SITE.

SESC NOTES:

- CONTRACTOR RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF ALL TEMPORARY AND PERMANENT SOIL EROSION AND SEDIMENTATION CONTROL (SESC) MEASURES DURING CONSTRUCTION. CONTRACTOR SHALL REMOVE ANY TEMPORARY SESC MEASURES AFTER PROJECT COMPLETION. CONTRACTOR RESPONSIBLE FOR OBTAINING, EXERCISING AND PERFORMING ALL WORK IN ACCORDANCE WITH THE CONDITIONS PROVIDED BY THE ISSUER OF THE SOIL EROSION AND SEDIMENTATION CONTROL PERMIT.
- ENGINEER TO VERIFY PROPER INSTALLATION OF APPROVED SESC MEASURES PRIOR TO COMMENCEMENT OF EARTH DISTURBANCE ON SITE.
- ALL TEMPORARY SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED PRIOR TO EARTH DISTURBANCE ACTIVITY AND CHECKED DAILY FOR EFFECTIVENESS AND REPAIRED AS NEEDED.

ALL WORK SHOWN ON THIS SHEET SHALL BE CONSIDERED APPLICABLE TO BOTH CONTRACTS UNDER THE MANCHESTER TANK MISCELLANEOUS IMPROVEMENTS AND TANK COATING PROJECT.

TETRA TECH
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MARK	DATE	DESCRIPTION
	8/06/15	ISSUED FOR BIDS

CITY OF ANN ARBOR, MICHIGAN
MANCHESTER TANK MISC IMPROVEMENTS
AND TANK COATING PROJECT
GENERAL NOTES AND LEGEND

Project No.: 200-31537-15001
Designed By: EMS
Drawn By: EMS
Checked By: BMR

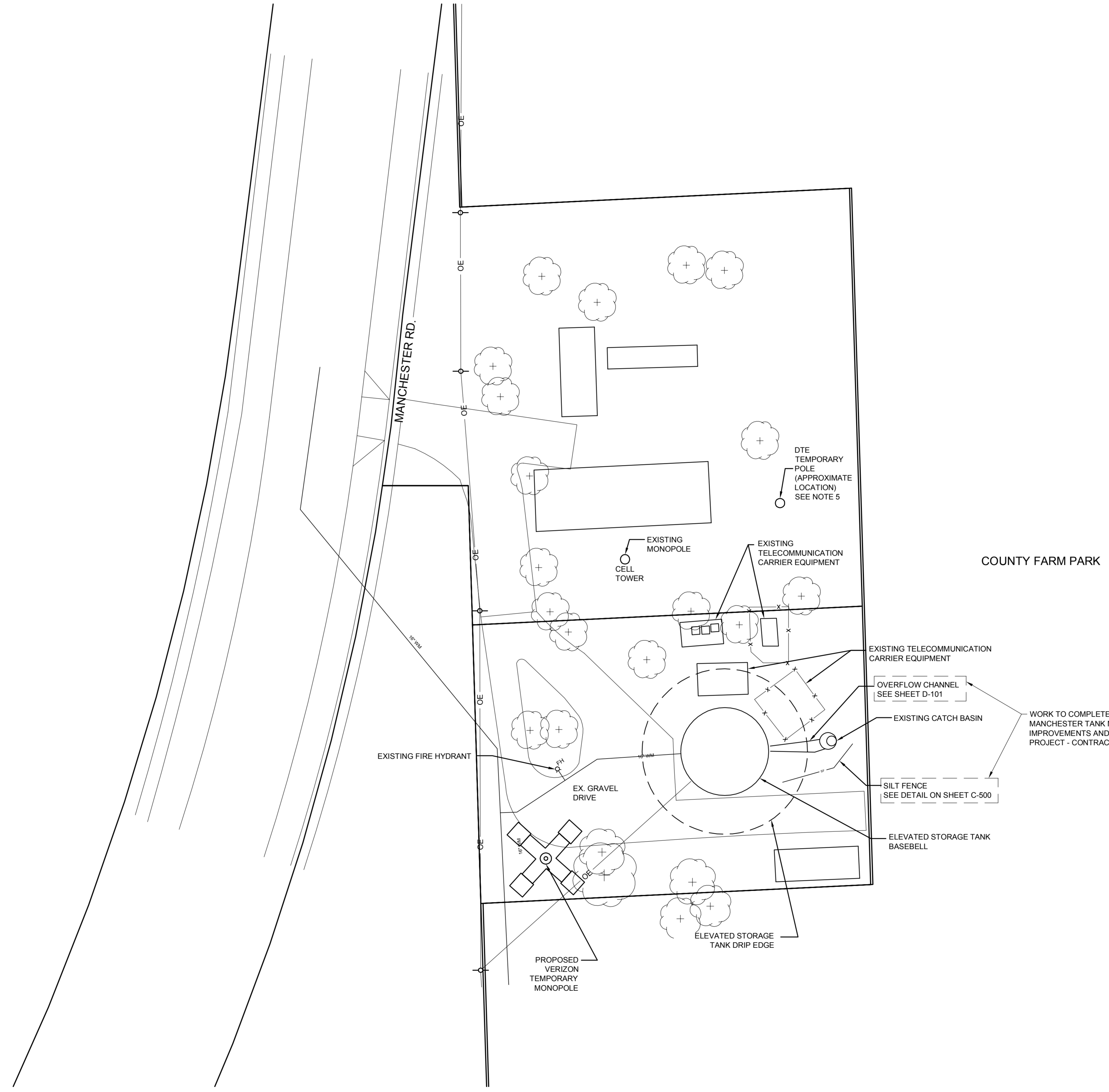
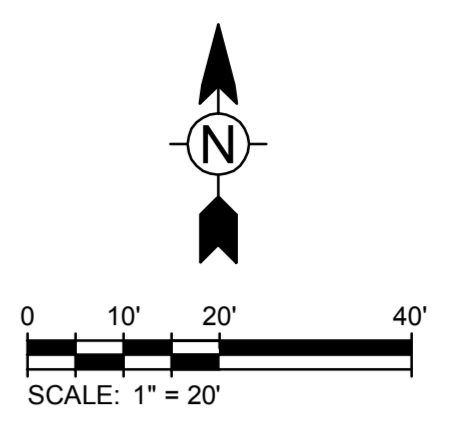
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ALL REFERENCE INFORMATION AND WORK SHOWN ON THIS SHEET SHALL BE CONSIDERED APPLICABLE TO BOTH CONTRACTS UNDER THE MANCHESTER TANK MISCELLANEOUS IMPROVEMENTS AND TANK COATING PROJECT, UNLESS NOTED OTHERWISE.

- CONTRACT NO. 1**
NOTES:
1. ALL LOCATIONS AND DIMENSIONS OF EXISTING FEATURES SHOWN ON THE DRAWINGS ARE APPROXIMATE. FIELD VERIFY SITE CONDITIONS AND EXISTING FEATURES PRIOR TO COMMENCING WORK.
 2. REPAIR AND REGRADE EXISTING GRAVEL DRIVE. REPLACE MINIMUM OF 6" TOP COURSE WITH MDOT 23A MODIFIED LIMESTONE IN ACCORDANCE WITH MDOT STANDARD CONSTRUCTION SPECIFICATIONS.
 3. PLACE ONE (1) PROJECT SIGN IN ACCORDANCE WITH DETAIL ON SHEET C-500.
 4. PROTECT TREES AND TELECOMMUNICATION MONOPOLES IN ACCORDANCE WITH ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS, DIVISION II - GENERAL SPECIFICATIONS "PROTECTION OF TREES" AND STANDARD DETAIL SD-M-1.
 5. ADDITIONAL CABLES WILL BE RUN TO DTE PROPERTY DURING CONSTRUCTION AND ARE NOT CURRENTLY SHOWN.

- CONTRACT NO. 2**
NOTES:
1. ALL LOCATIONS AND DIMENSIONS OF EXISTING FEATURES SHOWN ON THE DRAWINGS ARE APPROXIMATE. FIELD VERIFY SITE CONDITIONS AND EXISTING FEATURES PRIOR TO COMMENCING WORK.
 2. MAINTAIN PROTECTION OF TREES AND TELECOMMUNICATION MONOPOLES AS ESTABLISHED IN CONTRACT NO. 1 IN ACCORDANCE WITH ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS AND DETAILS.
 3. ADDITIONAL CABLES WILL BE RUN TO DTE PROPERTY DURING CONSTRUCTION AND ARE NOT CURRENTLY SHOWN.



WORK TO COMPLETED UNDER THE MANCHESTER TANK MISCELLANEOUS IMPROVEMENTS AND TANK COATING PROJECT - CONTRACT NO. 1.

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TETRA TECH

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CITY OF ANN ARBOR, MICHIGAN
 MANCHESTER TANK MISC IMPROVEMENTS
 AND TANK COATING PROJECT
SITE PLAN

Project No.: 200-31537-15001
 Designed By: EMS
 Drawn By: EMS
 Checked By: BMR

C-101

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 Bar Measures 1 inch

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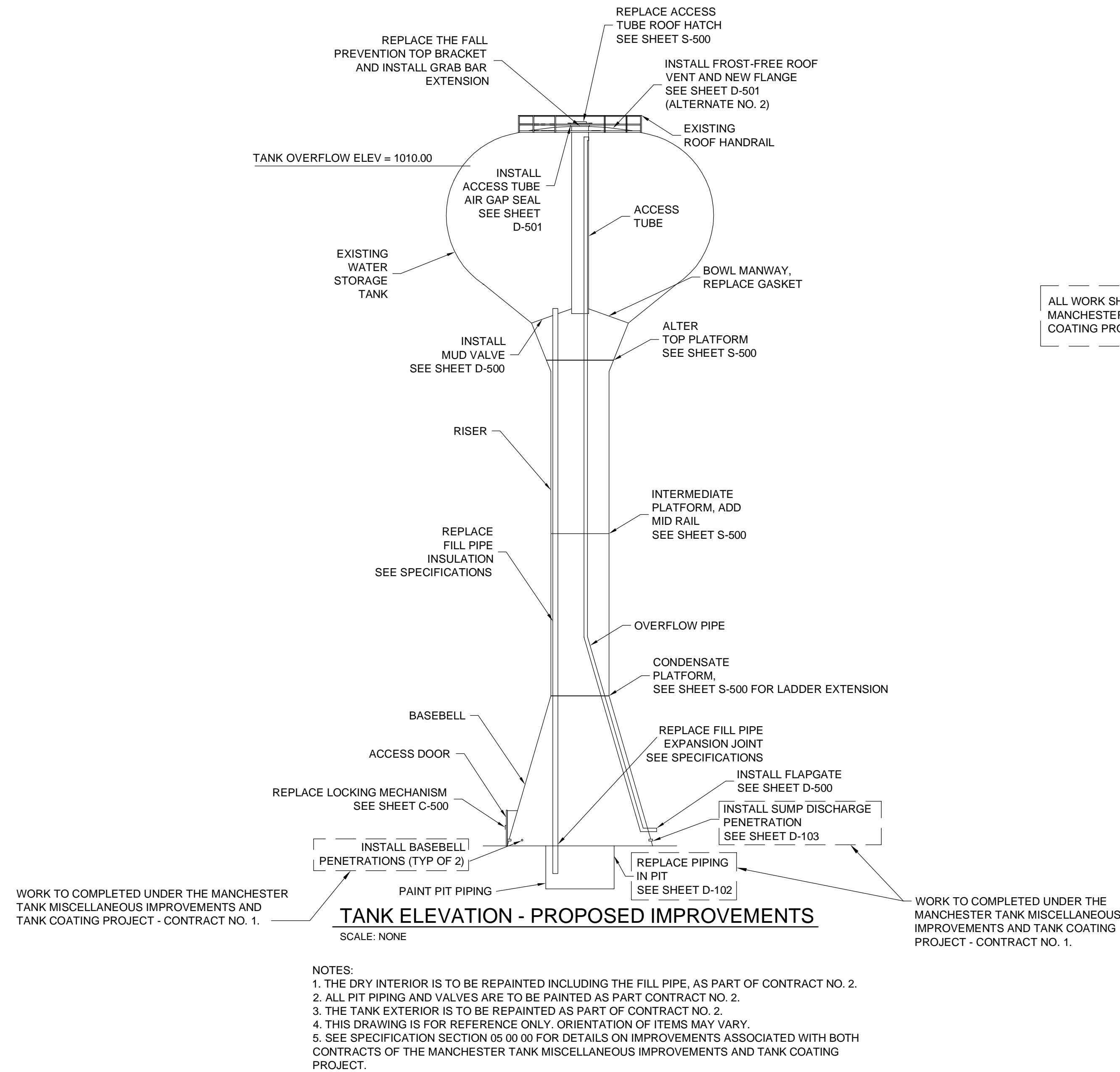
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A



WORK TO COMPLETED UNDER THE MANCHESTER TANK MISCELLANEOUS IMPROVEMENTS AND TANK COATING PROJECT - CONTRACT NO. 1.

TANK ELEVATION - PROPOSED IMPROVEMENTS
SCALE: NONE

WORK TO COMPLETED UNDER THE MANCHESTER TANK MISCELLANEOUS IMPROVEMENTS AND TANK COATING PROJECT - CONTRACT NO. 1.

- NOTES:
 1. THE DRY INTERIOR IS TO BE REPAINTED INCLUDING THE FILL PIPE, AS PART OF CONTRACT NO. 2.
 2. ALL PIT PIPING AND VALVES ARE TO BE PAINTED AS PART CONTRACT NO. 2.
 3. THE TANK EXTERIOR IS TO BE REPAINTED AS PART OF CONTRACT NO. 2.
 4. THIS DRAWING IS FOR REFERENCE ONLY. ORIENTATION OF ITEMS MAY VARY.
 5. SEE SPECIFICATION SECTION 05 00 00 FOR DETAILS ON IMPROVEMENTS ASSOCIATED WITH BOTH CONTRACTS OF THE MANCHESTER TANK MISCELLANEOUS IMPROVEMENTS AND TANK COATING PROJECT.



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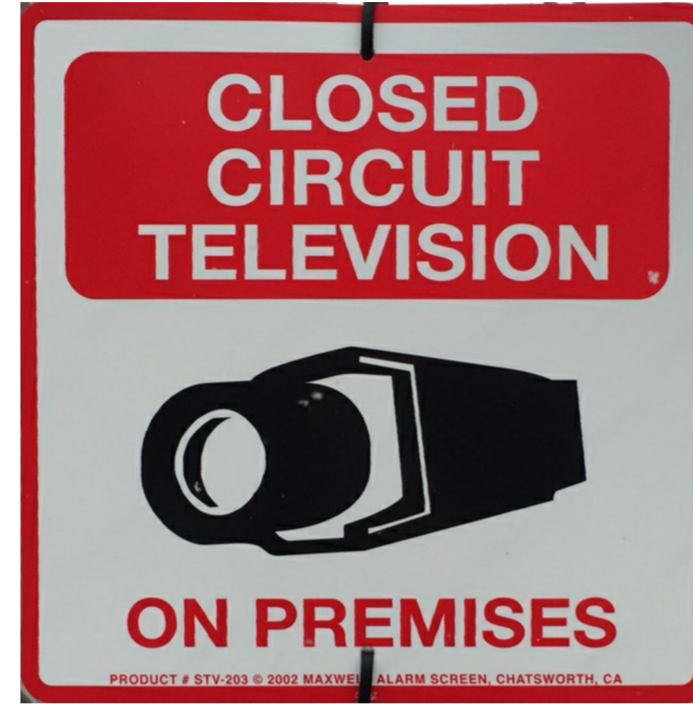
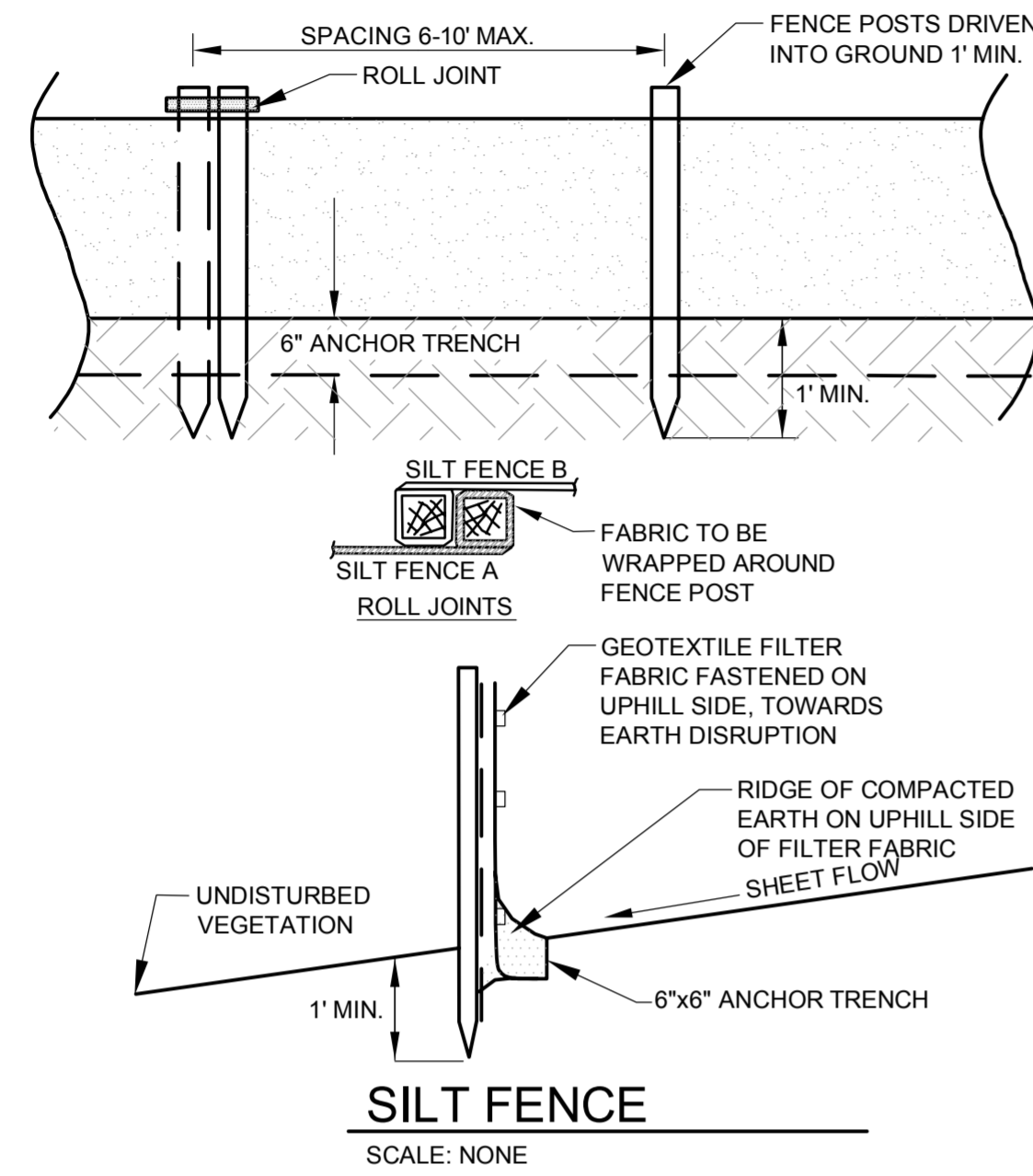
CITY OF ANN ARBOR, MICHIGAN
MANCHESTER TANK MISC IMPROVEMENTS AND TANK COATING PROJECT
**TANK ELEVATION
PROPOSED
IMPROVEMENTS**

Project No.:	200-31537-15001
Designed By:	EMS
Drawn By:	EMS
Checked By:	BMR

C-301

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WORK TO BE COMPLETED UNDER CONTRACT NO. 1



SURVEILLANCE SIGNAGE

SCALE: NONE

- NOTES:
1. CONSTRUCTION SIGN SHALL BE BAKED ENAMEL ALUMINUM.
 2. CONSTRUCTION SIGN COLORS SHALL MATCH SIMILAR SIGNS USED AT OTHER CITY OF ANN ARBOR SITES.
 3. LETTERING SHALL BE DIE CUT VINYL LAMINATED ONTO THE PANEL. VINYL SHALL BE SUITABLE FOR EXTERIOR APPLICATIONS.
 4. COLORS SHALL BE AS SHOWN.
 5. 1 EACH OF SIGN, LOCATION TO BE DETERMINED IN FIELD.

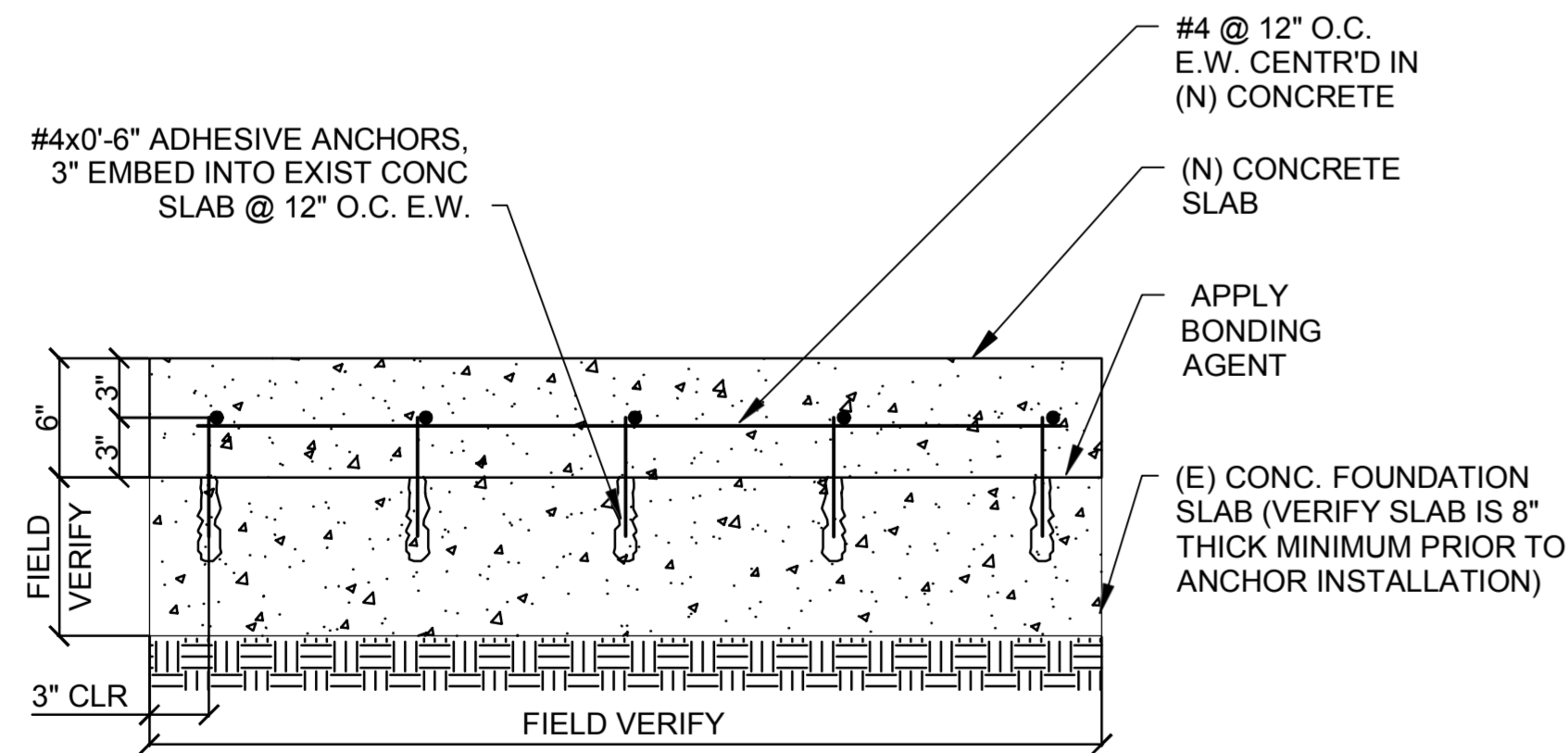
WORK TO BE COMPLETED UNDER CONTRACT NO. 2



NORTH CAMPUS (PLYMOUTH ROAD) ELEVATED WATER STORAGE TANK LOCKING MECHANISM (FOR REFERENCE ONLY)

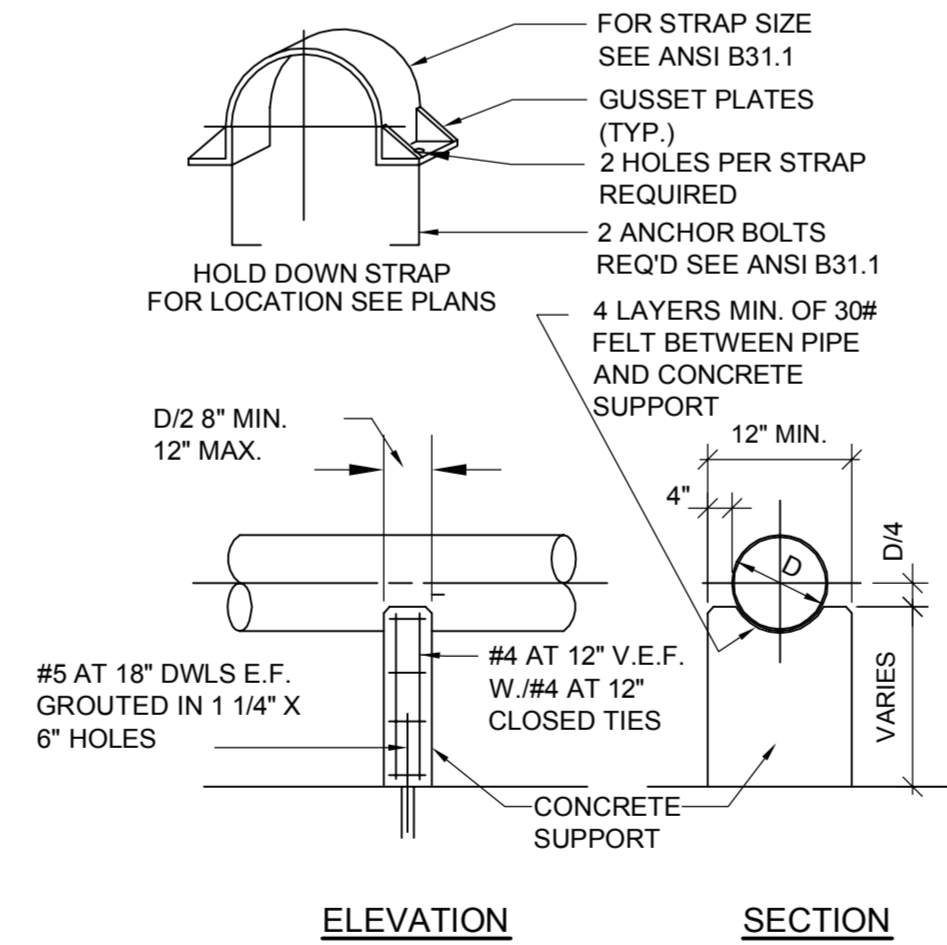
SCALE: NONE

- NOTES:
1. SEE SPECIFICATION SECTION 05 00 00 FOR DETAILS.
 2. PROVIDE SIMILAR LOCKING MECHANISM AND CONFIGURATION AT MANCHESTER TANK.



EQUIPMENT PAD MODIFICATION

SCALE: NONE



CONCRETE PIPE SUPPORT

SCALE: NONE

MANCHESTER TANK MISCELLANEOUS IMPROVEMENTS AND TANK COATING PROJECT



OWNER:
 CITY OF ANN ARBOR
 PUBLIC SERVICES DEPARTMENT
 WATER TREATMENT SERVICES UNIT

CONTRACTORS:

ENGINEER:
 TETRA TECH
 ANN ARBOR, MI
 DIXON ENGINEERING, INC.
 LAKE ODESSA, MI

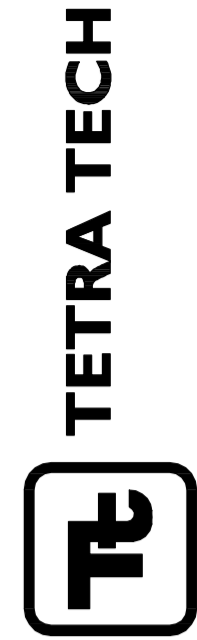
PROPOSED CONSTRUCTION SCHEDULE:

FOR MORE INFORMATION, PLEASE CONTACT _____, CITY OF ANN ARBOR
 AT (734) _____ EXT. ____ OR _____@a2gov.org

PROJECT SIGN DETAIL

SCALE: NONE

- NOTES:
1. CONSTRUCTION SIGN SHALL BE BAKED ENAMEL ALUMINUM SHEET LAMINATED ONTO 2 SIDES OF A TRUSS TYPE CORRUGATED SHEET OF POLYMER CORE.
 2. CONSTRUCTION SIGN SHALL BE STANDARD WHITE.
 3. LETTERING SHALL BE DIE CUT VINYL (BLACK) LAMINATED ONTO THE PANEL. VINYL SHALL BE SUITABLE FOR EXTERIOR APPLICATIONS.
 4. 1 EACH OF SIGN, LOCATION TO BE DETERMINED IN FIELD.
 5. SECURE WITH TWO (2) 4X4 SET INTO CONCRETE.



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CITY OF ANN ARBOR, MICHIGAN
 MANCHESTER TANK MISC IMPROVEMENTS AND TANK COATING PROJECT
SITE DETAILS

Project No.: 200-31537-15001
 Designed By: EMS
 Drawn By: EMS
 Checked By: BMR

C-500

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ALL REFERENCE INFORMATION AND WORK SHOWN ON THIS SHEET SHALL BE CONSIDERED APPLICABLE TO BOTH CONTRACTS UNDER THE MANCHESTER TANK MISCELLANEOUS IMPROVEMENTS AND TANK COATING PROJECT, UNLESS NOTED OTHERWISE.

VALVE DESIGNATIONS

SYMBOLS		MARK	TYPE
PIPEWORK DRAWINGS	FLOW DIAGRAMS		
		BV	BALL VALVE
		A	GATE VALVE
		B	BUTTERFLY VALVE
		C	STANDARD CHECK VALVE
		CC	CUSHION CHECK VALVE
		DC	DOUBLE VANE CHECK VALVE
		IB	INDUSTRIAL BUTTERFLY VALVE
		P	PLUG VALVE
		AL	ALTITUDE VALVE
		RA	RESILIENT SEATED GATE VALVE
		RC	RADIAL CHECK VALVE
		TPSV	TAPPING SLEEVE AND VALVE

JOINT DESIGNATIONS

SYMBOL	MARK	TYPE
	FJ	FLANGED JOINT
	MJ	MECHANICAL JOINT
	SJ	SCREWED JOINT
	POJ	PUSH ON JOINT
	BFC	BOLTED FLEXIBLE COUPLING
	GC	GROOVED COUPLING
	WJ	SHOP WELDED JOINT (STEEL PIPE)
	FWJ	FIELD WELDED JOINT (STEEL PIPE)
	STJ	SOCKET TYPE JOINT (FRP OR PVC PIPE)
	EJ	EXPANSION JOINT
	BF	BLIND FLANGE
	AFC	ADAPTER FLANGE COUPLING

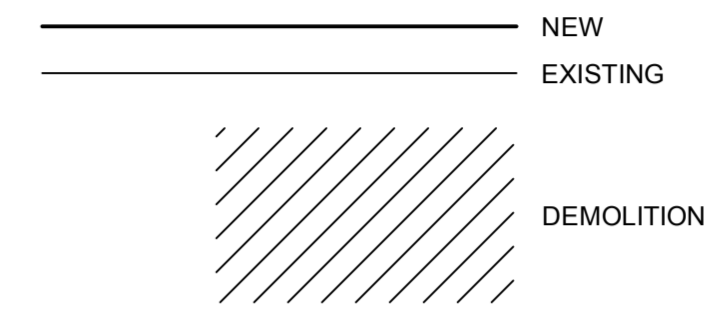
SLEEVE AND WALL PIPE DESIGNATIONS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	CORED HOLE IN EXISTING WALL		FLANGE X FLANGE WALL PIPE
	FLANGE X PLAIN END WALL PIPE		FLANGE X PLAIN END WALL PIPE

PIPING AND EQUIPMENT SYMBOLS

	VTR	VENT TO ROOF
		CHEMICAL SEAL W/PRESS GAUGE
	PI	PRESSURE GAUGE
		PULSATION DAMPENER W/PRESS GAUGE
	P	SUCTION ACCUMULATOR W/PRESS GAUGE
		ELBOW UP
		ELBOW DOWN
		TEE UP
		TEE DOWN
		REDUCER-CONCENTRIC
		REDUCER-ECCENTRIC
		WYE STRAINER
		UNION
	M	METER (TOTALIZING)
		PIPING (BELOW SLAB)
	F.D.	FLOOR DRAIN
	E.D.	EQUIPMENT DRAIN
	C.O.	CLEANOUT-FLOOR
	C.O.	CLEANOUT-HORIZONTAL
	D	PIPE TO DRAIN
		ELECTRIC
	BFP	BACKFLOW PREVENTER
	PRV XX PSI	PRESSURE RELIEF VALVE SET POINT
	BPV XX PSI	BACK PRESSURE VALVE SET POINT
		PUMP
		GLOBE VALVE
		PET COCK
		PLUG VALVE - GAS
		PRESSURE RELIEF VALVE
		TEMPERING VALVE
	H.B.	HOSE BIBB (3/4")
	S.C.	SILL COCK (3/4")
	F.H.B.	FLUSHING HOSE BIBB (1-1/2")
	W.H.	WALL HYDRANT (1-1/2")

PIPING LINETYPES:



GENERAL NOTES:

- THESE GENERAL NOTES PRESENT AND/OR SUMMARIZE KEY PROJECT INFORMATION FOR THE DRAWING READER'S CONVENIENCE. SEE ALSO INDIVIDUAL DRAWING NOTES AND PROJECT SPECIFICATIONS FOR FURTHER DETAILS AND REQUIREMENTS.
- SUBMIT SHOP DRAWINGS, PROJECT DATA AND SAMPLES AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
- ALL EXISTING DIMENSIONS SHOWN WITH THE ± SYMBOL ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR BEFORE FABRICATION AND CONSTRUCTION.
- CONTRACTOR MAY RE-ROUTE SUMP PUMP DISCHARGE PIPING IF A BETTER ROUTE THAN THE EXISTING IS DETERMINED. OBTAIN APPROVAL FROM ENGINEER AND OWNER PRIOR TO INSTALLATION.



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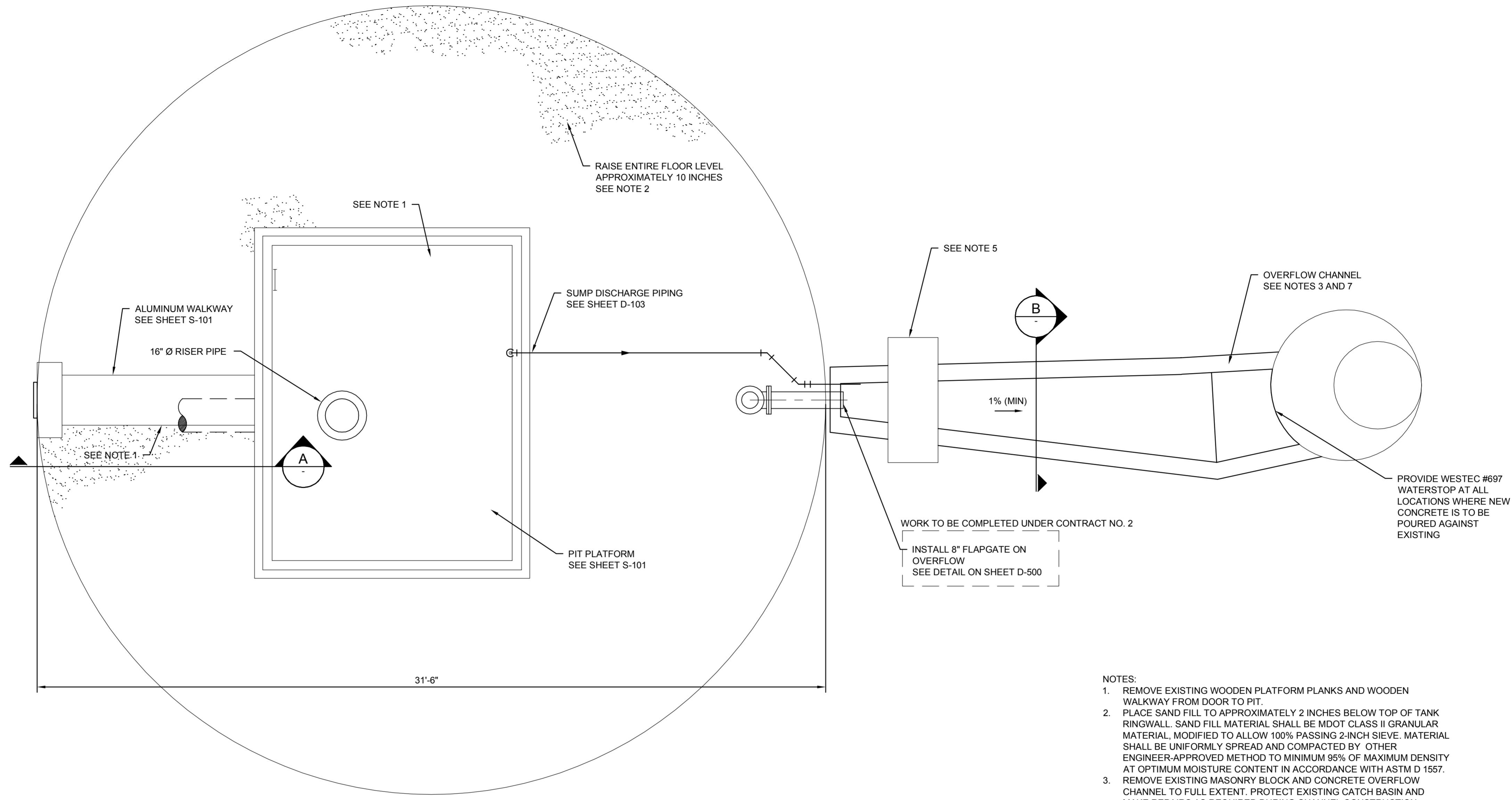
CITY OF ANN ARBOR, MICHIGAN
MANCHESTER TANK MISC IMPROVEMENTS
AND TANK COATING PROJECT
**PIPING
LEGEND**

Project No.: 200-31537-15001
Designed By: EMS
Drawn By: EMS
Checked By: BMR

D-001

Copyright: Tetra Tech
Bar Measures 1 inch

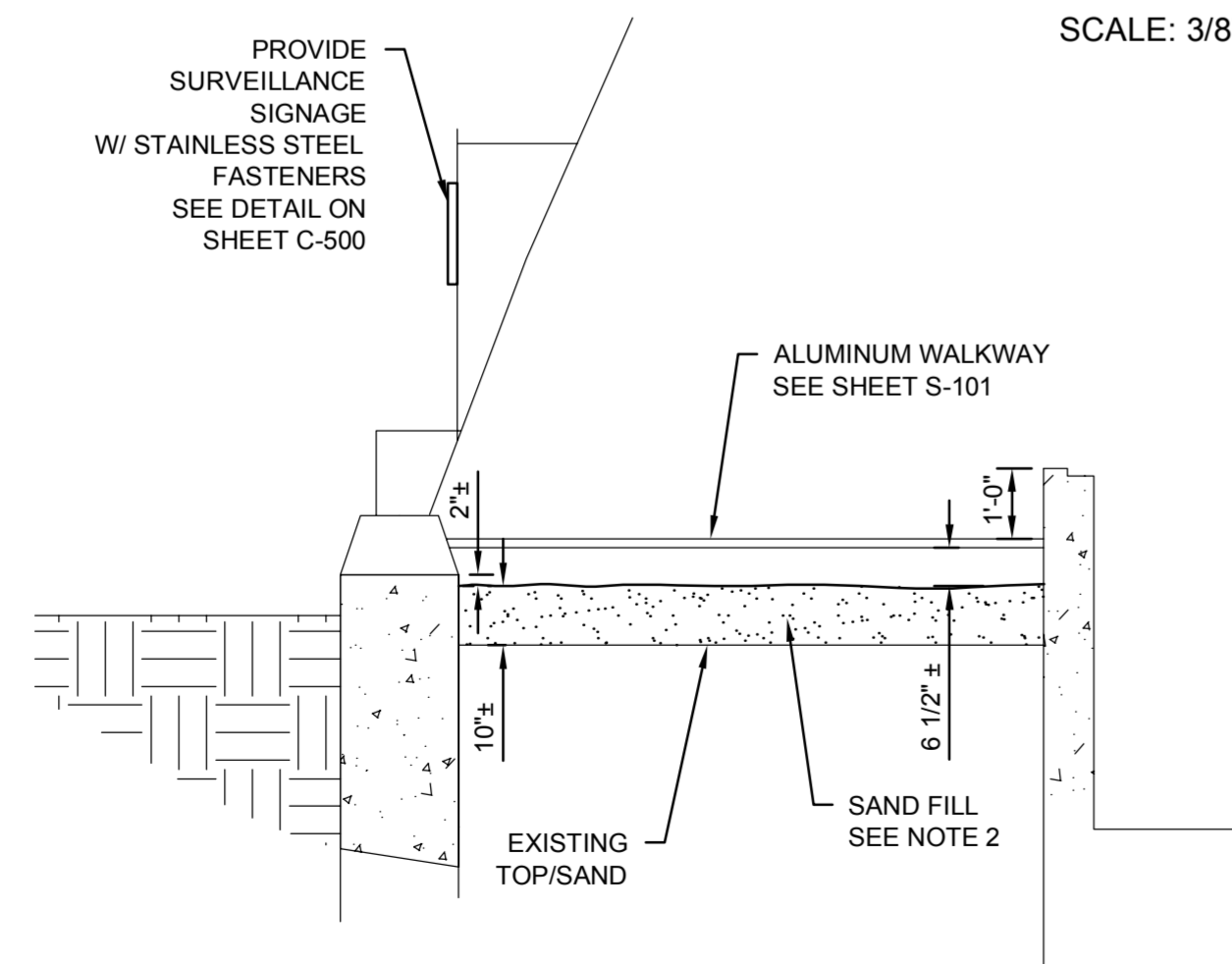
ALL WORK TO BE COMPLETED UNDER CONTRACT NO. 1, UNLESS NOTED OTHERWISE



WATER TOWER FLOOR PLAN

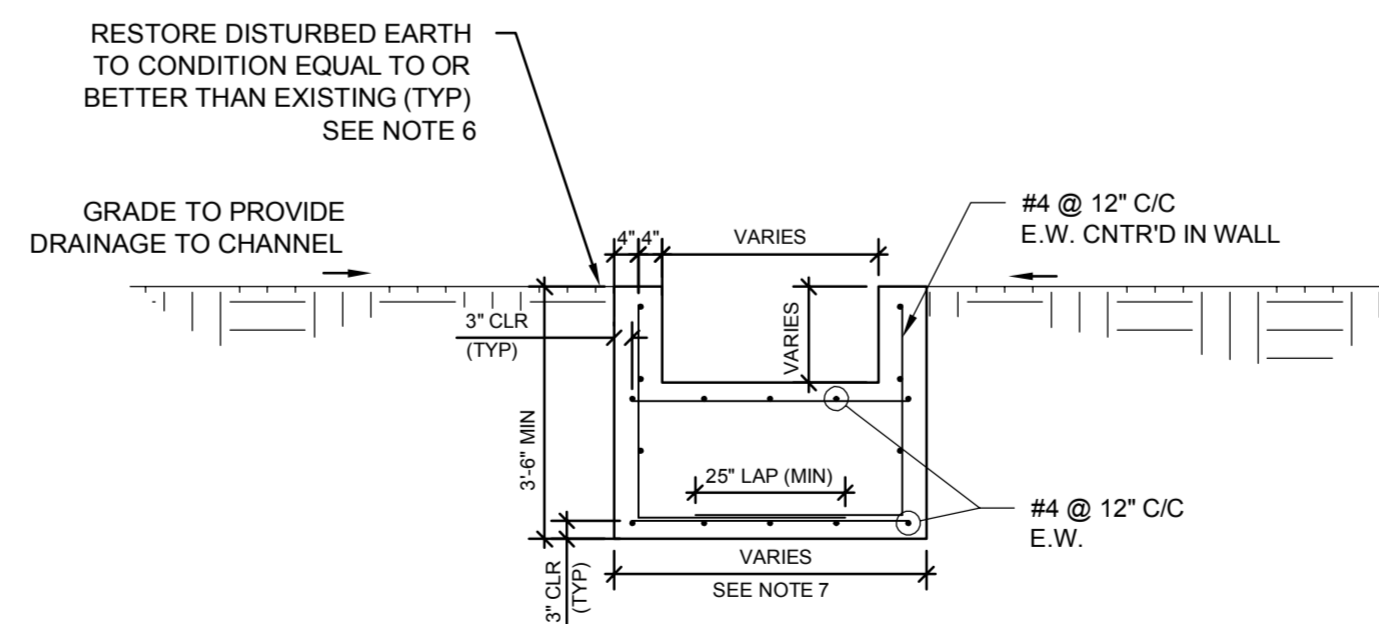
SCALE: 3/8"=1'

- NOTES:
1. REMOVE EXISTING WOODEN PLATFORM PLANKS AND WOODEN WALKWAY FROM DOOR TO PIT.
 2. PLACE SAND FILL TO APPROXIMATELY 2 INCHES BELOW TOP OF TANK RINGWALL. SAND FILL MATERIAL SHALL BE MDOT CLASS II GRANULAR MATERIAL, MODIFIED TO ALLOW 100% PASSING 2-INCH SIEVE. MATERIAL SHALL BE UNIFORMLY SPREAD AND COMPACTED BY OTHER ENGINEER-APPROVED METHOD TO MINIMUM 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D 1557.
 3. REMOVE EXISTING MASONRY BLOCK AND CONCRETE OVERFLOW CHANNEL TO FULL EXTENT. PROTECT EXISTING CATCH BASIN AND MAKE REPAIRS AS REQUIRED DURING CHANNEL CONSTRUCTION. PROTECT SUPPORT POLES, EQUIPMENT AND STRUCTURES SURROUNDING OVERFLOW CHANNEL. ANY DAMAGE TO EXISTING POLES, EQUIPMENT OR STRUCTURES SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE OWNER.
 4. TEMPORARILY RELOCATE EXISTING WALKWAY AND REINSTALL AFTER WORK TO CONCRETE CHANNEL IS COMPLETE.
 5. SEED AND MULCH IN ACCORDANCE WITH THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS, DIVISION VIII - LANDSCAPING AND RESTORATION. PROVIDE STRAW MULCH BLANKETS WITH NETTING THAT WILL DEGRADE. LOOSELY APPLIED STRAW SHALL NOT BE USED.
 6. OVERFLOW CHANNEL TO BE REPLACED AT SAME DEPTH AND LAYOUT AS EXISTING. CONTRACTOR SHALL FIELD VERIFY EXISTING DIMENSIONS AND SUBMIT DESIGN FOR APPROVAL PRIOR TO INSTALLATION.
 7. ELECTRICAL, COMMUNICATION AND SECURITY PANELS AND EQUIPMENT NOT SHOWN ON THIS SHEET FOR CLARITY. SEE E SHEETS FOR DETAIL.



SECTION A

SCALE: 3/8"=1'



SECTION B

SCALE: 3/8"=1'



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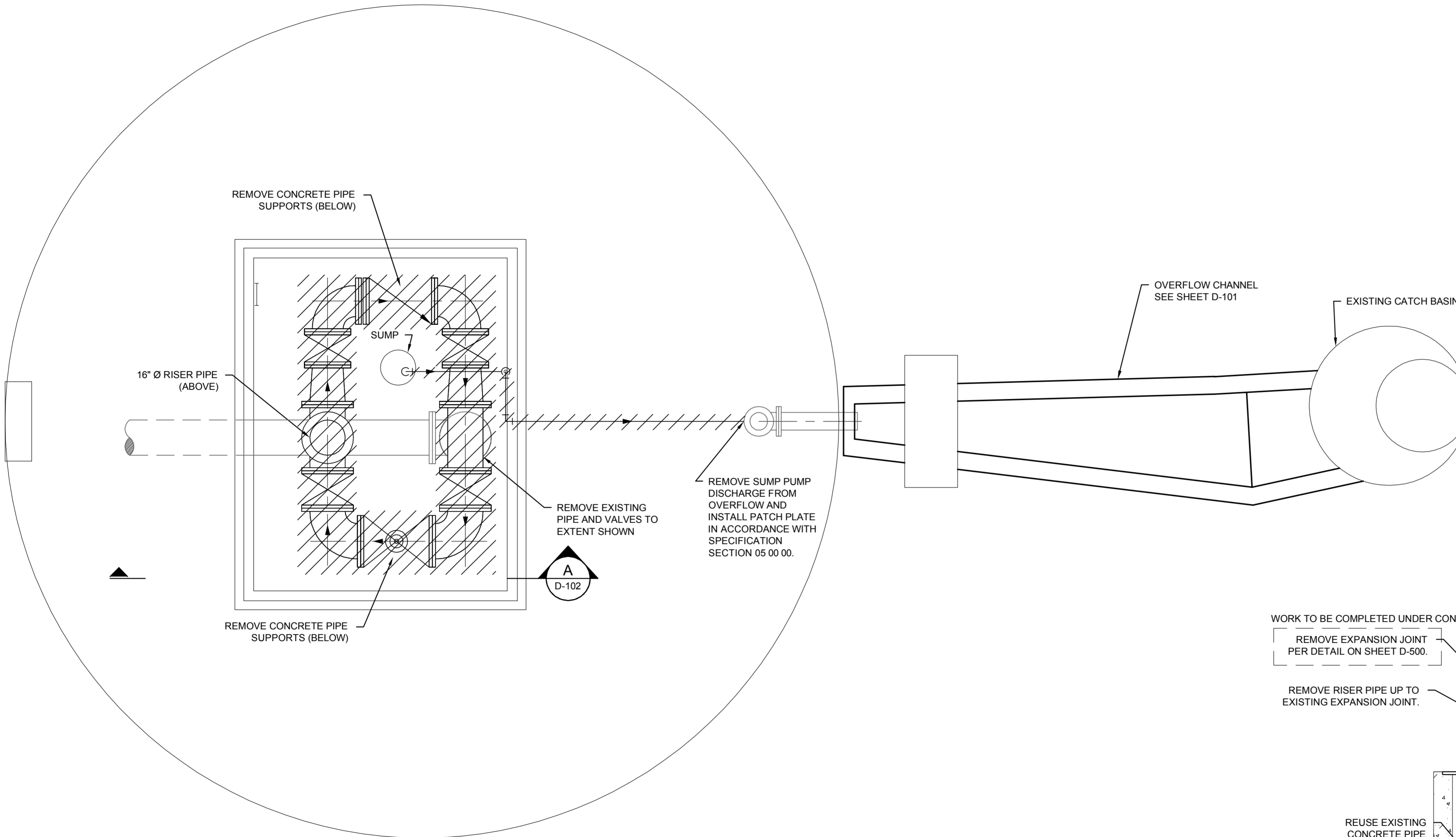
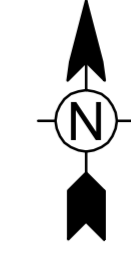
CITY OF ANN ARBOR, MICHIGAN
MANCHESTER TANK MISC IMPROVEMENTS
AND TANK COATING PROJECT
TANK FLOOR PLAN
INTERIOR AND SITE

Project No.: 200-31537-15001
Designed By: EMS
Drawn By: EMS
Checked By: BMR

D-101

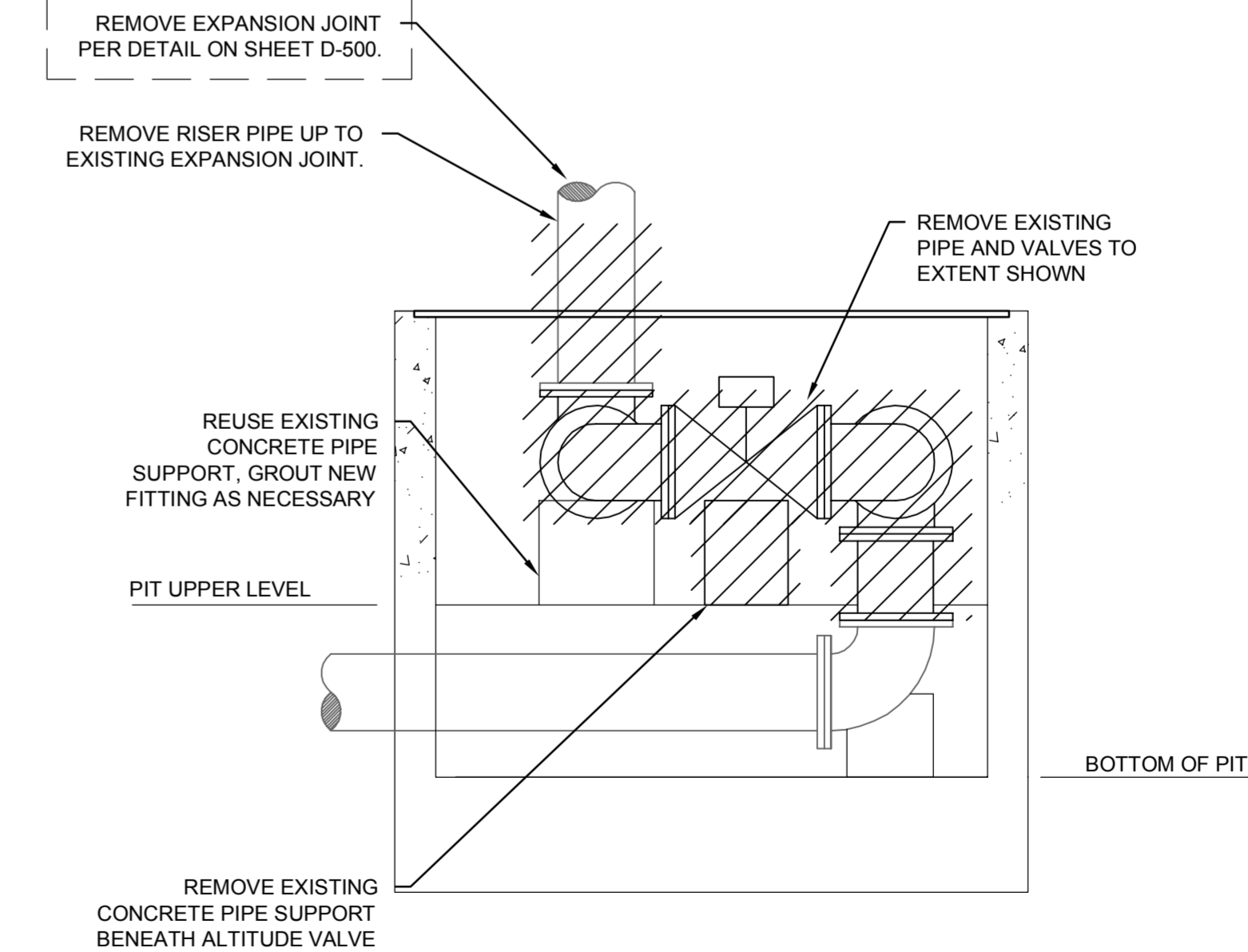
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ALL WORK TO BE COMPLETED UNDER CONTRACT NO. 1, UNLESS NOTED OTHERWISE



WATER TOWER DEMOLITION PIPING PLAN
SCALE: 3/8"=1'

WORK TO BE COMPLETED UNDER CONTRACT NO. 2



SECTION A
SCALE: 3/8"=1'

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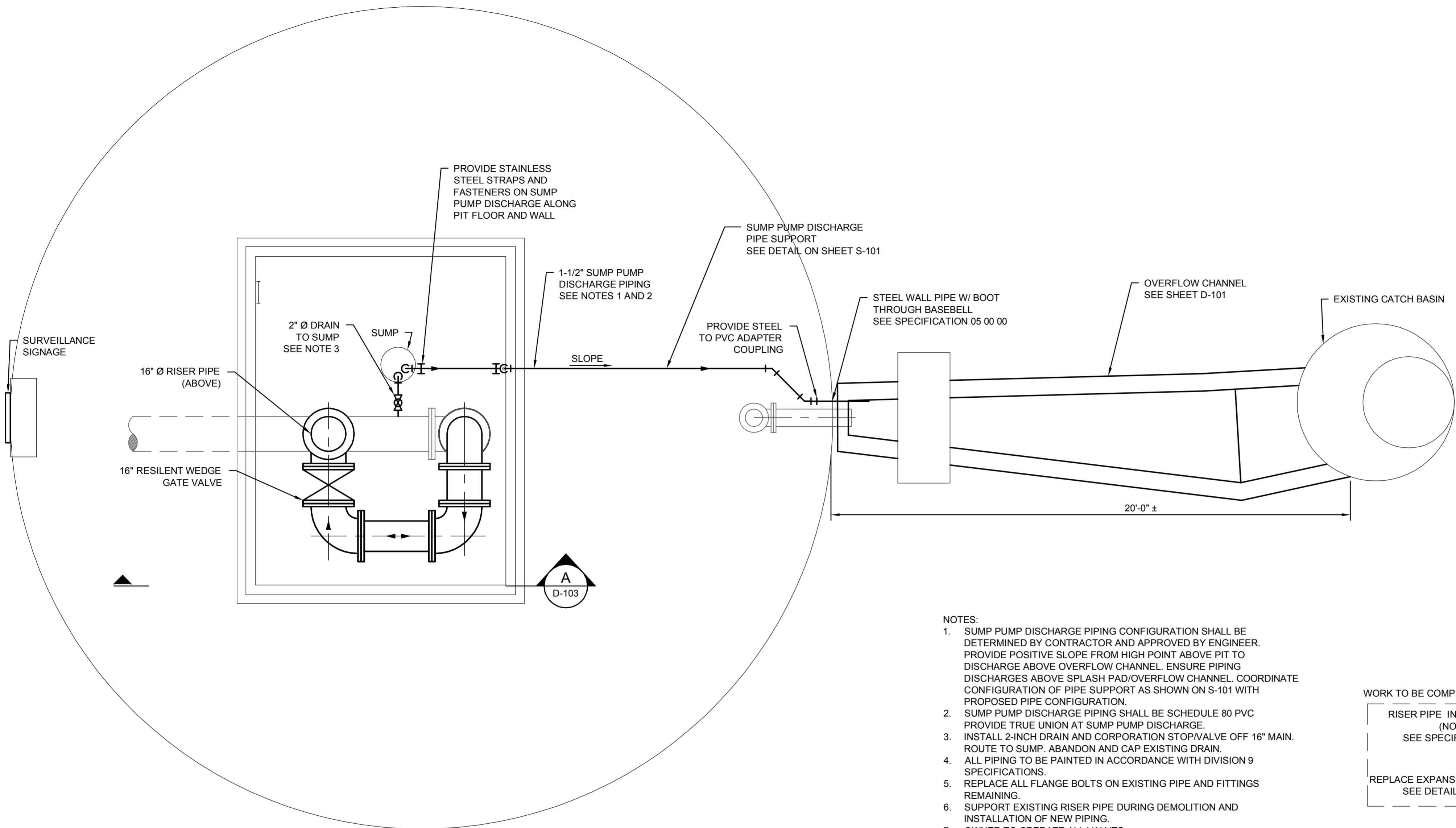
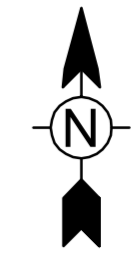
CITY OF ANN ARBOR, MICHIGAN
MANCHESTER TANK MISC IMPROVEMENTS
AND TANK COATING PROJECT
**TANK INTERIOR
GROUND LEVEL
DEMOLITION**

Project No.: 200-31537-15001
Designed By: EMS
Drawn By: EMS
Checked By: BMR

D-102

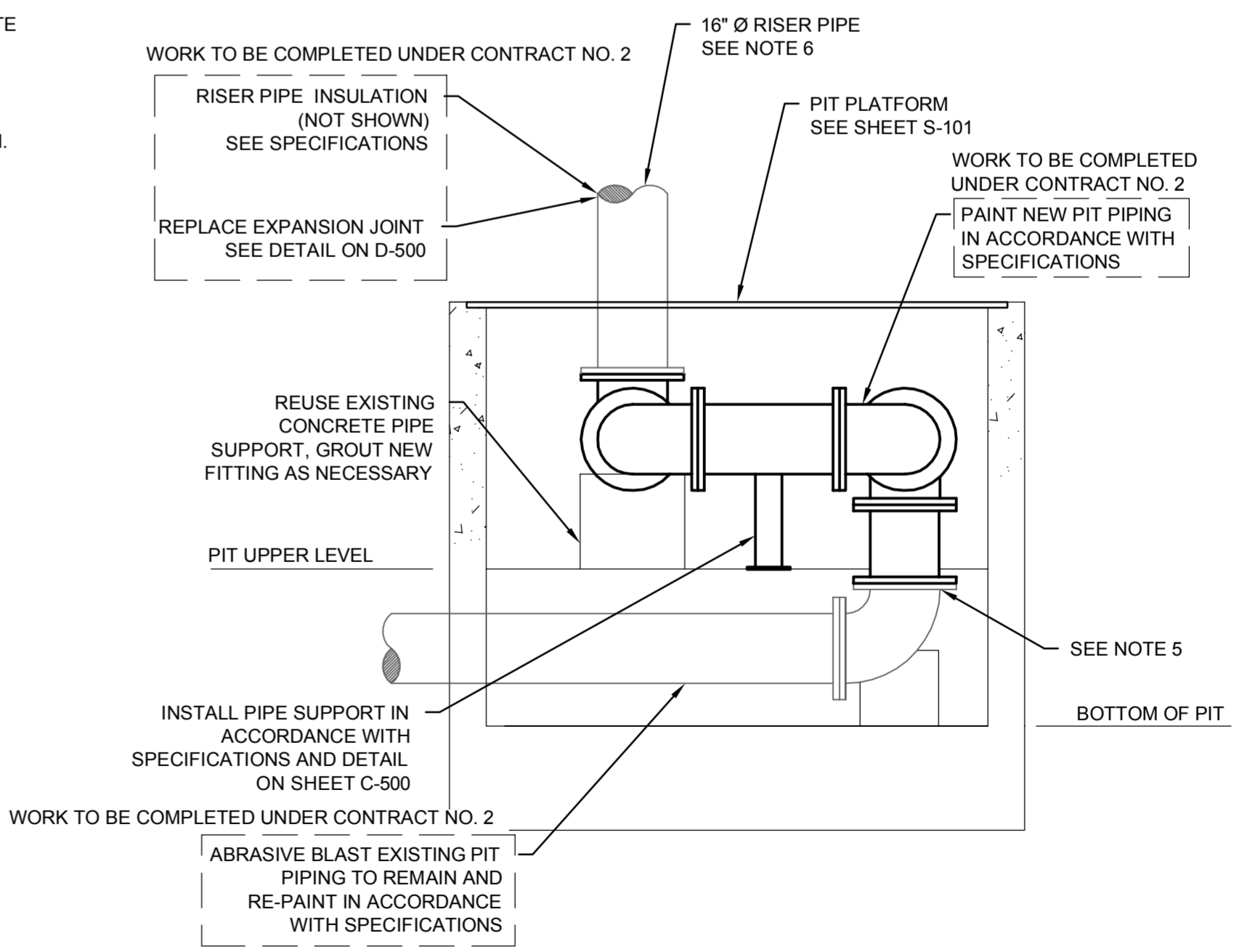
Copyright: Tetra Tech
Bar Measures 1 inch

ALL WORK TO BE COMPLETED UNDER CONTRACT NO. 1, UNLESS NOTED OTHERWISE



WATER TOWER PROPOSED PIPING PLAN
SCALE: 3/8"=1'

- NOTES:
- SUMP PUMP DISCHARGE PIPING CONFIGURATION SHALL BE DETERMINED BY CONTRACTOR AND APPROVED BY ENGINEER. PROVIDE POSITIVE SLOPE FROM HIGH POINT ABOVE PIT TO DISCHARGE ABOVE OVERFLOW CHANNEL. ENSURE PIPING DISCHARGES ABOVE SPLASH PAD/OVERFLOW CHANNEL. COORDINATE CONFIGURATION OF PIPE SUPPORT AS SHOWN ON S-101 WITH PROPOSED PIPE CONFIGURATION.
 - SUMP PUMP DISCHARGE PIPING SHALL BE SCHEDULE 80 PVC PROVIDE TRUE UNION AT SUMP PUMP DISCHARGE.
 - INSTALL 2-INCH DRAIN AND CORPORATION STOP/VALVE OFF 16" MAIN. ROUTE TO SUMP. ABANDON AND CAP EXISTING DRAIN.
 - ALL PIPING TO BE PAINTED IN ACCORDANCE WITH DIVISION 9 SPECIFICATIONS.
 - REPLACE ALL FLANGE BOLTS ON EXISTING PIPE AND FITTINGS REMAINING.
 - SUPPORT EXISTING RISER PIPE DURING DEMOLITION AND INSTALLATION OF NEW PIPING.
 - OWNER TO OPERATE ALL VALVES.



SECTION A
SCALE: 3/8"=1'

8/4/2016 9:02:28 AM - P:\1\ER31537\200-31537-15001\CADD\SHEETFILES\D-102_PIPING PLANS.DWG - SCHLANDERER, EMILY

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	8/06/15	ISSUED FOR BIDS	

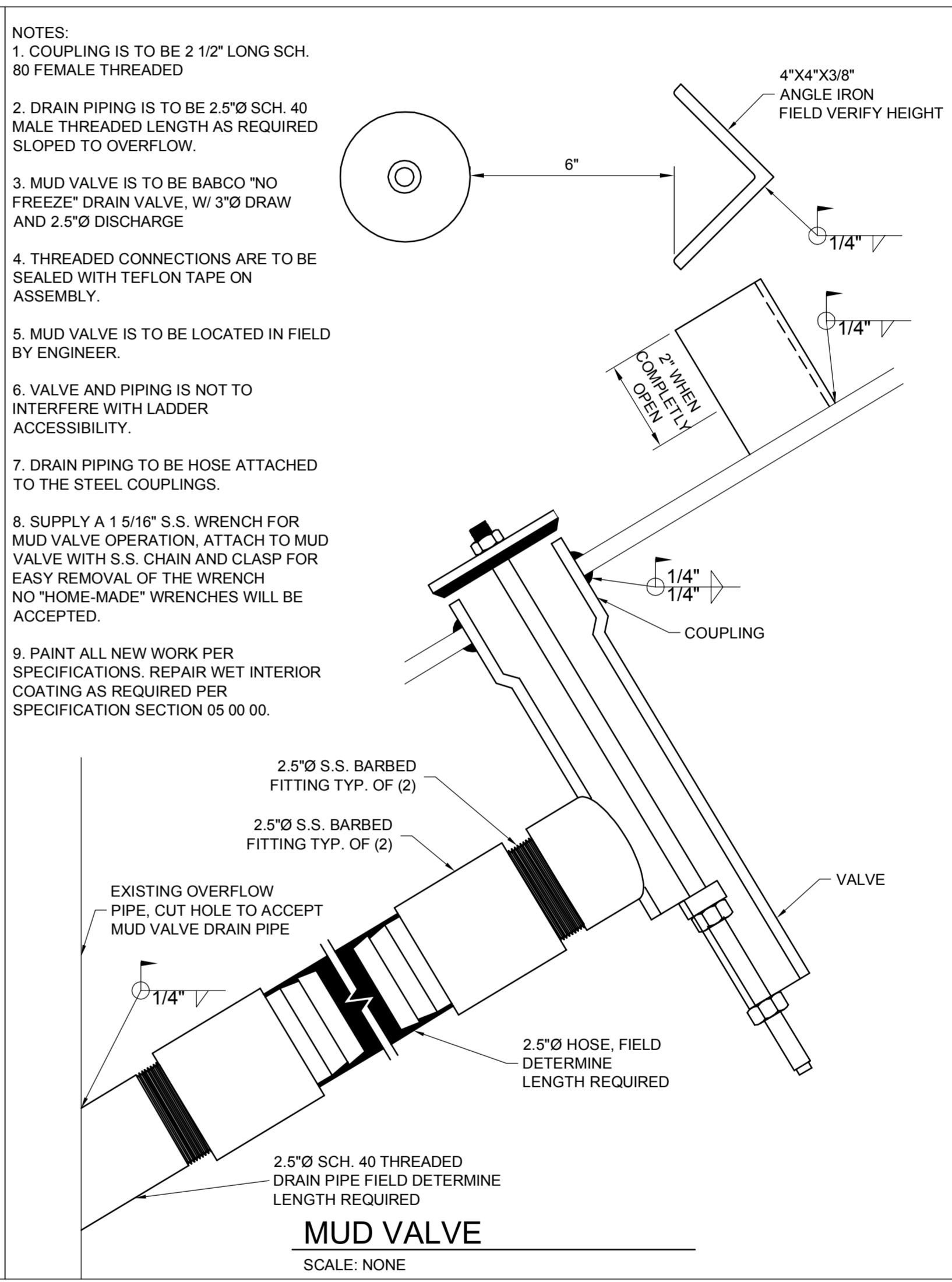
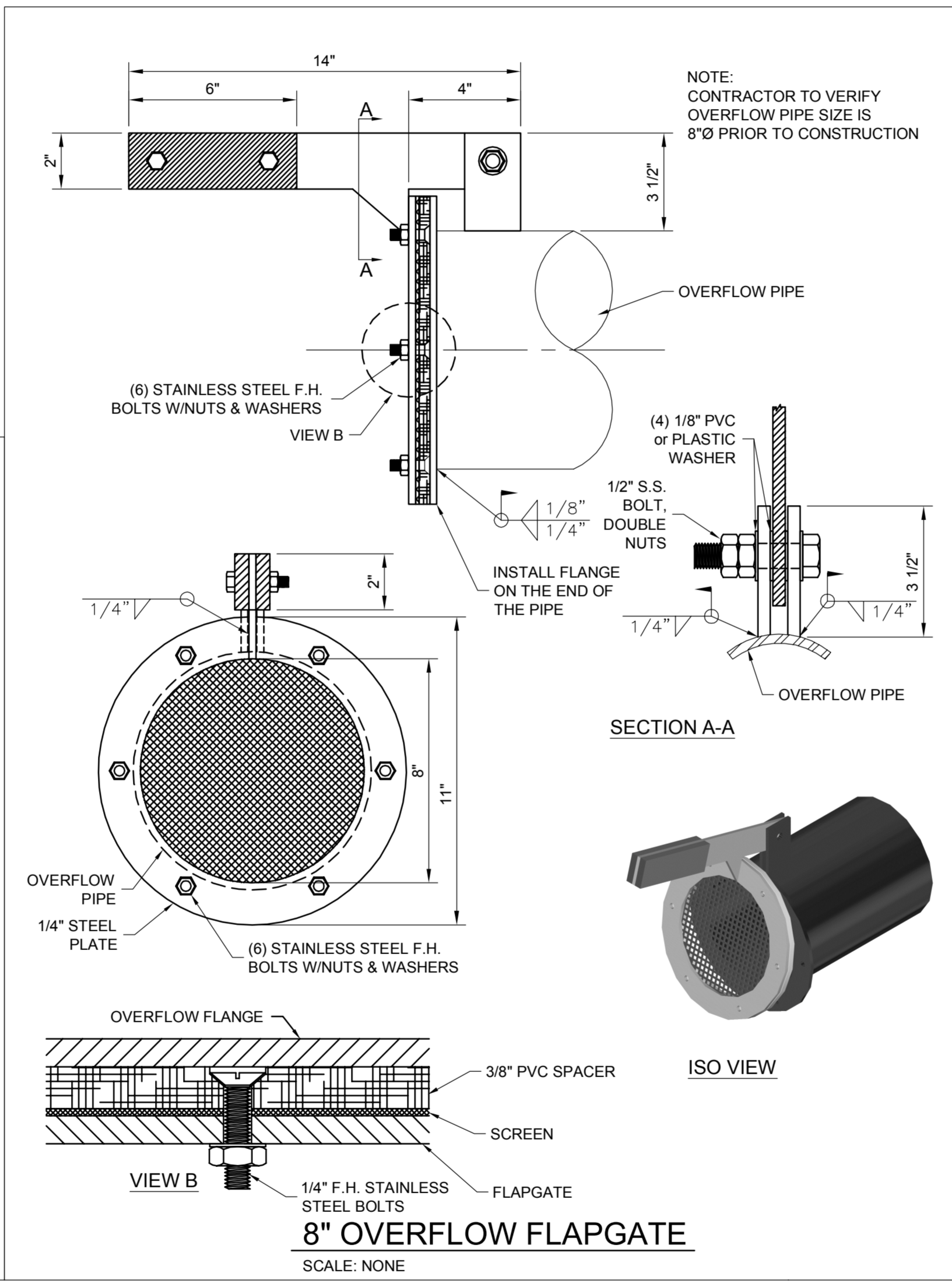
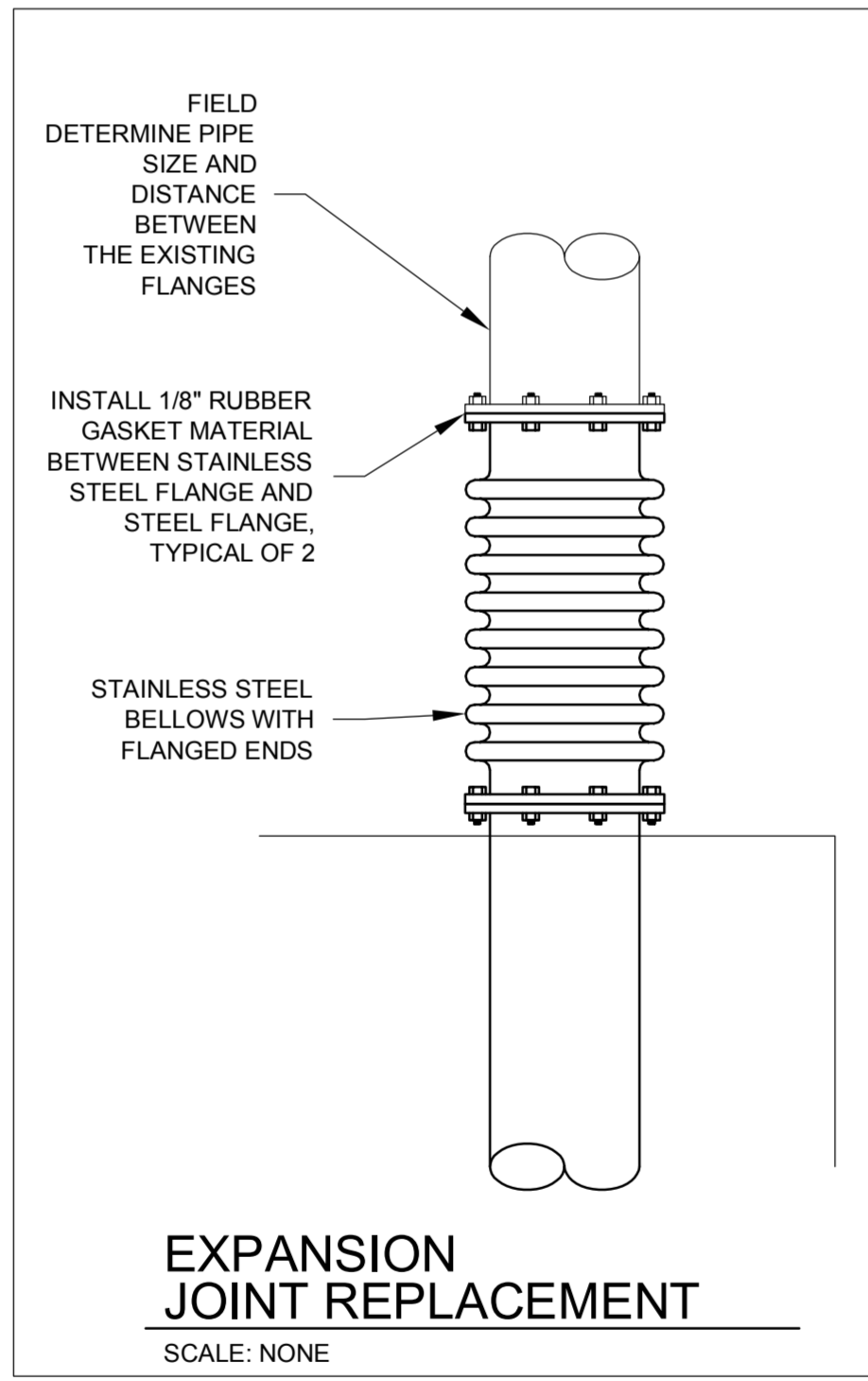
CITY OF ANN ARBOR, MICHIGAN
MANCHESTER TANK MISC IMPROVEMENTS
AND TANK COATING PROJECT
**TANK INTERIOR
GROUND LEVEL
PROPOSED**

Project No.: 200-31537-15001
Designed By: EMS
Drawn By: EMS
Checked By: BMR

D-103

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Bar Measures 1 inch

ALL WORK TO BE COMPLETED UNDER CONTRACT NO. 2, UNLESS NOTED OTHERWISE



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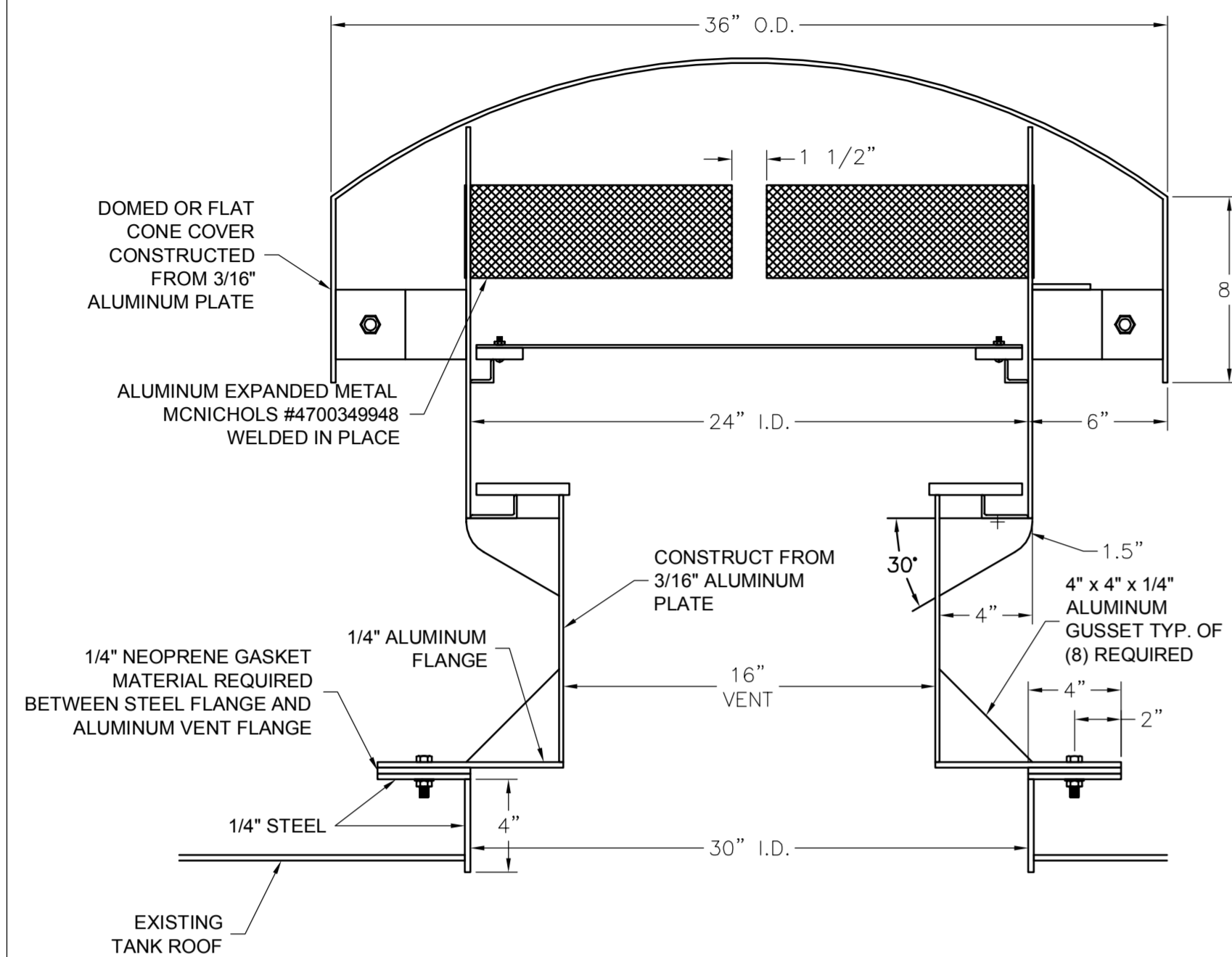
MARK	DATE	DESCRIPTION	BY
	8/06/15	ISSUED FOR BIDS	

CITY OF ANN ARBOR, MICHIGAN
MANCHESTER TANK MISC IMPROVEMENTS AND TANK COATING PROJECT
PIPING DETAILS

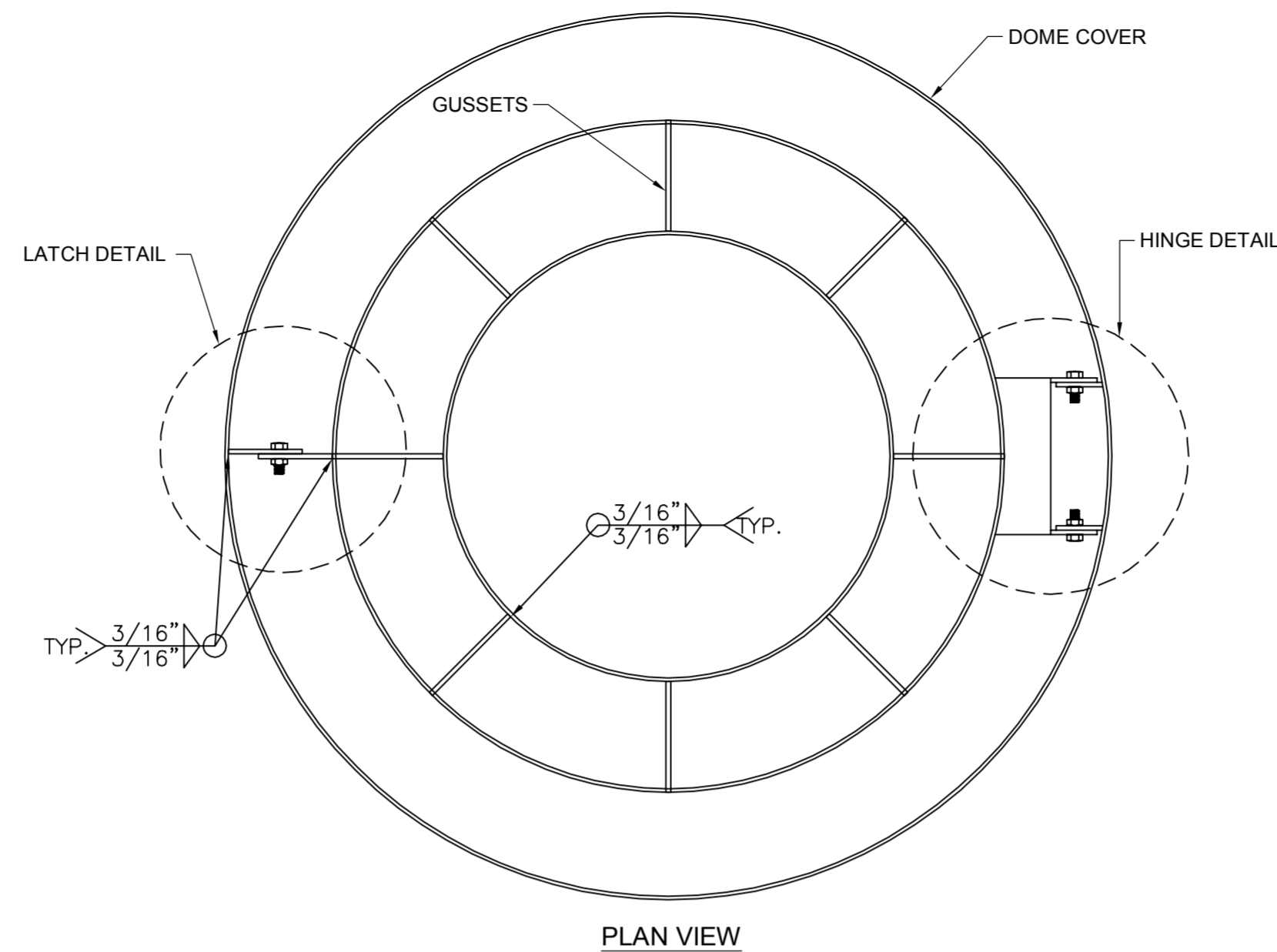
Project No.: 200-31537-15001
Designed By: TMF
Drawn By: TMF
Checked By: IMG

D-500

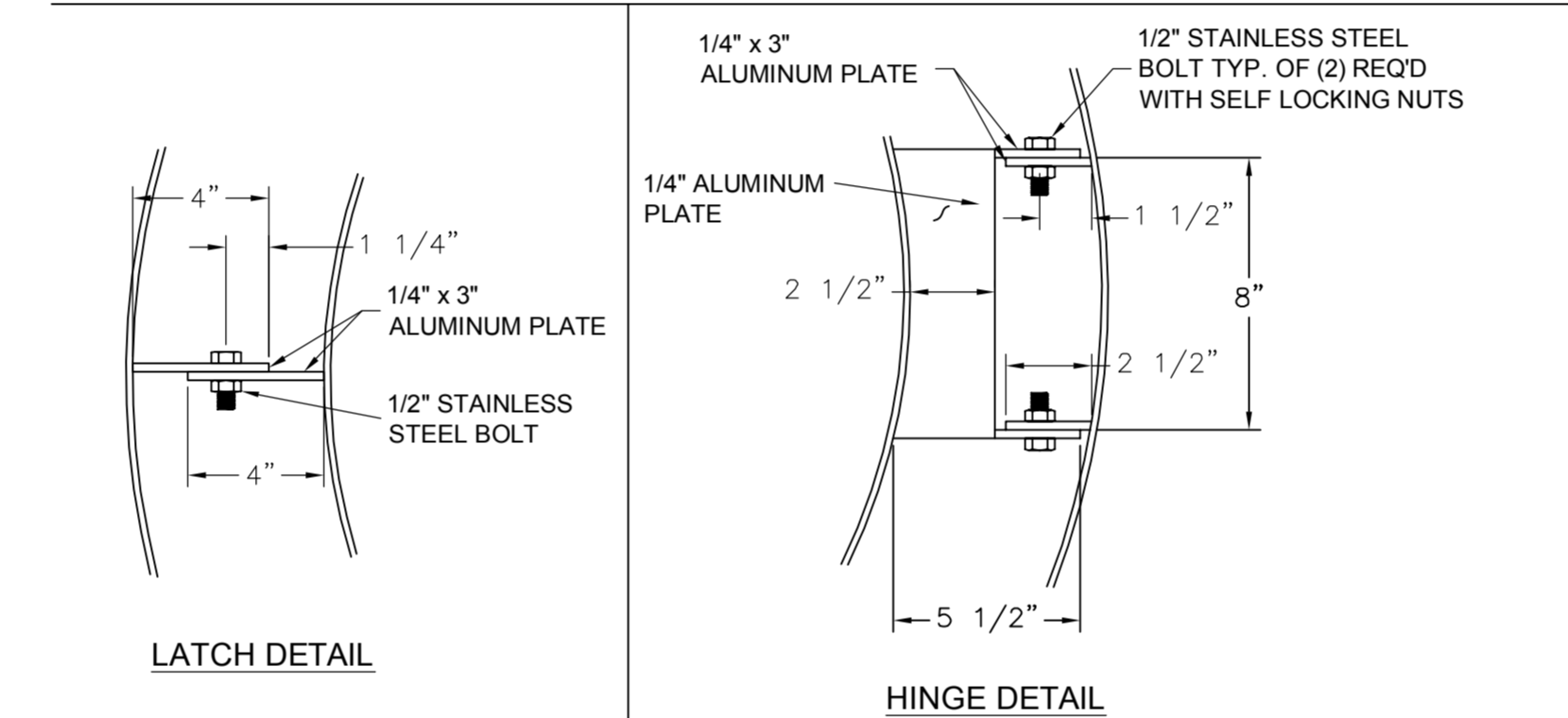
ALL WORK TO BE COMPLETED UNDER CONTRACT NO. 2 (ALTERNATE NO. 2), UNLESS NOTED OTHERWISE



ISO VIEW

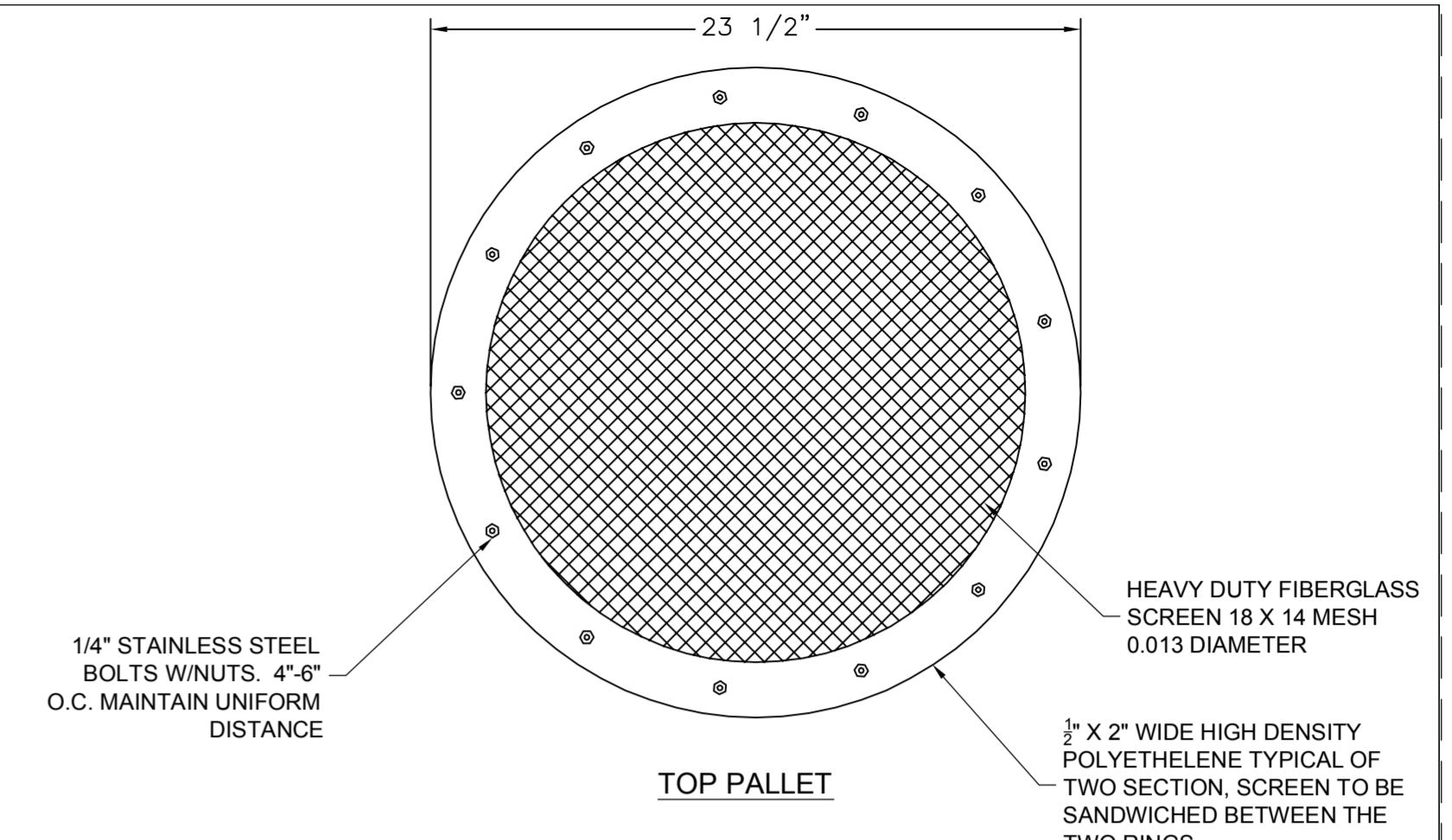


PLAN VIEW

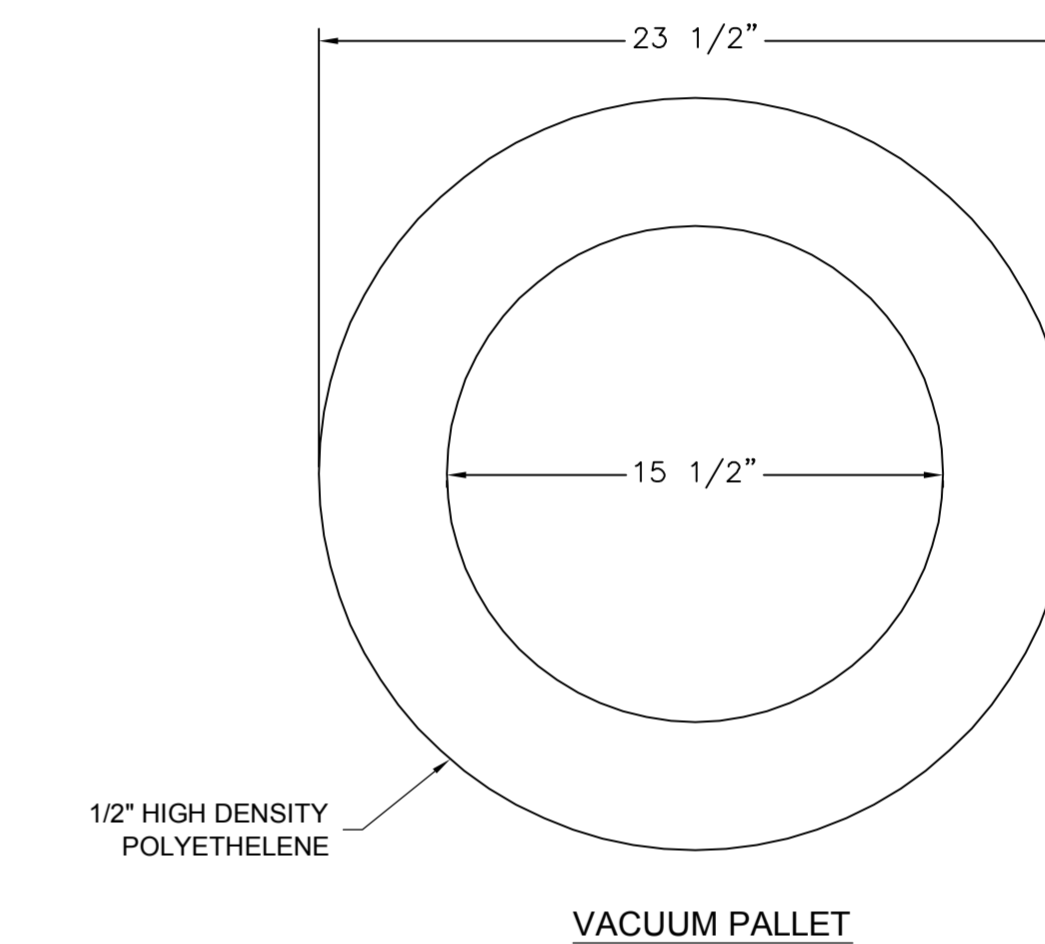


LATCH DETAIL

HINGE DETAIL



TOP PALLET



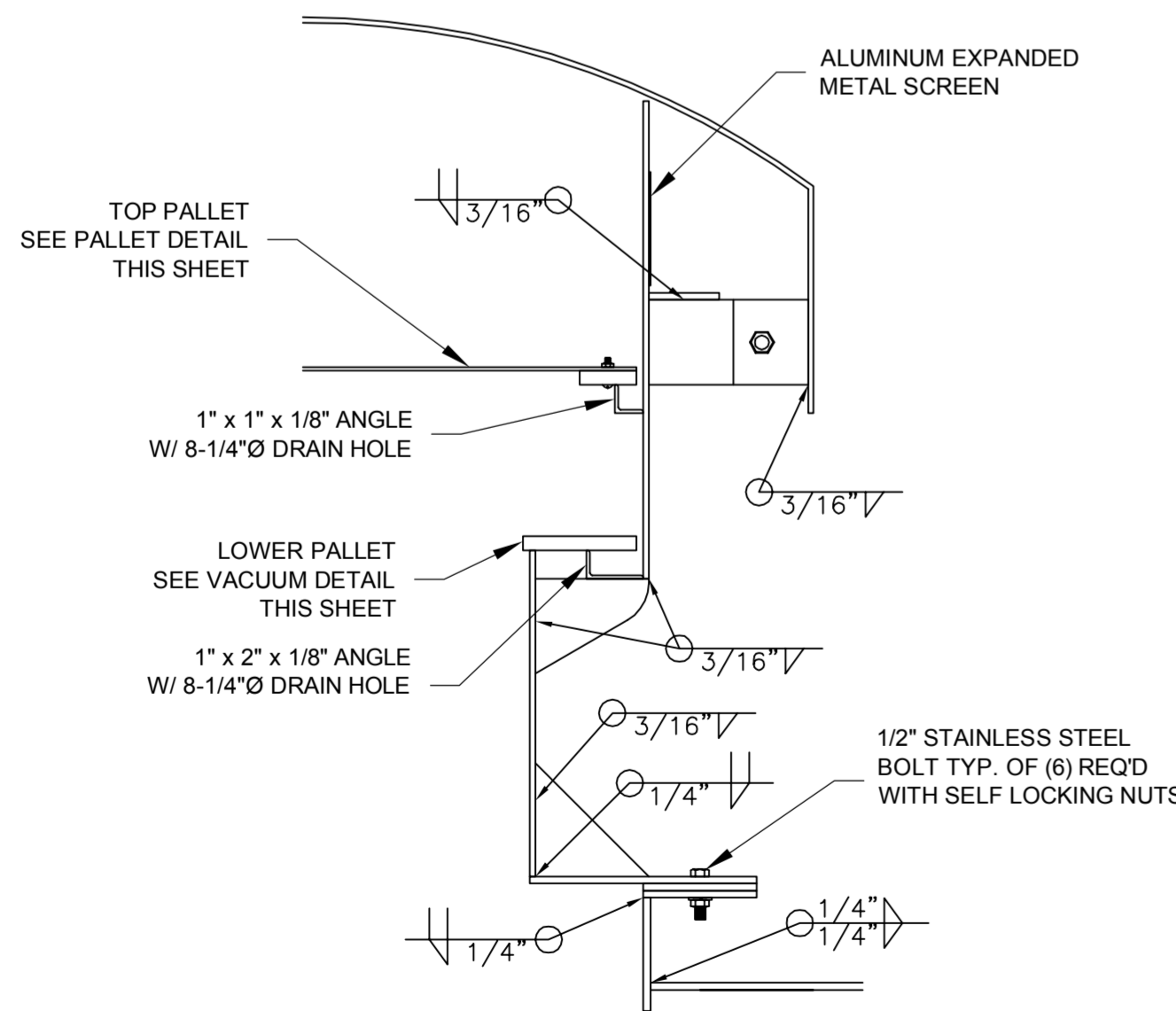
VACUUM PALLET

VACUUM PALLET DETAIL

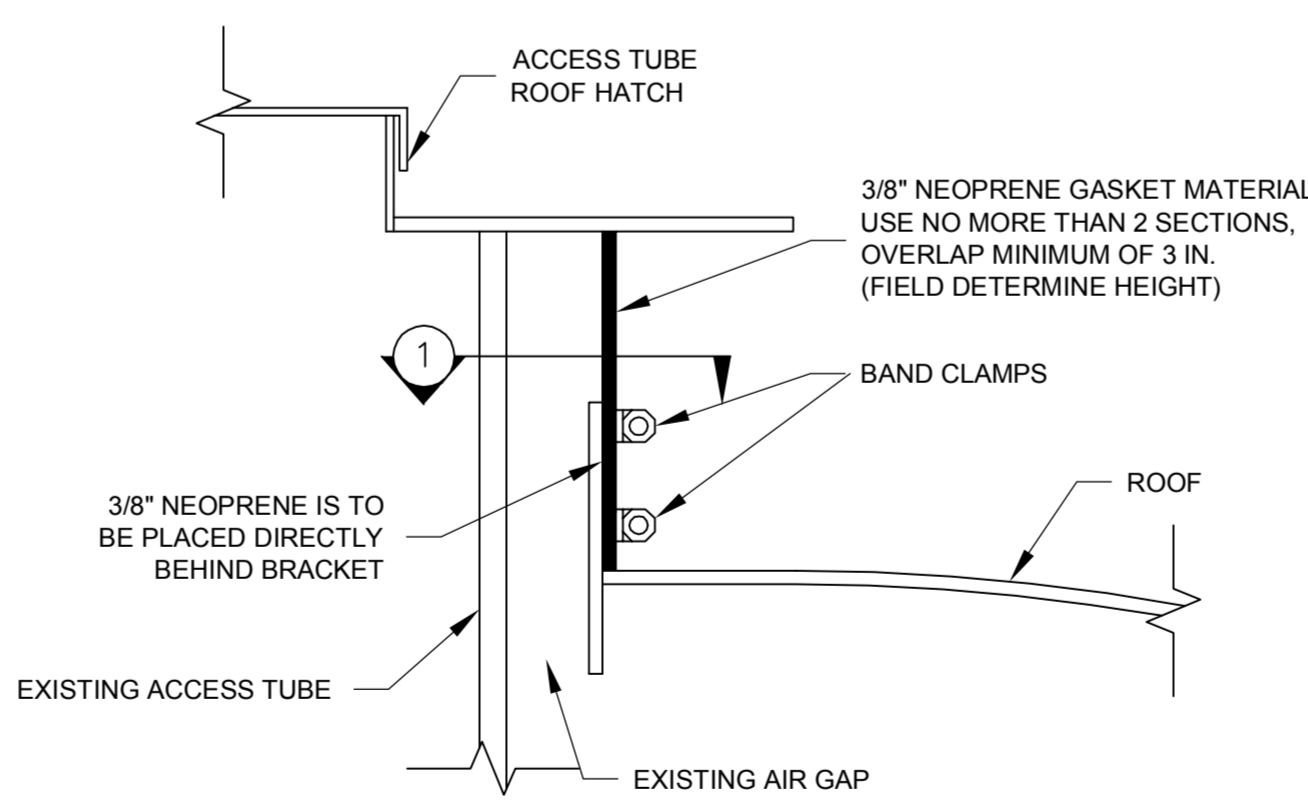
SCALE: NONE

16" FROST FREE ROOF VENT ON NEW FLANGE

SCALE: NONE

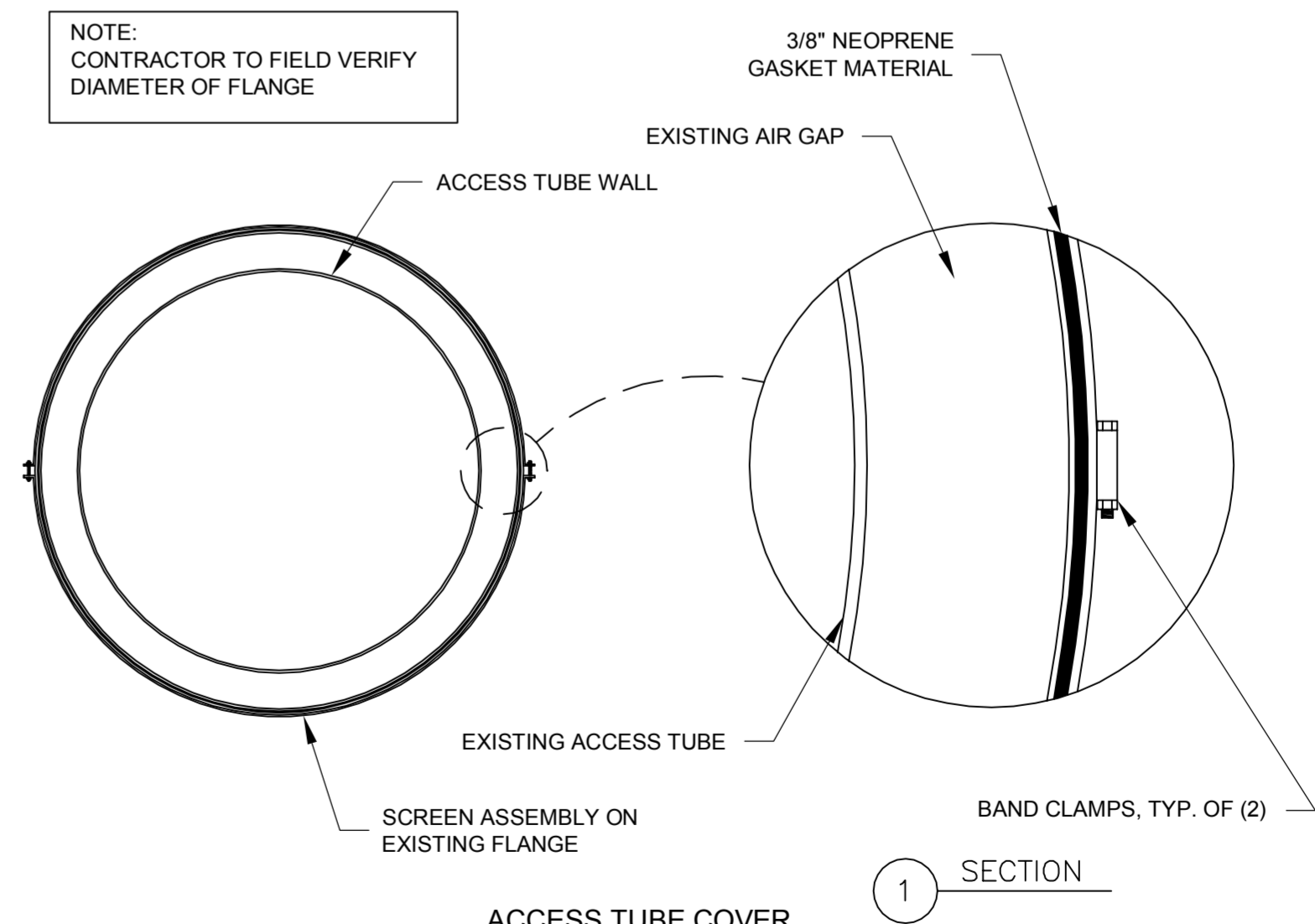


WELDING DETAIL



ACCESS TUBE AIR GAP SEAL

SCALE: NONE



ACCESS TUBE COVER

SECTION 1

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CITY OF ANN ARBOR, MICHIGAN
MANCHESTER TANK MISC IMPROVEMENTS
AND TANK COATING PROJECT
PIPING
DETAILS

Project No.: 200-31537-15001
Designed By: TMF
Drawn By: TMF
Checked By: IMG

D-501

Copyright: Tetra Tech
Bar Measures 1 inch

STRUCTURAL GENERAL NOTES

- A. THESE GENERAL NOTES PRESENT AND/OR SUMMARIZE KEY PROJECT INFORMATION FOR THE DRAWING READER'S CONVENIENCE. SEE ALSO INDIVIDUAL DRAWING NOTES AND PROJECT SPECIFICATIONS FOR FURTHER DETAILS AND REQUIREMENTS.
- C. ELEVATIONS. ALL ELEVATIONS ARE REFERENCED TO GRADE (TOP OF EXISTING INTERIOR SAND) EL. = 0'-0". ELEVATIONS SHOWN ON DRAWINGS ARE REFERENCED TO THIS DATUM UNLESS NOTED.
- D. ALL EXISTING DIMENSIONS SHOWN WITH THE ± SYMBOL ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR BEFORE FABRICATION AND CONSTRUCTION.
- F. SUBMIT SHOP DRAWINGS TO ENGINEER OF RECORD FOR REVIEW.
- G. ABBREVIATIONS

ADDL	ADDITIONAL	E	EXISTING	MTL	METAL
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	EA	EACH	N	NEW
ALUM.	ALUMINUM	EJ	EXPANSION JOINT	O.C.	ON CENTER
B.M.	BEAM	EMB.	EMBEDMENT	OPNG	OPENING
B.O.	BOTTOM OF	ENGR	ENGINEER	PERIM	PERIMETER
BLDG.	BUILDING	EQ	EQUAL	REQ'D	REQUIRED
C/C	CENTER TO CENTER	EW	EACH WAY	SS	STAINLESS STEEL
CJ	CONTROL JOINT	EXIST	EXISTING	STL	STEEL
CLR	CLEAR	GALV	GALVANIZED	STRUCT	STRUCTURE(AL)
COL	COLUMN	GRTG	GRATING	T.O.C.	TOP OF CONCRETE
CONT	CONTINUOUS	IBC	INTERNATIONAL BUILDING CODE	TYP	TYPICAL
CTR	CENTER	LLV	LONG LEG VERTICAL	UNO	UNLESS NOTED OTHERWISE
DET	DETAIL	MATL	MATERIAL	V.I.F.	VERIFY IN FIELD
DIA	DIAMETER	MAX	MAXIMUM	VB	VAPOR BARRIER
DIM	DIMENSION	MFR	MANUFACTURER	VERT	VERTICAL
DIST	DISTANCE	MISC.	MISCELLANEOUS	W/	WITH
				W/O	WITHOUT

DESIGN CRITERIA

- A. REFERENCES:
 - ICC INTERNATIONAL BUILDING CODE, 2012 EDITION RISK CATEGORY III IN ACCORDANCE WITH TABLE 1604.5
 - STATE BUILDING CODE: MICHIGAN BUILDING CODE
 - ASCE/SEI 7-10 - MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
- B. DEAD LOADS = (SELF WEIGHT)
- C. LIVE LOADS = 100 PSF

STRUCTURAL ALUMINUM

- A. REFERENCES:
 - AA ALUMINUM DESIGN MANUAL
 - AA ALUMINUM STANDARDS AND DATA
 - ANSI/DWS D1.2 ALUMINUM WELDING CODE
- B. MATERIALS:
 - PLATES AND ROLLED SHAPES: 6061-T6
 - STRUCTURAL BOLTS: 316 STAINLESS STEEL
- C. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER CONSTRUCTION IS FULLY COMPLETED. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIE DOWNS WHICH MIGHT BE NECESSARY. SUCH MATERIAL SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER THE COMPLETION OF THE PROJECT.
- D. STRUCTURAL PERFORMANCE: DESIGN, ENGINEER, FABRICATE, AND INSTALL THE FOLLOWING METAL FABRICATIONS TO WITHSTAND THE FOLLOWING STRUCTURAL LOADS WITHOUT EXCEEDING THE ALLOWABLE DESIGN WORKING STRESS OF THE MATERIALS INVOLVED, INCLUDING FRAMING MEMBERS AND CONNECTIONS. APPLY EACH LOAD TO PRODUCE THE MAXIMUM STRESS IN EACH RESPECTIVE COMPONENT OF EACH METAL FABRICATION. SUBMIT SIGNED AND SEALED FABRICATION DRAWINGS AND DESIGN CALCULATIONS INDICATING COMPLIANCE WITH INDICATED LOADS. THE DESIGN ENGINEER SHALL BE A REGISTERED IN THE STATE OF MICHIGAN.
- E. ALUMINUM PLANK SHOP DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER OF RECORD.
- F. ALL CONCRETE IN CONTACT WITH ALUMINUM SHALL BE PROVIDED WITH A BITUMINOUS COATING.
- G. ALUMINUM PLANK LIVE LOAD DEFLECTION SHALL NOT EXCEED L/360.

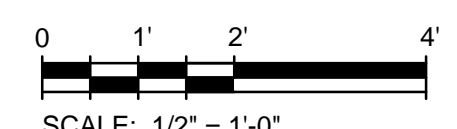
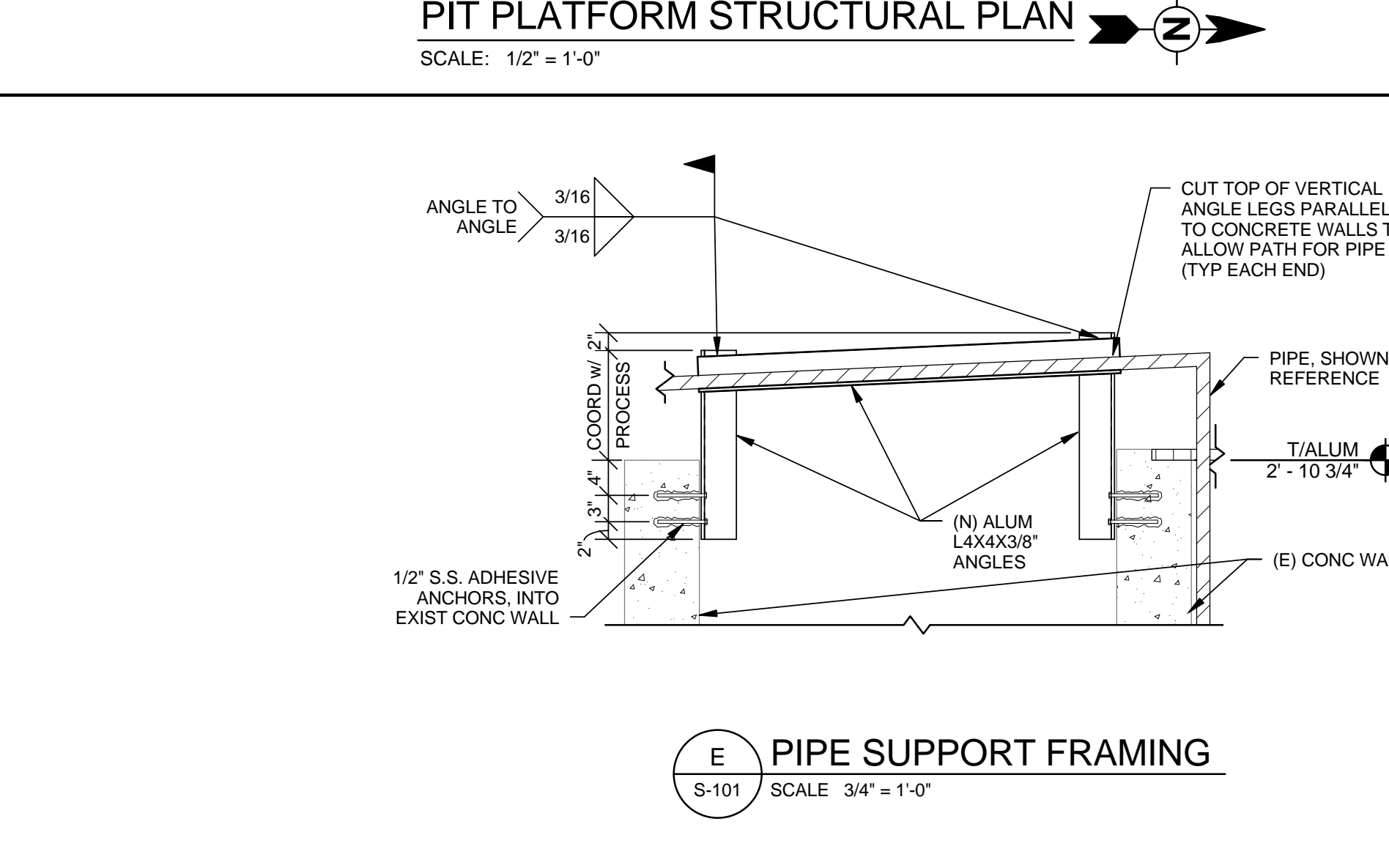
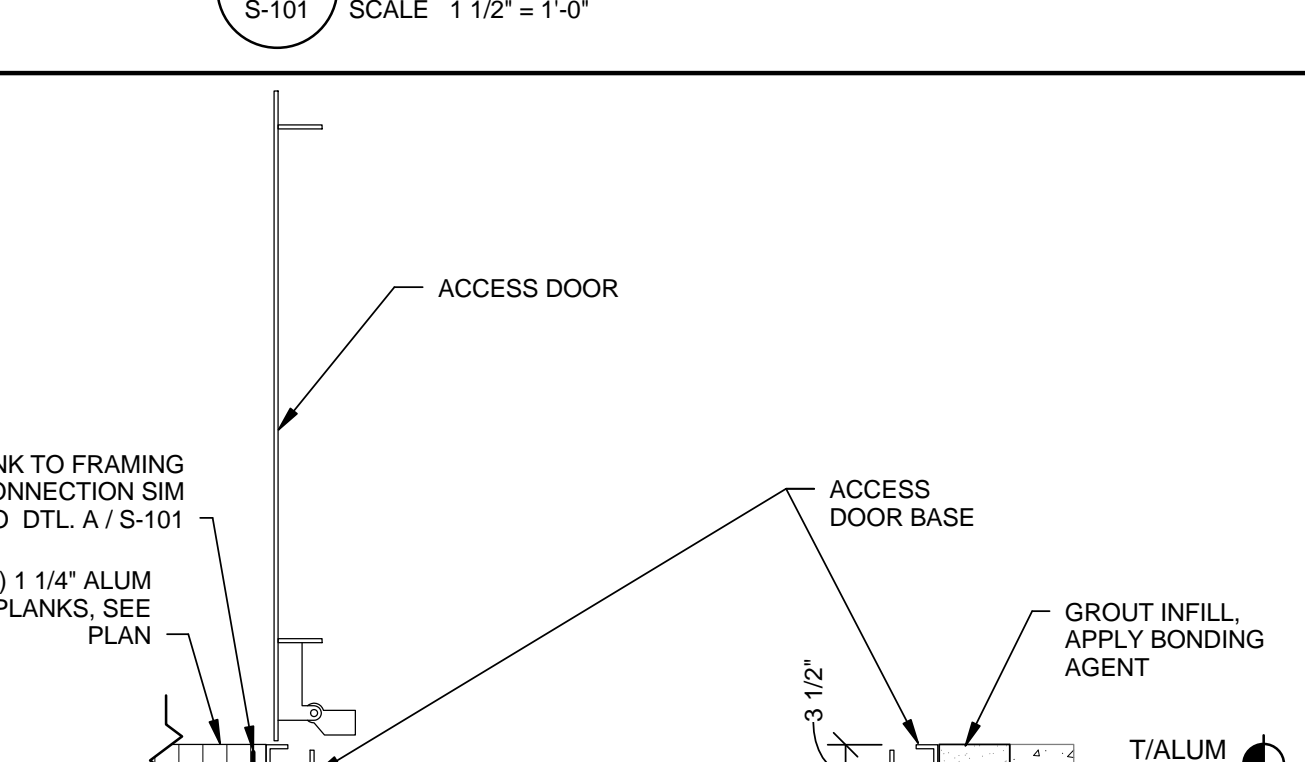
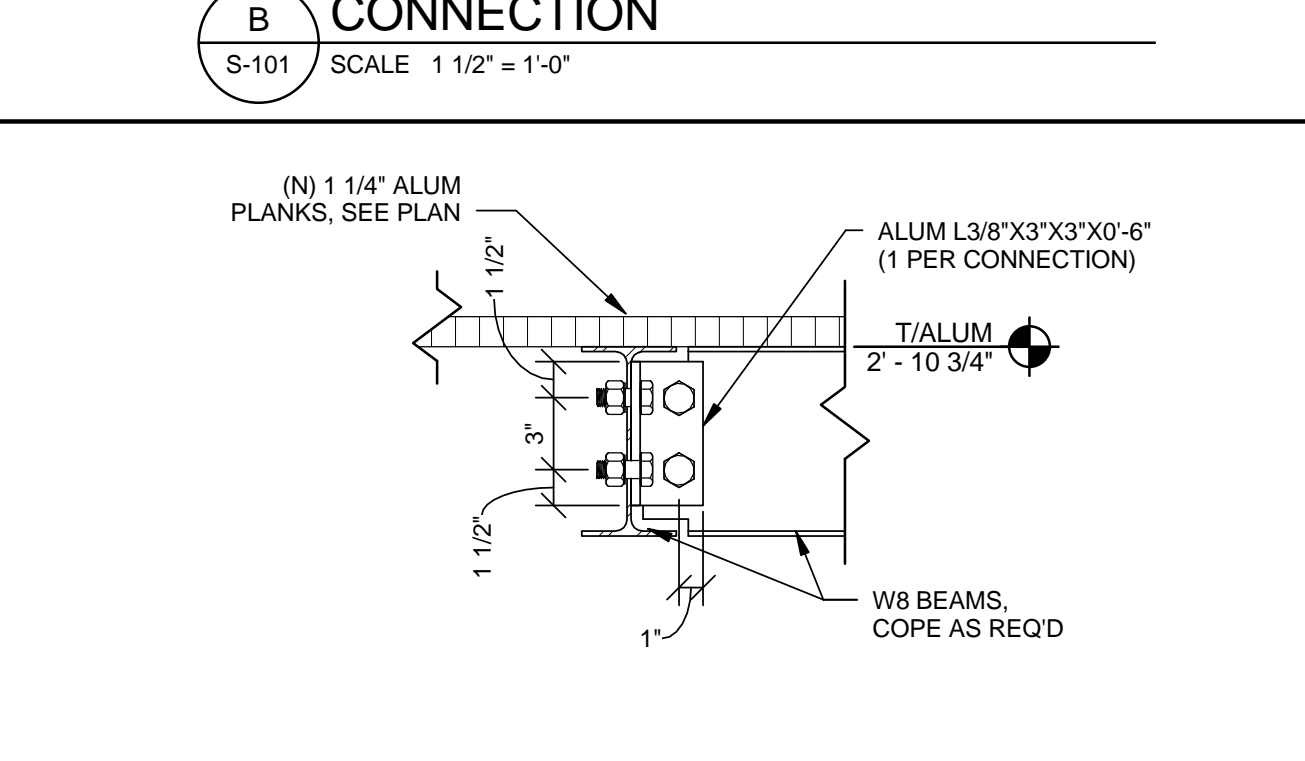
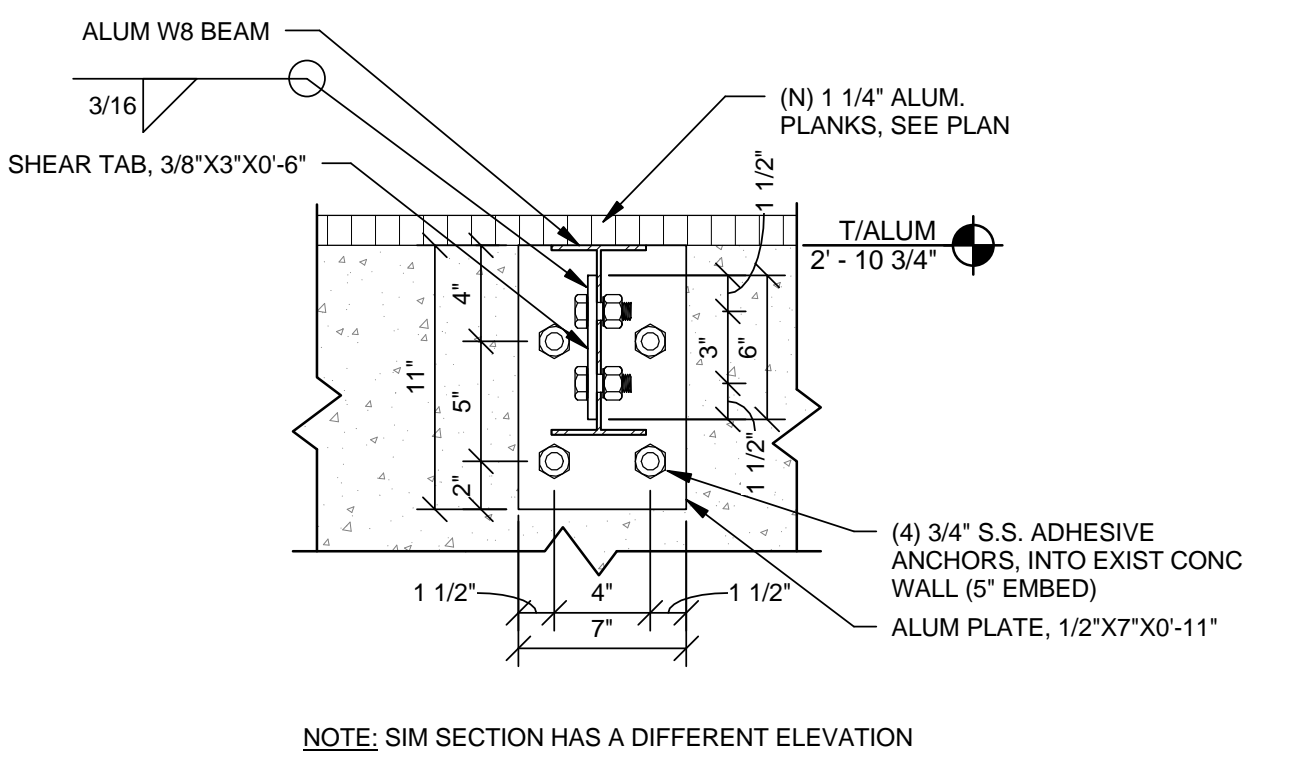
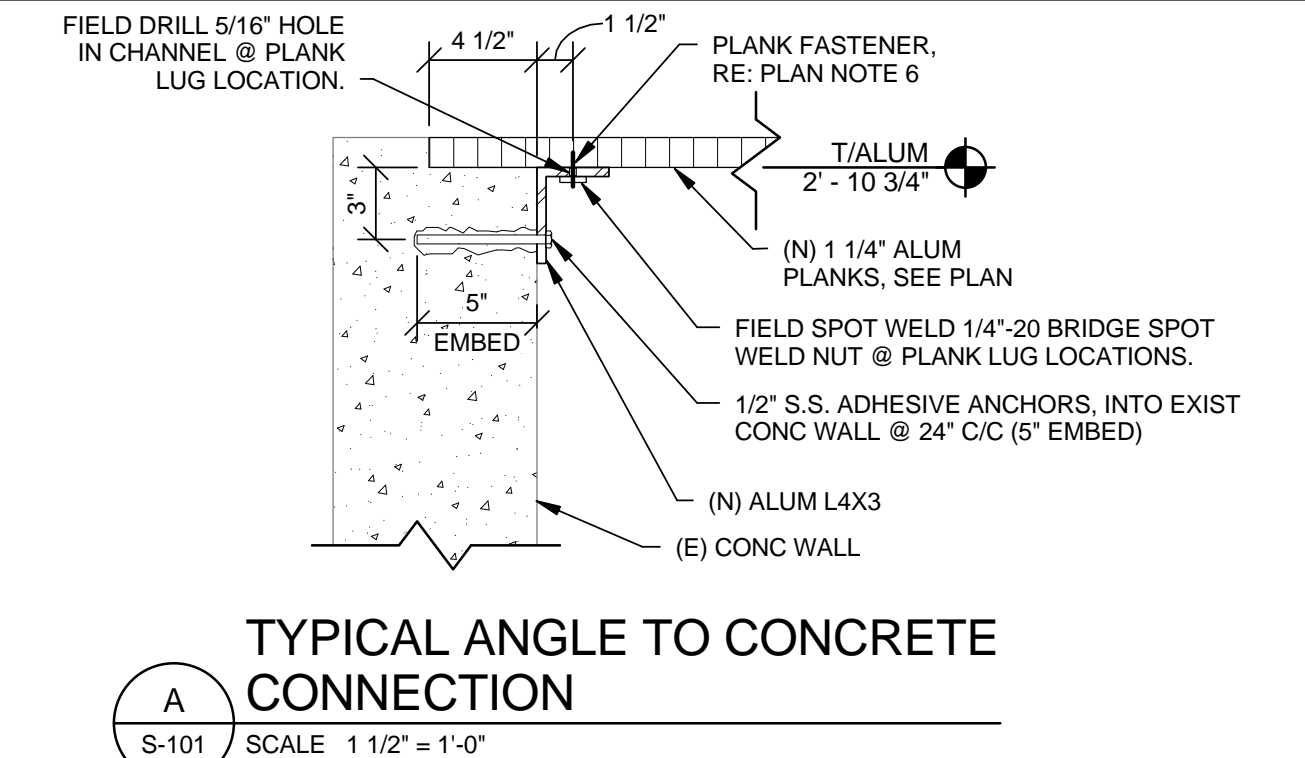
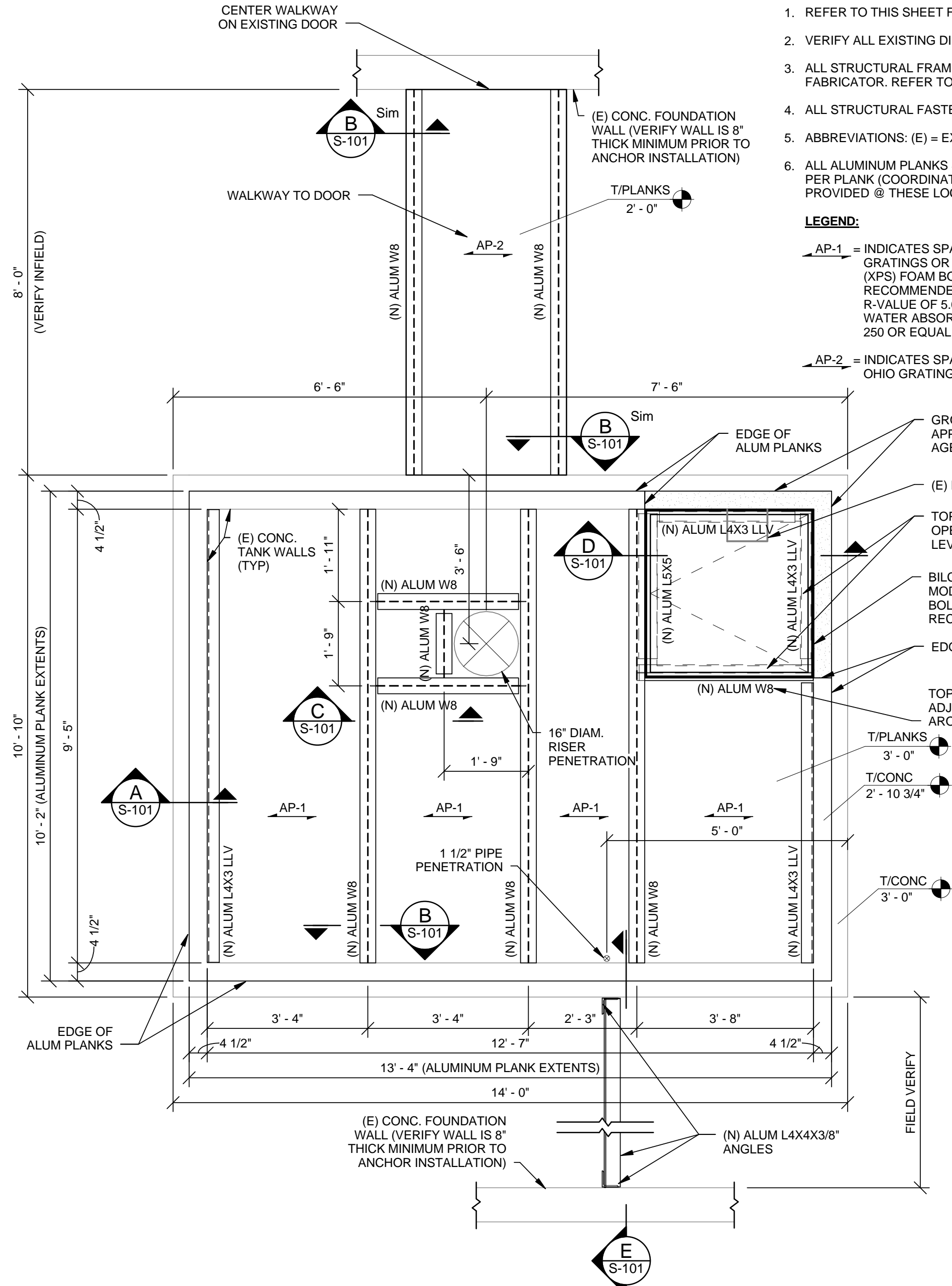
ALL WORK SHOWN ON THIS SHEET SHALL BE COMPLETED UNDER THE MANCHESTER TANK MISCELLANEOUS IMPROVEMENTS AND TANK COATING PROJECT - CONTRACT NO. 1.

PLAN NOTES:

- REFER TO THIS SHEET FOR GENERAL STRUCTURAL NOTES.
- VERIFY ALL EXISTING DIMENSIONS IN FIELD.
- ALL STRUCTURAL FRAMING MEMBERS SHALL BE ALUMINUM & ENGINEERED BY THE FABRICATOR. REFER TO STRUCTURAL ALUMINUM NOTE D.
- ALL STRUCTURAL FASTENERS SHALL BE STAINLESS STEEL.
- ABBREVIATIONS: (E) = EXISTING & (N) = NEW CONSTRUCTION
- ALL ALUMINUM PLANKS SHALL BE FABRICATED WITH (4) PLANK LUGS & ACCESS HOLES PER PLANK (COORDINATE LOCATION w/ ALUMINUM FRAMING. 1/4" S.S. BOLTS SHALL BE PROVIDED @ THESE LOCATIONS.

LEGEND:

- AP-1 = INDICATES SPAN DIRECTION OF 1 1/4" UNPUNCHED ALUMINUM PLANKS BY OHIO GRATINGS OR APPROVED EQUAL.
- AP-2 = INDICATES SPAN DIRECTION OF 1 1/4" PUNCHED ALUMINUM PLANKS BY OHIO GRATINGS OR APPROVED EQUAL.



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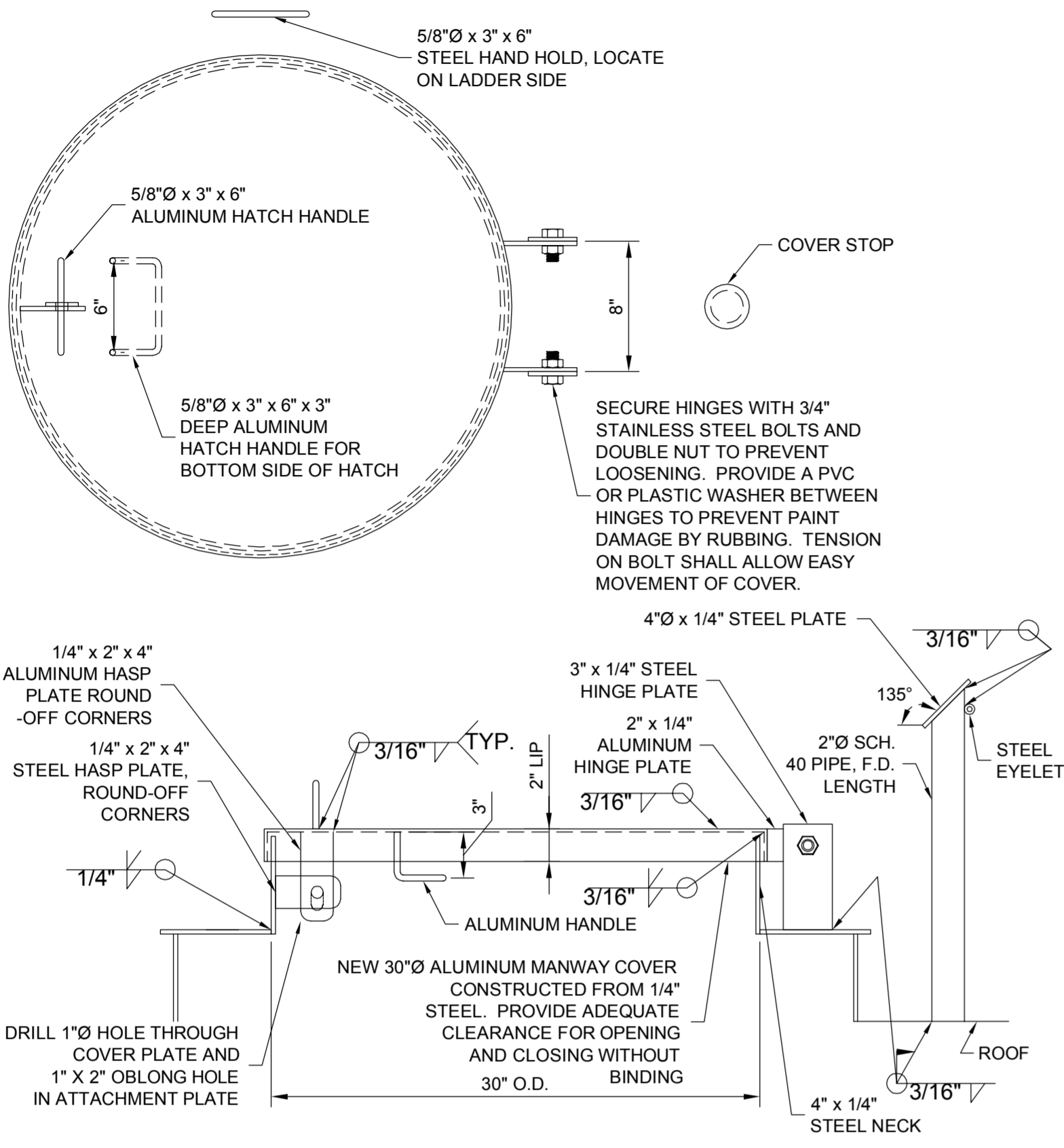
CITY OF ANN ARBOR, MICHIGAN
MANCHESTER TANK MISC IMPROVEMENTS AND TANK COATING PROJECT
STRUCTURAL PLAN AND SECTIONS
Project No.: 200-31537-15001
Designed By: PAF
Drawn By: PAF
Checked By: CDC

S-101

Bar Measures 1 inch

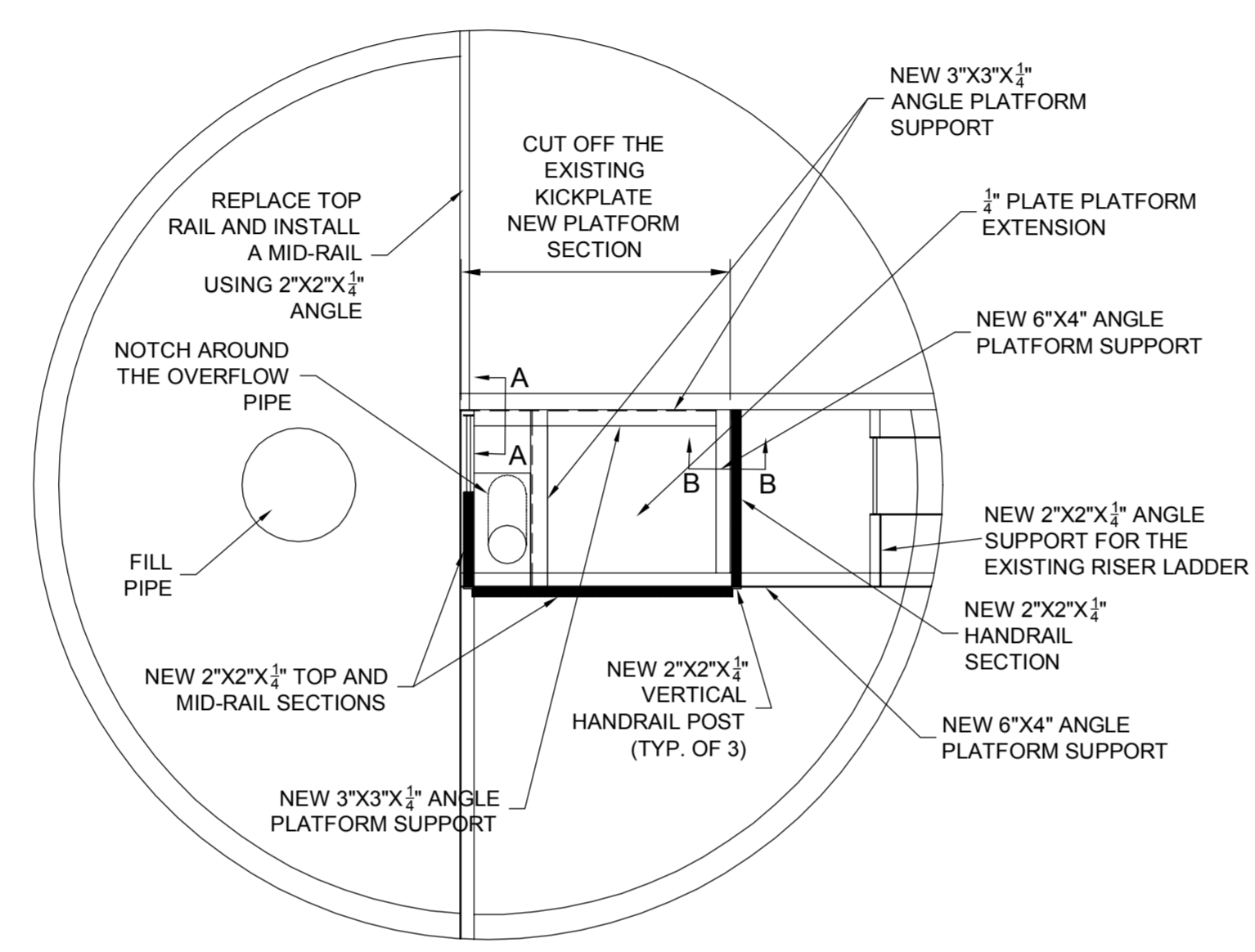
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ALL WORK SHOWN ON THIS SHEET SHALL BE COMPLETED UNDER THE MANCHESTER TANK MISCELLANEOUS IMPROVEMENTS AND TANK COATING PROJECT - CONTRACT NO. 2.



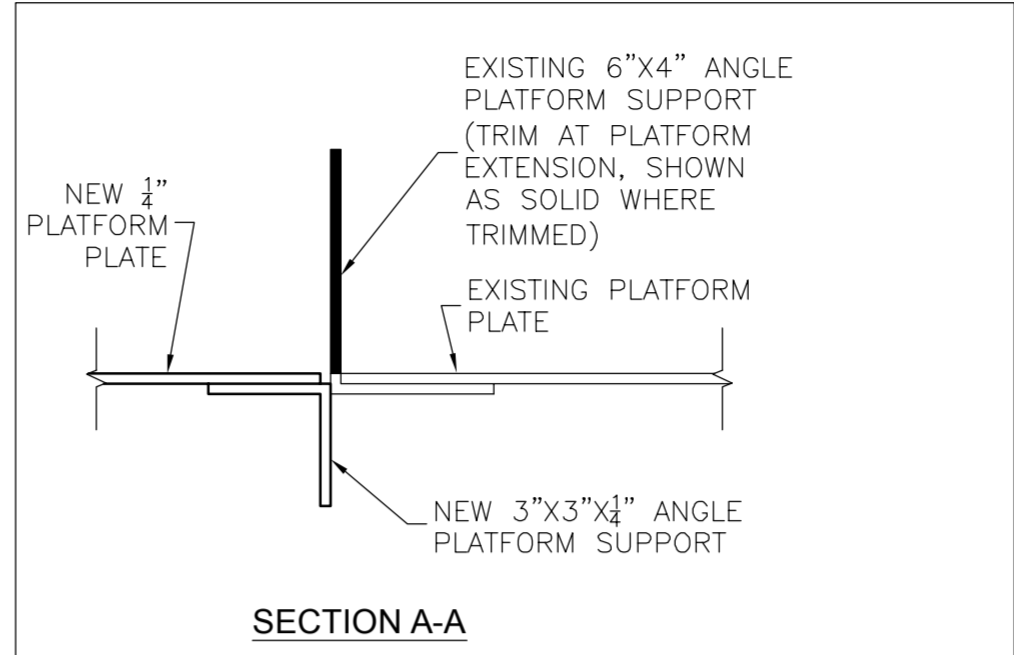
NOTES:
1. MANWAY ORIENTATION TO BE DETERMINED BY THE ENGINEER.
2. INSTALL A COVER STOP SO THE HATCH CAN OPEN NO MORE THAN 135°.
3. INSTALL A 3/8\"/>

30\"/>

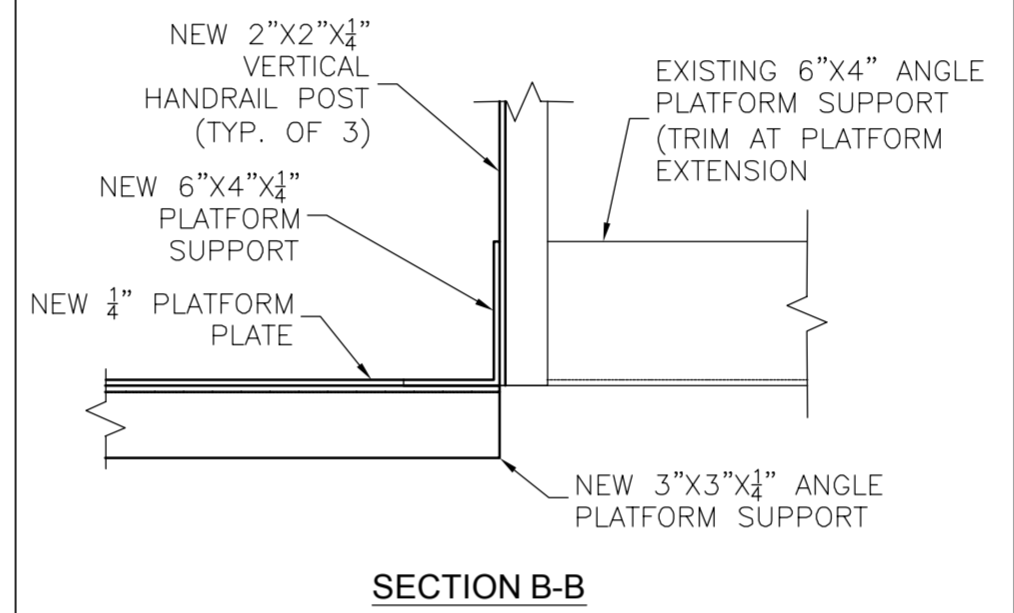


NOTES:
1. ALL WELDS TO BE 3/16\"/>

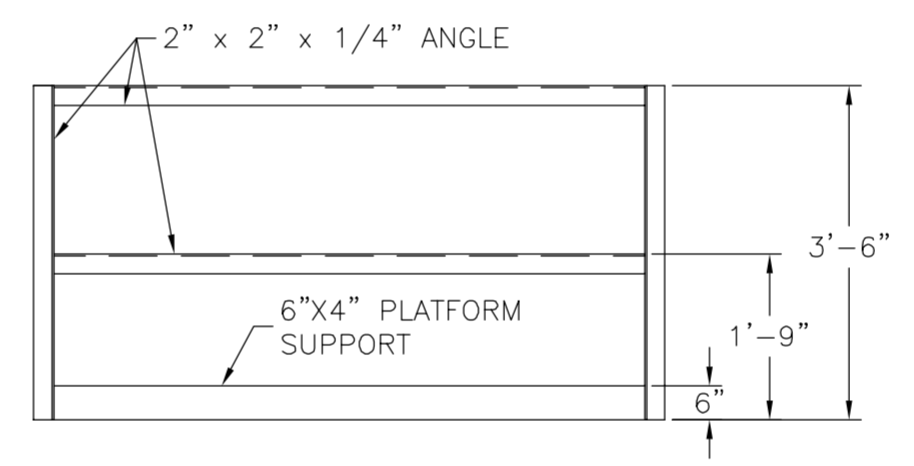
MODIFICATIONS TOP PLATFORM
SCALE: NONE



SECTION A-A

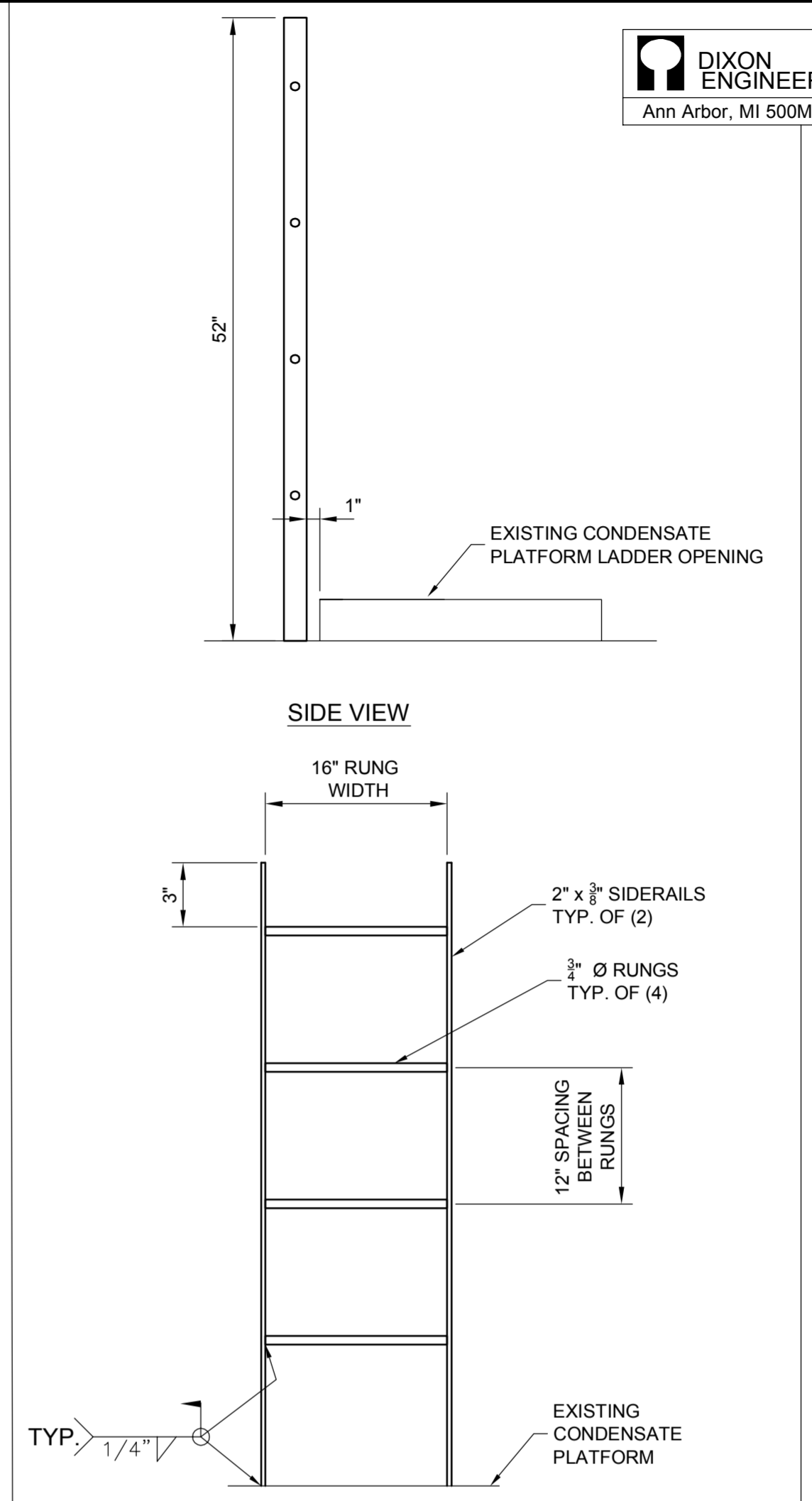


SECTION B-B



TYPICAL RAILING SECTION

DETAILS TOP PLATFORM
SCALE: NONE

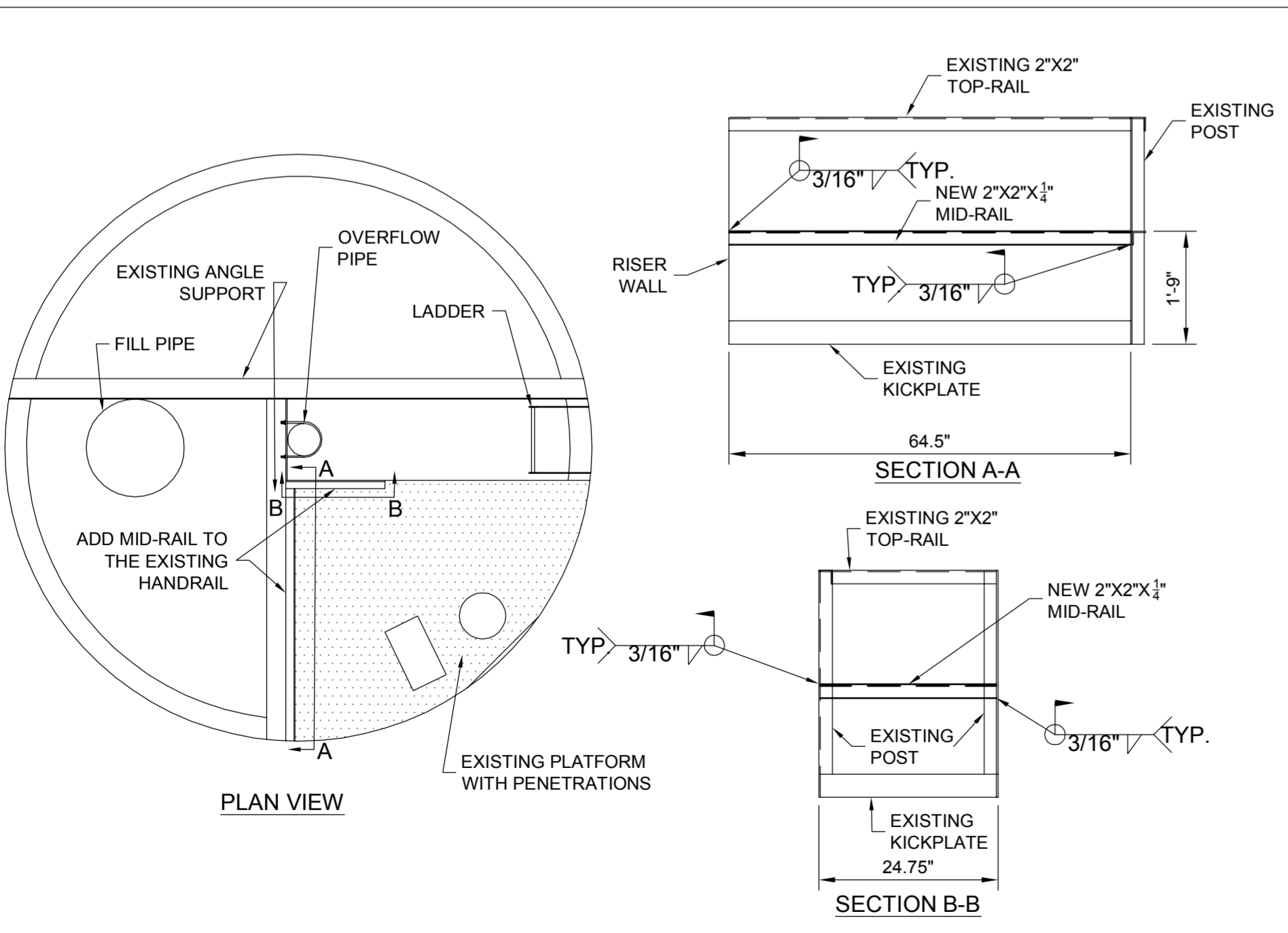


SIDE VIEW

FRONT VIEW

NOTE:
PLATFORM LADDER OPENING NOT SHOWN ON FRONT VIEW FOR CLARITY.

CONDENSATE PLATFORM LADDER
SCALE: NONE

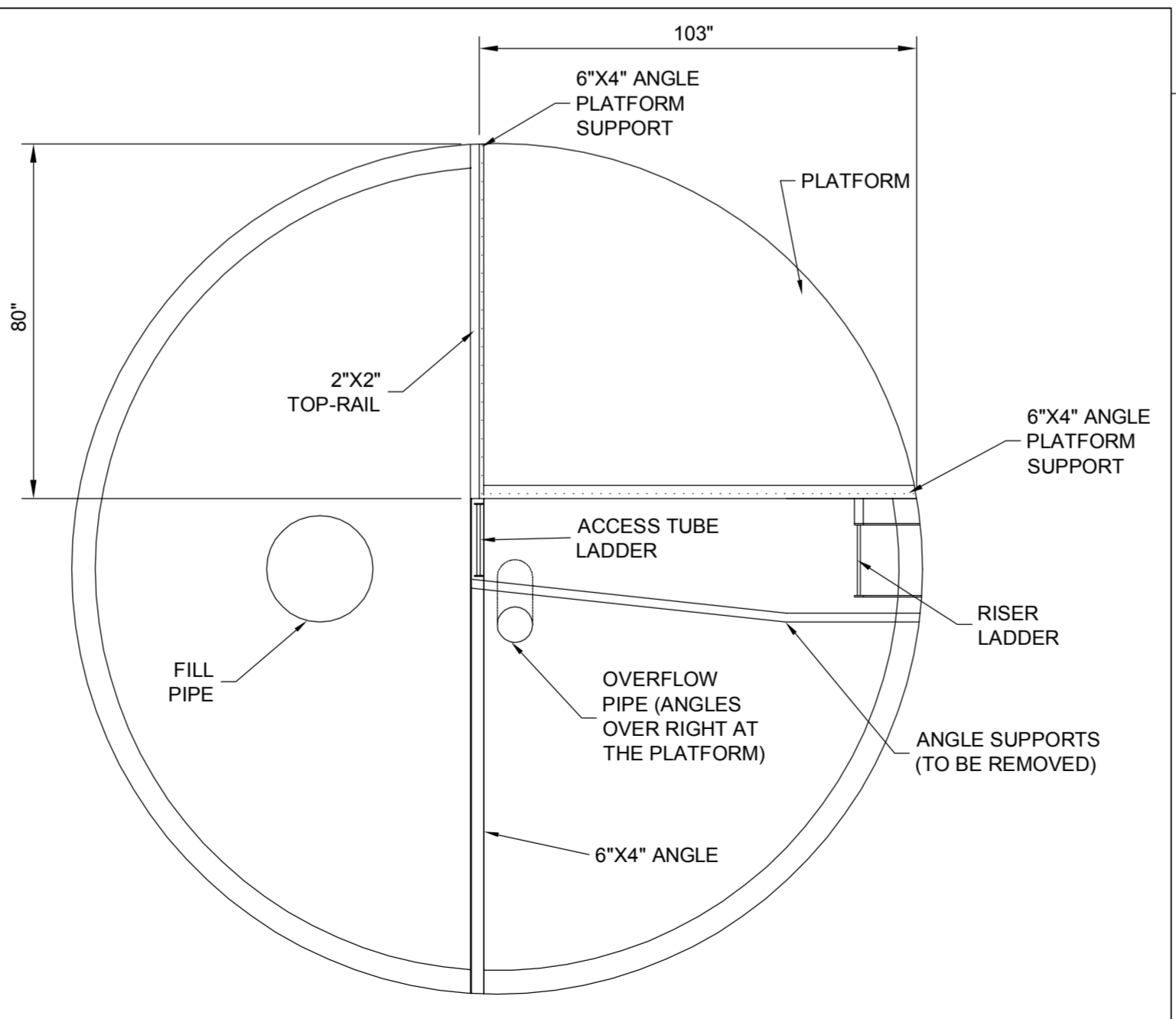


PLAN VIEW

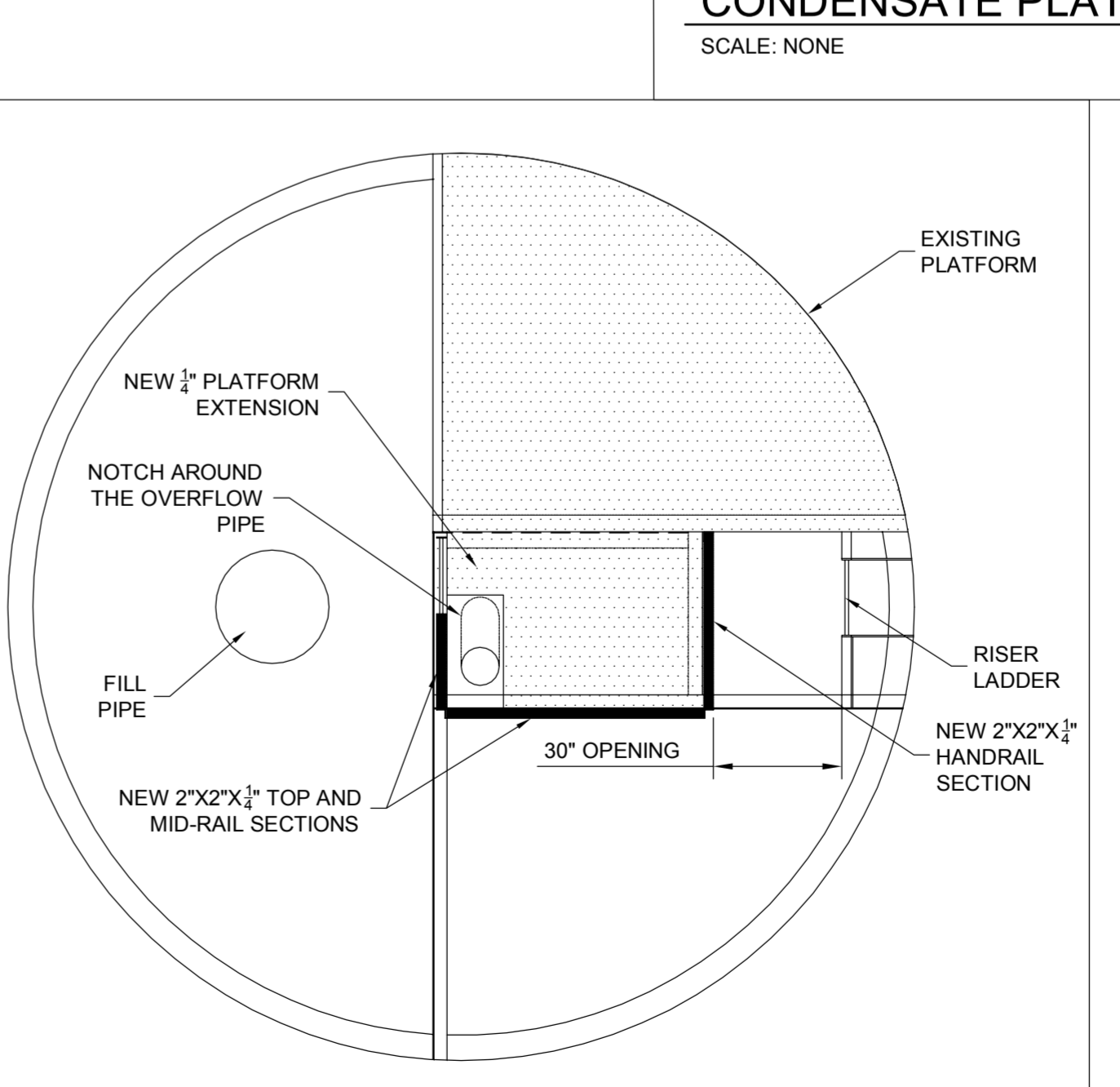
SECTION A-A

SECTION B-B

INTERMEDIATE PLATFORM
SCALE: NONE



EXISTING CONDITIONS TOP PLATFORM
SCALE: NONE



PROPOSED TOP PLATFORM
SCALE: NONE

MARK	DATE	DESCRIPTION	BY
	8/06/15	ISSUED FOR BIDS	

CITY OF ANN ARBOR, MICHIGAN
MANCHESTER TANK MISC IMPROVEMENTS AND TANK COATING PROJECT
PLATFORM AND HATCH DETAILS

Project No.: 200-31537-15001
Designed By: T. FELTON
Drawn By: T. FELTON
Checked By: I. GABIN

S-500

8/4/2015 9:02:52 AM - P:\ER31537\200-31537-15001\CAD\DWG\FILES\S-500.DWG - SCHLANDERER, EMILY

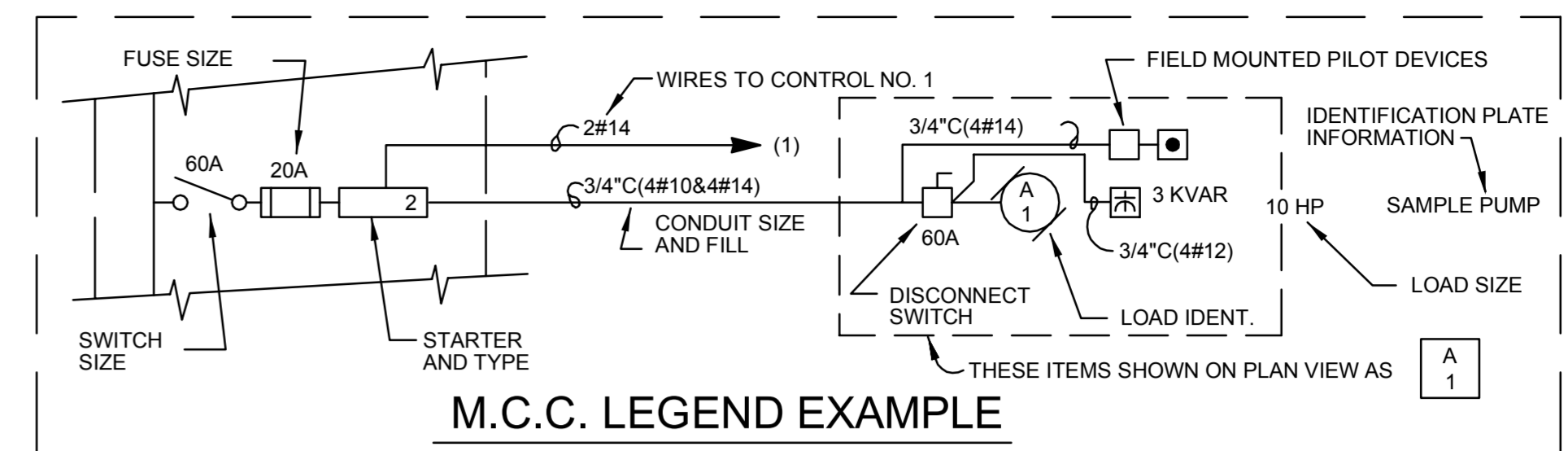
BACKGROUND PLAN AND ONE LINE SYMBOLS

Table with 2 columns: SYMBOL, DESCRIPTION. Lists symbols for control switch, float switch, temperature switch, limit switch, electrical alternator, overload switch, terminal box, solenoid valve, photocell, intercom equipment, amplifier, desk set, speaker, telephone outlet, welding receptacle, intercom handset, volume control, speaker, handset, lighting panel, junction box, heater, transformer, conduit, overhead line, underground duct bank, duct bank, cable reel, communication handhole, electrical handhole, demolish.

Table with 2 columns: SYMBOL, DESCRIPTION. Lists symbols for low voltage disconnect switch, fuse, starters, circuit breaker, motor, disconnect switch, magnetic starter, capacitor, lighting fixture, emergency battery pack, data jack, ground frame, air terminal, keylock, smoke detector, fluorescent fixture, incandescent fixture, exit light, emergency battery pack, data jack, ground frame, air terminal, keylock, smoke detector, fluorescent fixture, incandescent fixture, exit light.

CONTROL CIRCUIT & PILOT DEVICE LEGEND

Table with 4 columns: SYMBOL, DESCRIPTION, SYMBOL, DESCRIPTION. Lists symbols for pressed actuated switch, float actuated switch, flow actuated switch, temp. actuated switch, limit switch, momentary pushbutton, solenoid, control relay, timing relay, latching relay, two coil latching relay, timing relay coil, timed contacts, transformer.



WIRING DEVICE SCHEDULE

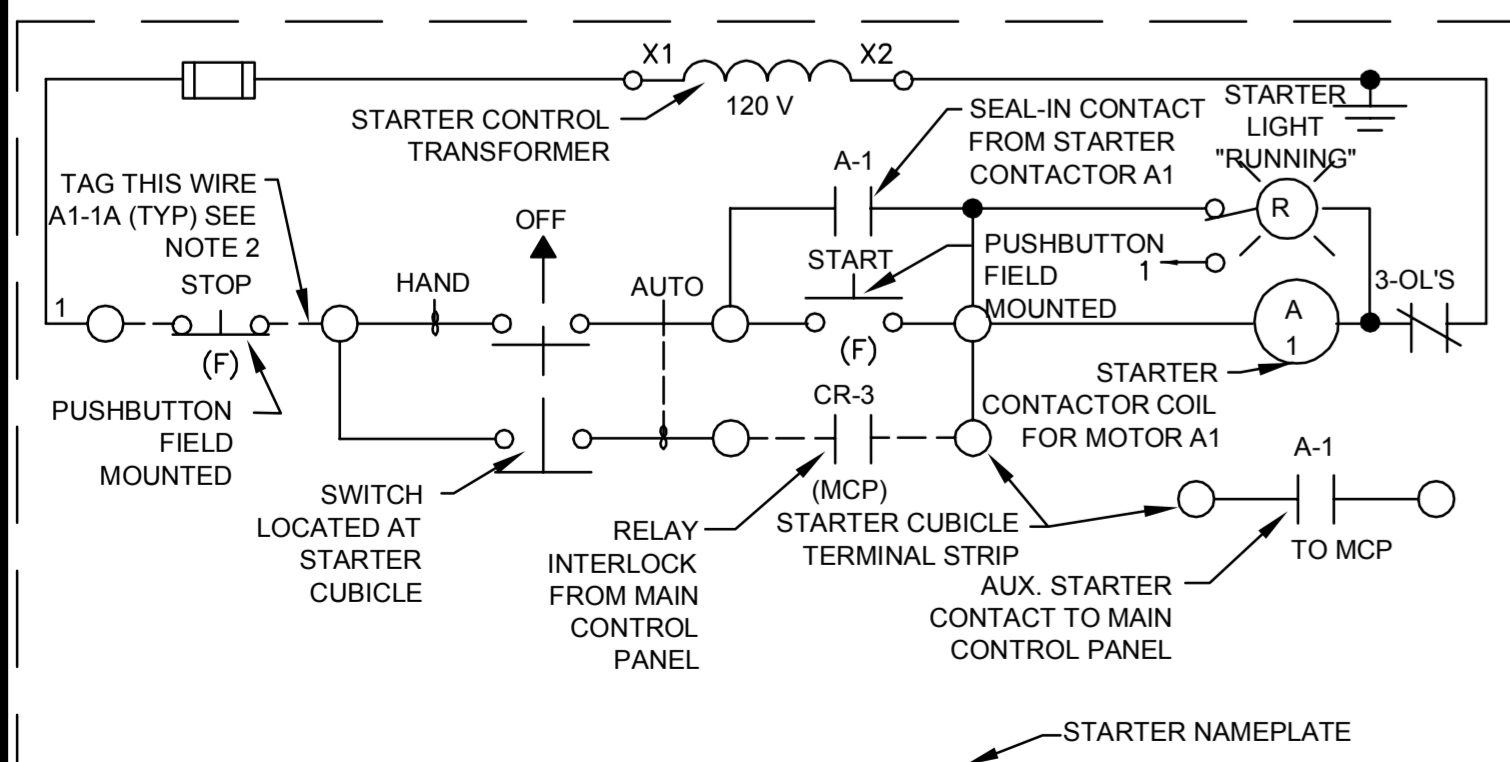
Table with 3 columns: SYMBOL, DESCRIPTION, NEMA TYPE. Lists various electrical components like clock hanger, simplex switches, dimmer switches, receptacles, and switches with their corresponding NEMA types.

GENERAL NOTES:

- 1. THE FOLLOWING COMPONENT IDENTIFICATION SHALL BE USED AS APPROPRIATE: (F) FIELD MOUNTED NOT AT STARTER OR OTHER CONTROL PANELS, (S) STARTER PANEL MOUNTED, (TCP) AT TEMPERATURE CONTROL PANEL, (MCP) AT MAIN CONTROL PANEL. 2. ELECTRICAL MATERIALS AND EQUIPMENT ITEMS SHOWN IN LIGHT LINE WEIGHTS ON THE DRAWINGS ARE EXISTING ITEMS TO REMAIN... 3. ITEMS SHOWN IN CROSSHATCH ON THE DRAWINGS ARE EXISTING ITEMS TO BE REMOVED... 4. FOR ITEMS INDICATED AS 'FIELD LOCATE' CHECK DRAWINGS... 5. INSTALL A SINGLE CONDUCTOR INSULATED (RHW, THHN OR XHHW) COPPER GROUND WIRE... 6. WIRE NUMBERS (1, 3 & 5) ETC. SHALL BE PREFIXED WITH STARTER TAG NUMBERS... 7. PROVIDE SIGNAGE/PLACARD/TAGS AS INDICATED... 8. OUTSIDE EQUIPMENT MUST BE RATED FOR -40 TO 150 DEG F. 9. CONDUIT FILL MUST MEET NFPA REQUIREMENTS... 9.1. INSTRUMENT SIGNAL CONDUIT: SHIELDED SIGNAL WIRES... 9.2. CONTROL CIRCUIT CONDUIT (120VAC)... 9.3. CONTROL CIRCUIT CONDUIT (24VDC)... 9.4. COMMUNICATION CONDUIT (ETHERNET)... 9.5. COMMUNICATION CONDUIT (FIELD BUS)... 10. EQUIPMENT SHOWN INSIDE SHALL BE RATED NEMA 12... 11. MINIMUM CONTROL WIRE SIZE... 12. MINIMUM CONDUIT SIZE SHALL BE 3/4".

ABBREVIATIONS:

Table of abbreviations: A AMPERE(S), A/C AIR CONDITIONING, AI ANALOG INPUT, ALT ALTERNATE, AO ANALOG OUTPUT, ASB ALARM SILENCE BUTTUN, AWG AMERICAN WIRE GAUGE, C CONDUIT, CAT CATEGORY, CB CIRCUIT BREAKER, CLAR CLARIFIER, CP CONTROL PANEL, CR CONTROL RELAY, CSF CARBON STORAGE & FEED, DB DUCTBANK, DI DISCRETE INPUT, DO DISSOLVED OXYGEN, EFF EFFLUENT, ENET EMERGENCY, ETI ELAPSED TIME INDICATOR, FB FUSE BLOCK, FO FIBER OPTIC, FOC FIBER OPTIC CONVERTER, FOPP FIBER OPTIC PATCH PANEL, FVNR FULL VOLTAGE NON-REVERSING, G / GND GROUND, GA GAUGE, GAL GALLON(S), GALV GALVANIZED, GEN GENERATOR, GFCI GROUND FAULT CIRCUIT INTERRUPTER, HOA HAND-OFF-AUTO, HORIZ HORIZONTAL, HP HORSEPOWER, HTR HEATER, HZ HERTZ, I/O INPUT/OUTPUT, M MOTOR, MA MILLIAMM, MB MAIN BREAKER, MCB MAIN CIRCUIT BREAKER, MCC MOTOR CONTROL CENTER, MCP MAIN CONTROL PANEL, MIN MINIMUM, MLO MAIN LUG ONLY, MS MOTOR STARTER, MTR MASTER, N NEUTRAL, NO NUMBER, O.C. ON CENTER, OL OVERLOAD, ORP OXIDATION REDUCTION POTENTIAL, P POLE, PDB POWER DISTRIBUTION BLOCK, P.B. PUSHBUTTON, PLC PROGRAMMABLE LOGIC CONTROLLER, PM PHASE MONITOR, PVC POLYVINYL CHLORIDE, RAD RADIANT, RL RUNNING LIGHT, RPM ROTATIONS PER MINUTE, SCHED SCHEDULE, SEL SELECTOR, SH SHIELDED, SKD SKID, SS STAINLESS STEEL, STA STATION, T THERMOSTAT, TNK TANK, TRN TRAIN, TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION TYPICAL, UPS UNINTERRUPTIBLE POWER SUPPLY, V VOLTAGE, VAC VOLTAGE ALTERNATING CURRENT, VDC VOLTAGE DIRECT CURRENT, VERT VERTICLE, VFD VARIABLE FREQUENCY DRIVE, W WATT / WIRE, WW WITH, XFMR TRANSFORMER, Ø PHASE.



ALL REFERENCE INFORMATION AND WORK SHOWN ON THIS SHEET SHALL BE COMPLETED UNDER THE MANCHESTER TANK MISCELLANEOUS IMPROVEMENTS AND TANK COATING PROJECT - CONTRACT NO. 1.

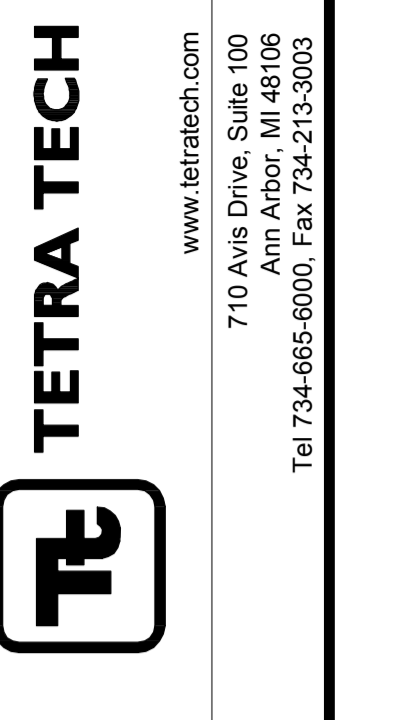
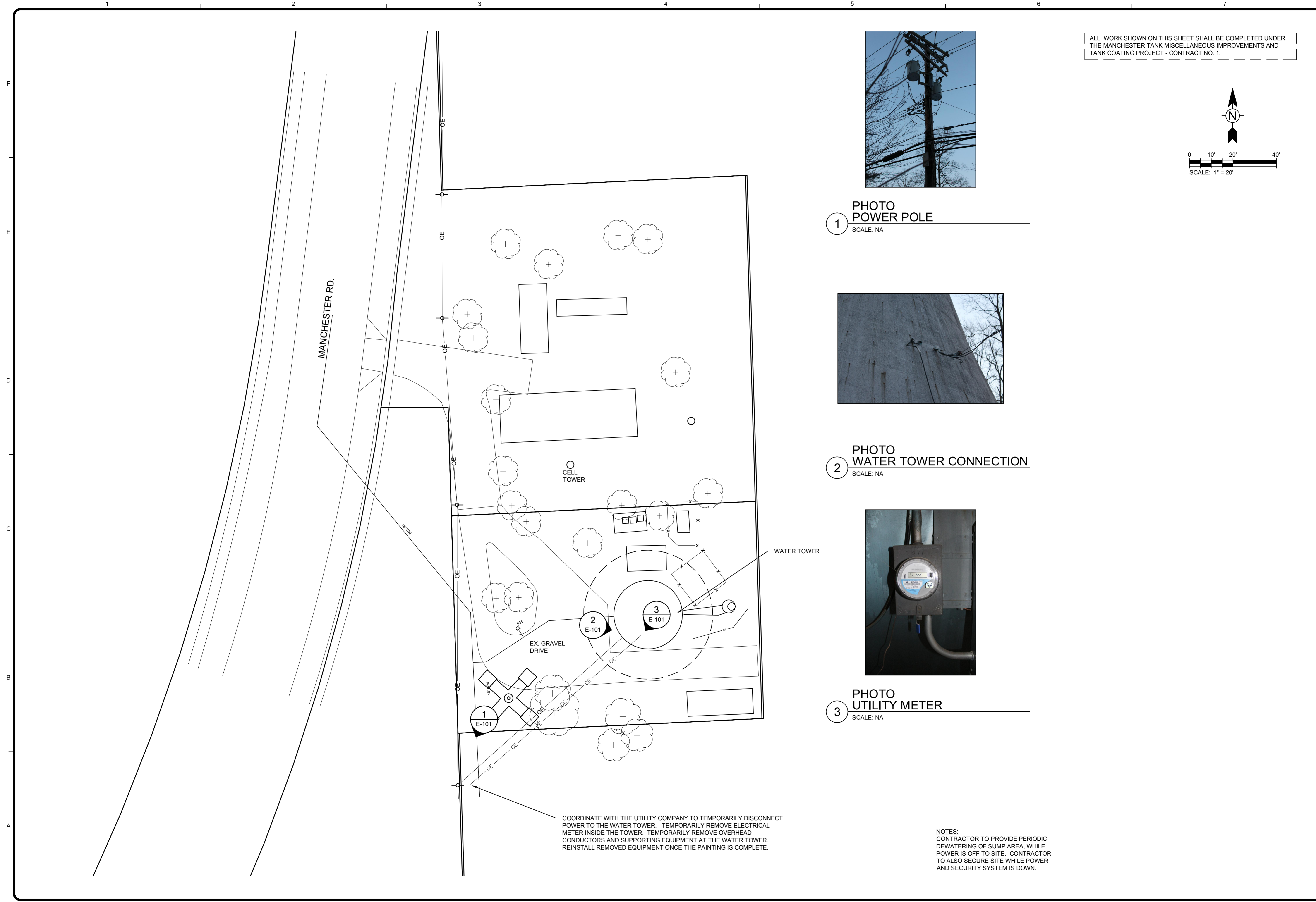


Table with columns: BY, DATE, DESCRIPTION, MARK. Includes information for ISSUED FOR BIDS, 8/06/15, and MANCHESTER TANK MISC IMPROVEMENTS AND TANK COATING PROJECT.

Table with columns: CITY OF ANN ARBOR, MICHIGAN; MANCHESTER TANK MISC IMPROVEMENTS AND TANK COATING PROJECT; ELECTRICAL LEGEND.

Table with columns: Project No.: 200-31537-15001; Designed By: CSW; Drawn By: CSW; Checked By: AJK.

E-001



COORDINATE WITH THE UTILITY COMPANY TO TEMPORARILY DISCONNECT POWER TO THE WATER TOWER. TEMPORARILY REMOVE ELECTRICAL METER INSIDE THE TOWER. TEMPORARILY REMOVE OVERHEAD CONDUCTORS AND SUPPORTING EQUIPMENT AT THE WATER TOWER. REINSTALL REMOVED EQUIPMENT ONCE THE PAINTING IS COMPLETE.

NOTES:
CONTRACTOR TO PROVIDE PERIODIC DEWATERING OF SUMP AREA, WHILE POWER IS OFF TO SITE. CONTRACTOR TO ALSO SECURE SITE WHILE POWER AND SECURITY SYSTEM IS DOWN.



1 PHOTO POWER POLE
SCALE: NA

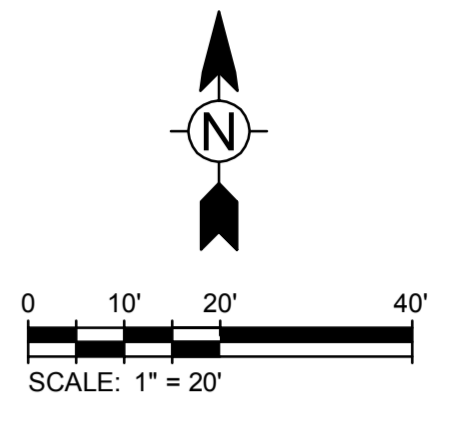


2 PHOTO WATER TOWER CONNECTION
SCALE: NA



3 PHOTO UTILITY METER
SCALE: NA

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MARK	DATE	DESCRIPTION	BY
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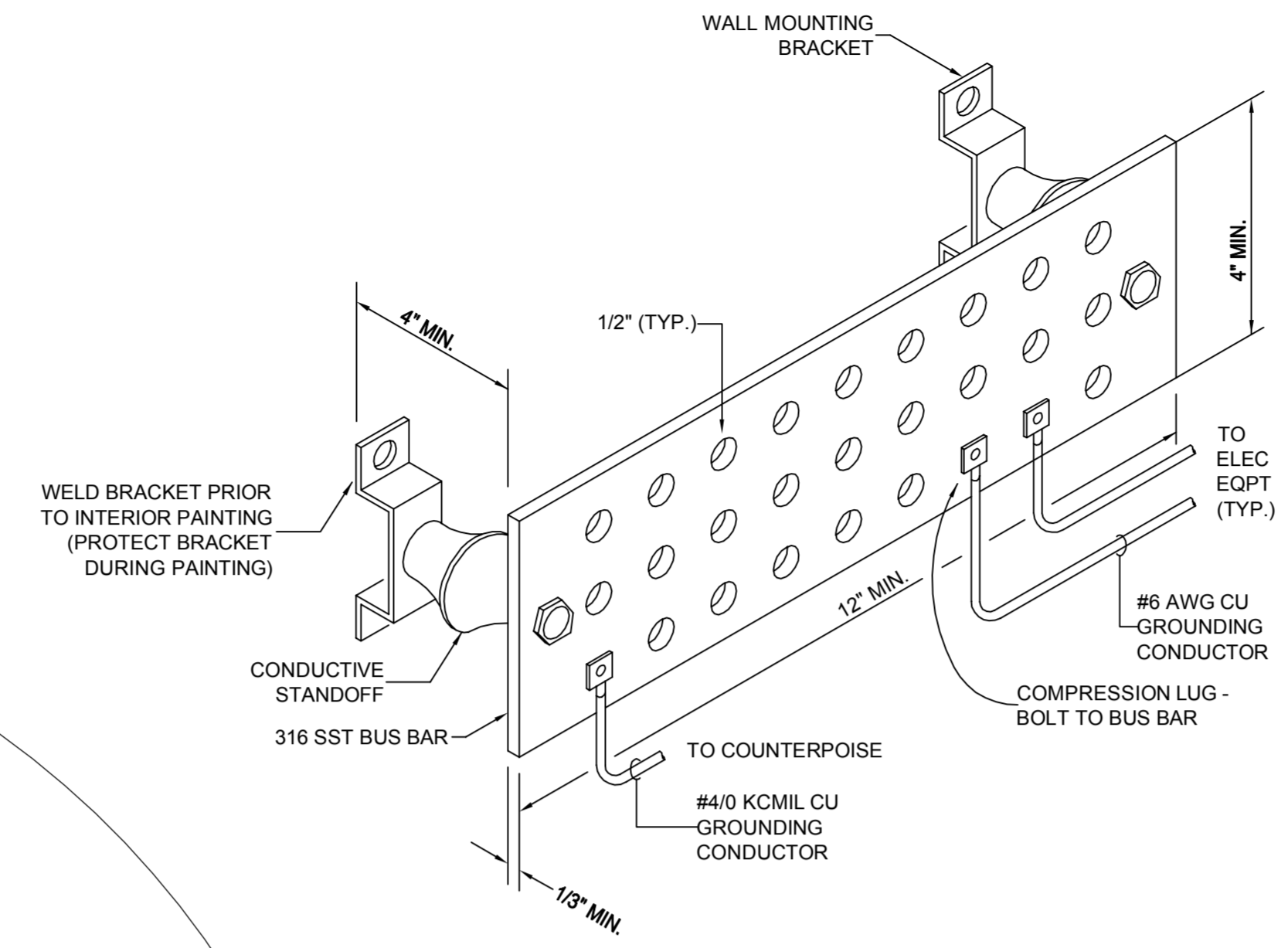
CITY OF ANN ARBOR, MICHIGAN
MANCHESTER TANK MISC IMPROVEMENTS AND TANK COATING PROJECT
ELECTRICAL SITE PLAN

Project No.: 200-31537-15001
Designed By: CSW
Drawn By: CSW
Checked By: AJK

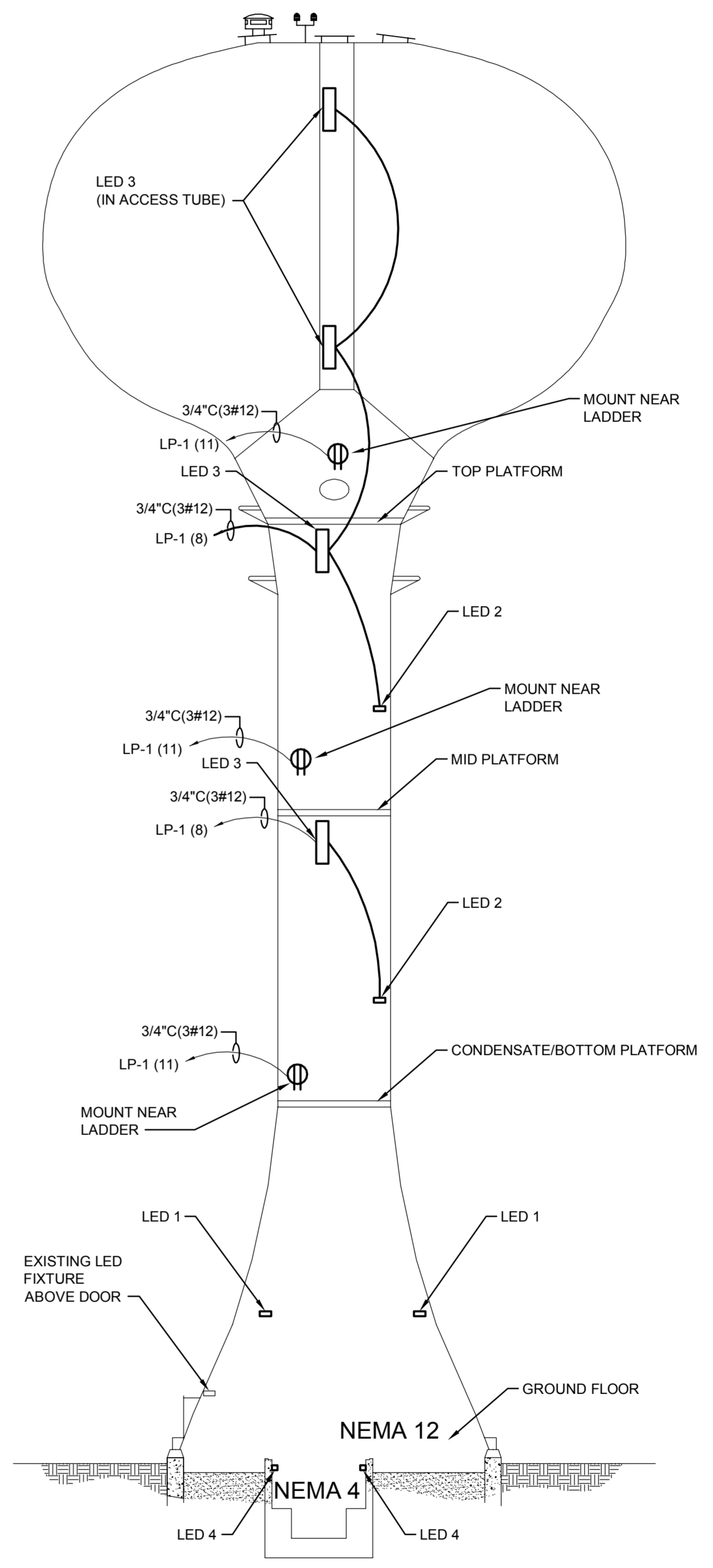
E-101

Copyright: Tetra Tech
Bar Measures 1 inch

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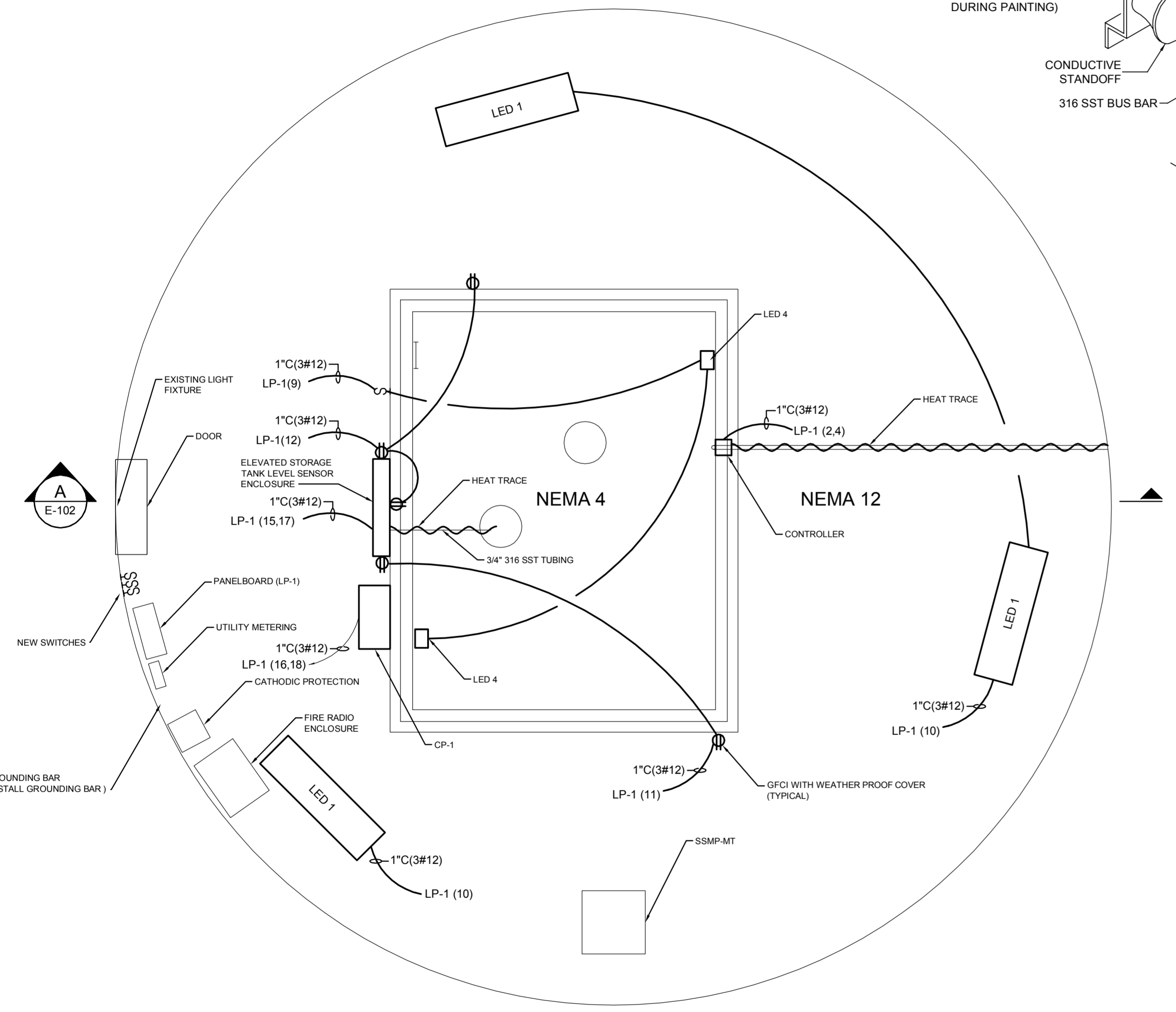


GROUND BAR DETAIL
NO SCALE



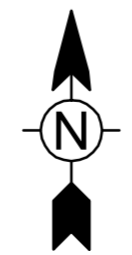
ELECTRICAL ELEVATION VIEW
SCALE: 3/32"=1'-0"

NOTES:
1. INSTALL SPARE 3#12 WIRE IN EACH LIGHTING AND POWER CONDUIT (FOR FUTURE USE)



ELECTRICAL GROUND FLOOR PLAN VIEW
SCALE: 3/8"=1'

NOTES:
1. INSTALL SPARE 3#12 WIRE IN EACH LIGHTING AND POWER CONDUIT (FOR FUTURE USE)



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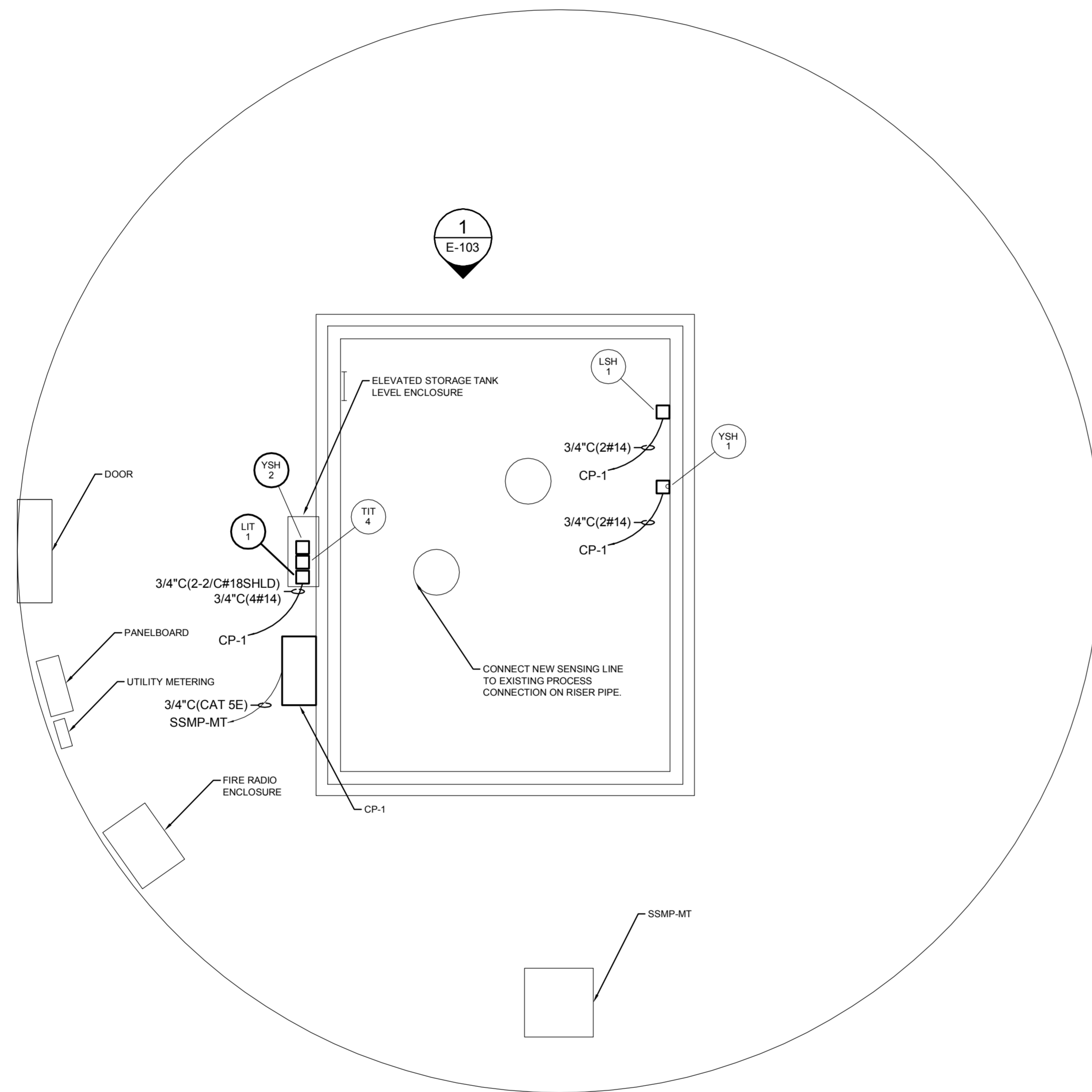
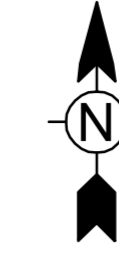
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	8/06/15	ISSUED FOR BIDS	

CITY OF ANN ARBOR, MICHIGAN
MANCHESTER TANK MISC IMPROVEMENTS AND TANK COATING PROJECT
ELECTRICAL WATER TOWER PLAN

Project No.: 200-31537-15001
Designed By: CSW
Drawn By: CSW
Checked By: AJK

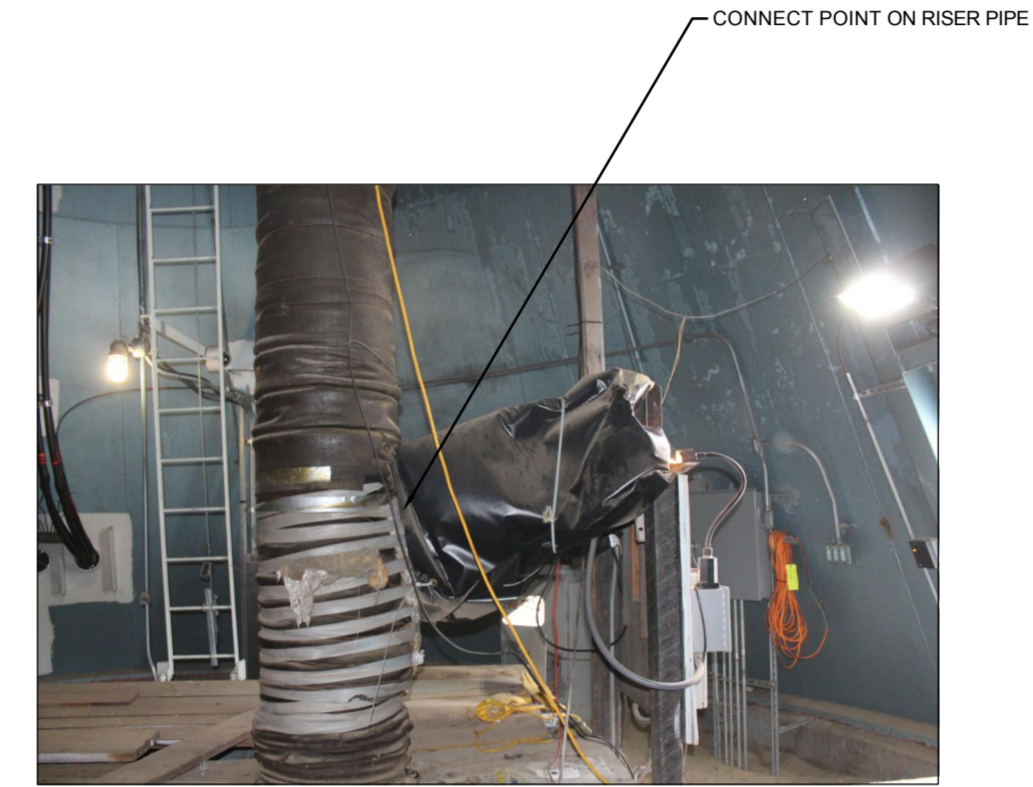
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**INSTRUMENTATION
GROUND FLOOR PLAN VIEW**

SCALE: 3/8"=1'



**1 PHOTO
SENSING LINE**
SCALE: NA

NOTES:

- PROGRAMMING OF CP-1 IS PART OF THE CONTRACTORS SCOPE OF WORK. (WORK WITH THE OWNER TO IDENTIFY ADDRESS REQUIREMENTS AND ANY PROGRAMMING REQUIREMENT)
- CONNECTING CP-1 TO SSMP-MT IS PART OF THE CONTRACTORS SCOPE OF WORK.
- CONFIGURING SSMP-MT, CONFIGURING PLANT NETWORK, AND CONFIGURING PLANTS SCADA SYSTEM IS BY OWNER.



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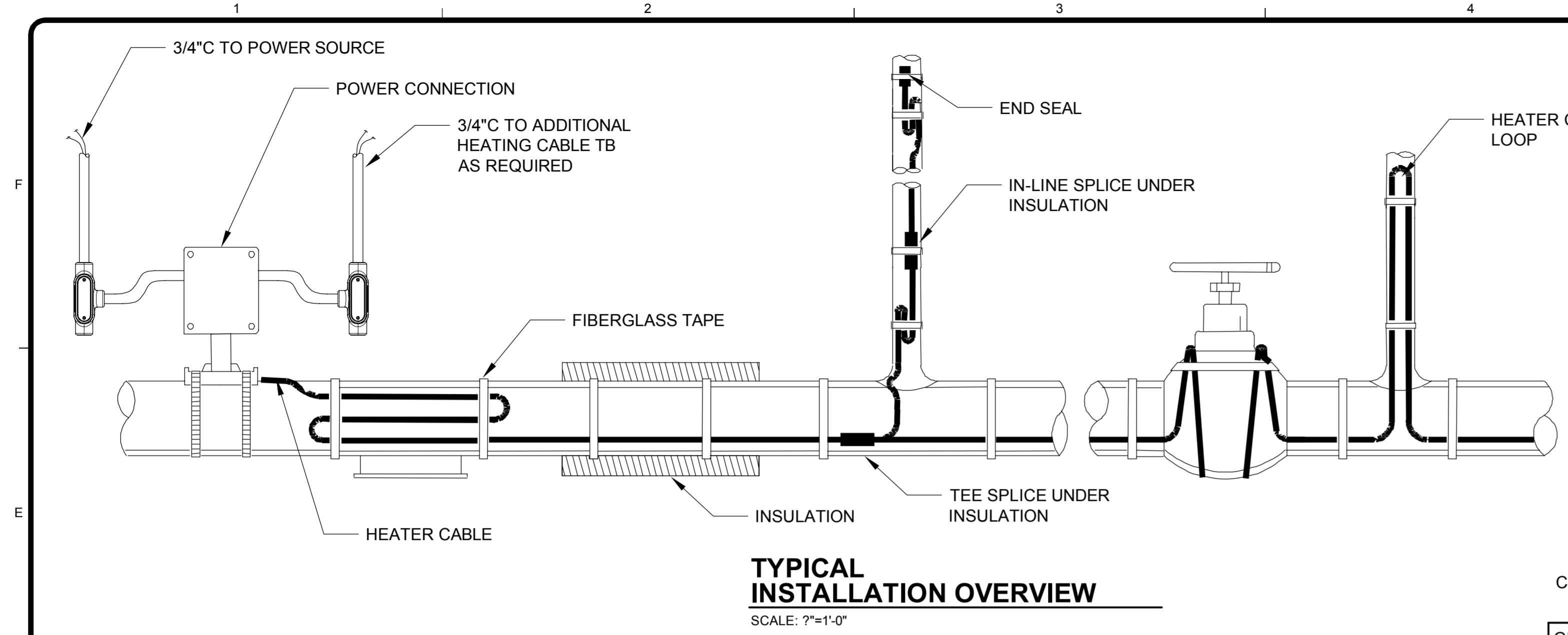
MARK	DATE	DESCRIPTION	BY
	8/06/15	ISSUED FOR BIDS	

CITY OF ANN ARBOR, MICHIGAN
MANCHESTER TANK MISC IMPROVEMENTS
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**INSTRUMENTATION
WATER TOWER PLAN**

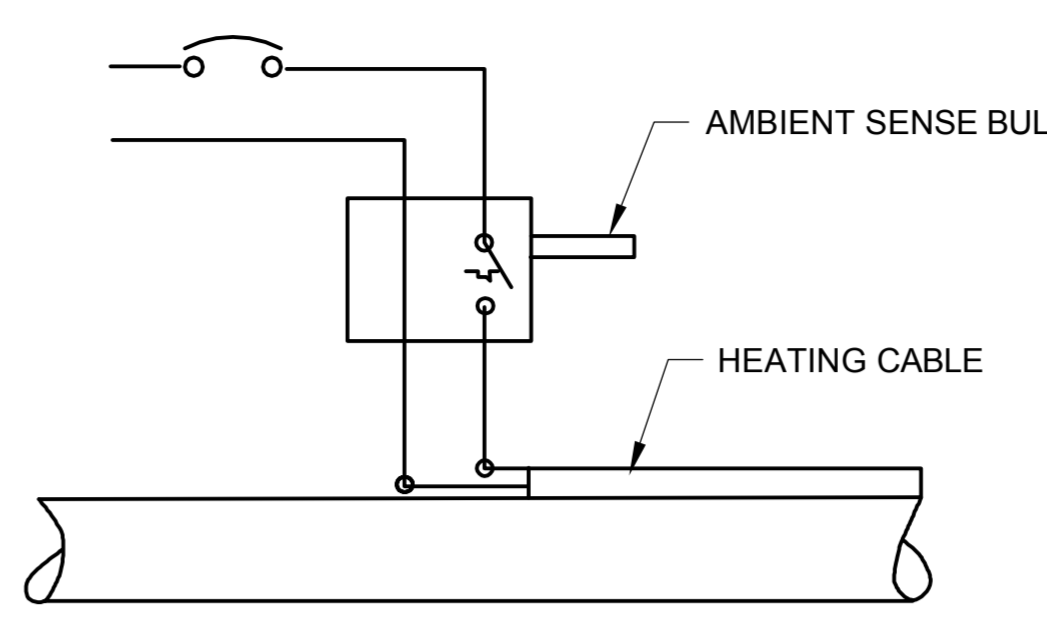
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E-103

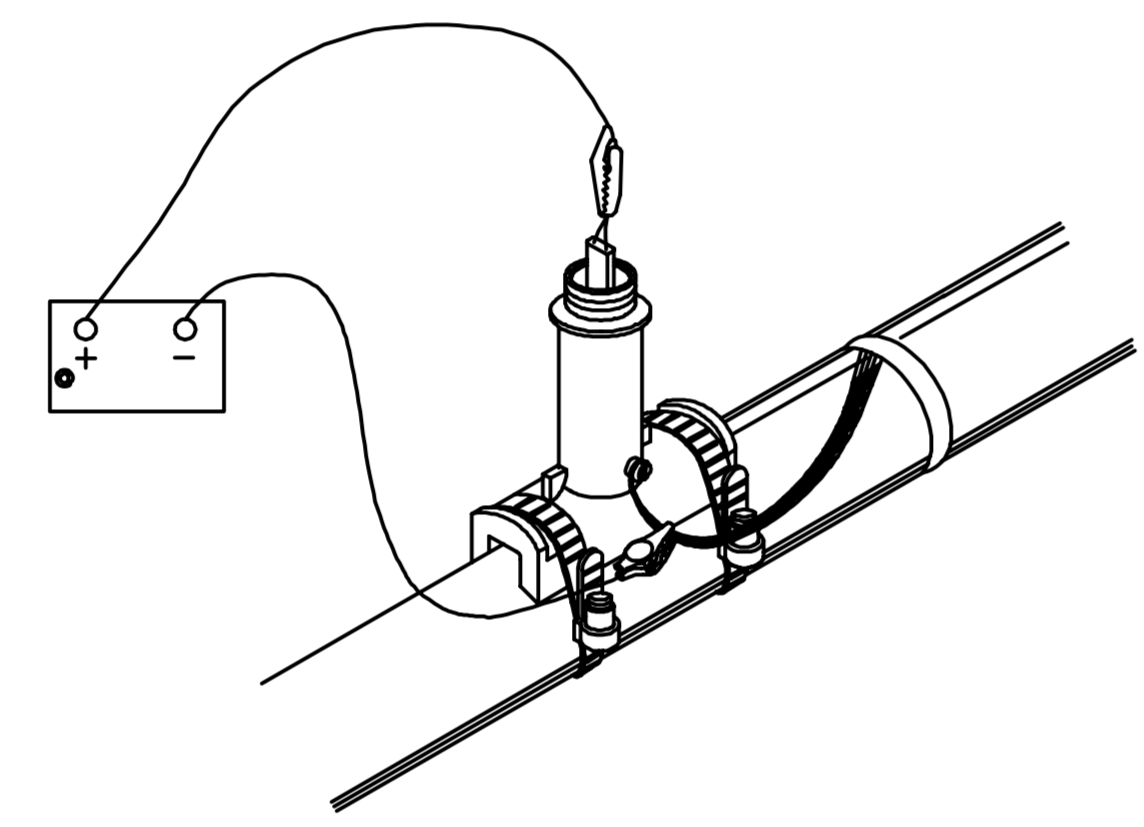
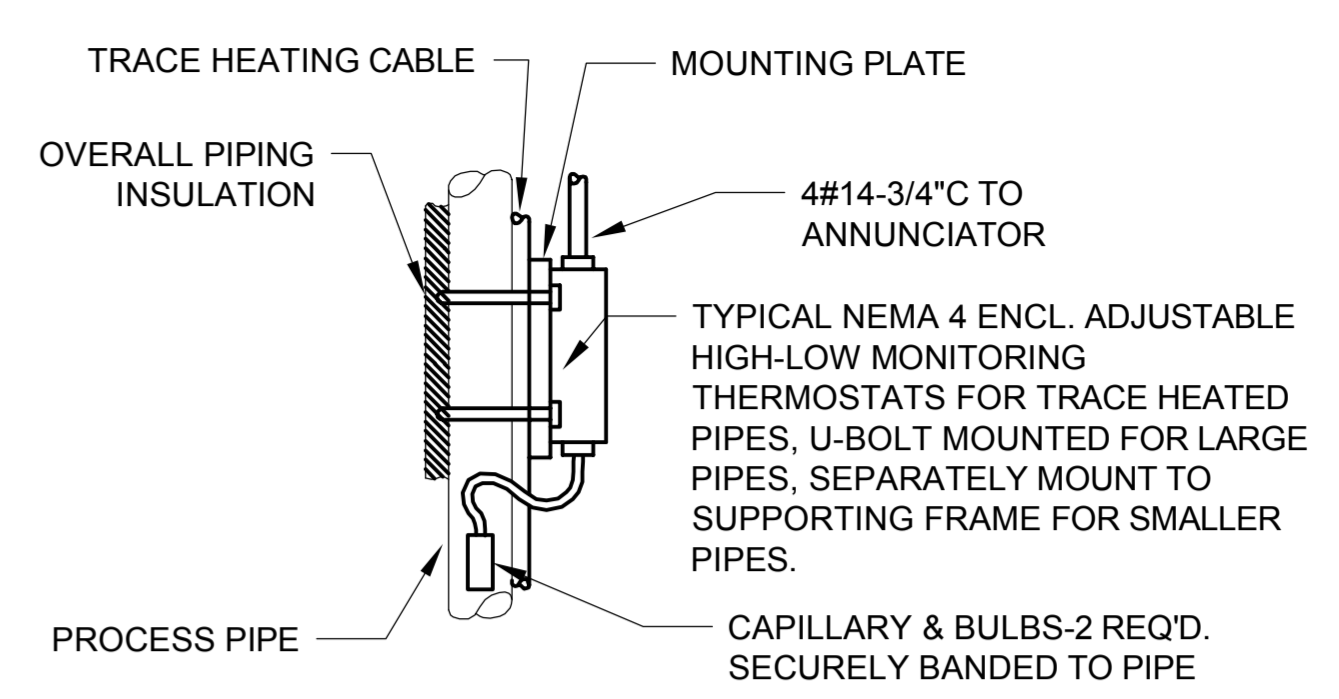
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Bar Measures 1 inch



TYPICAL INSTALLATION OVERVIEW
SCALE: 2\"/>



AMBIENT AIR SENSING
SENSOR PLACEMENT
SCALE: 2\"/>

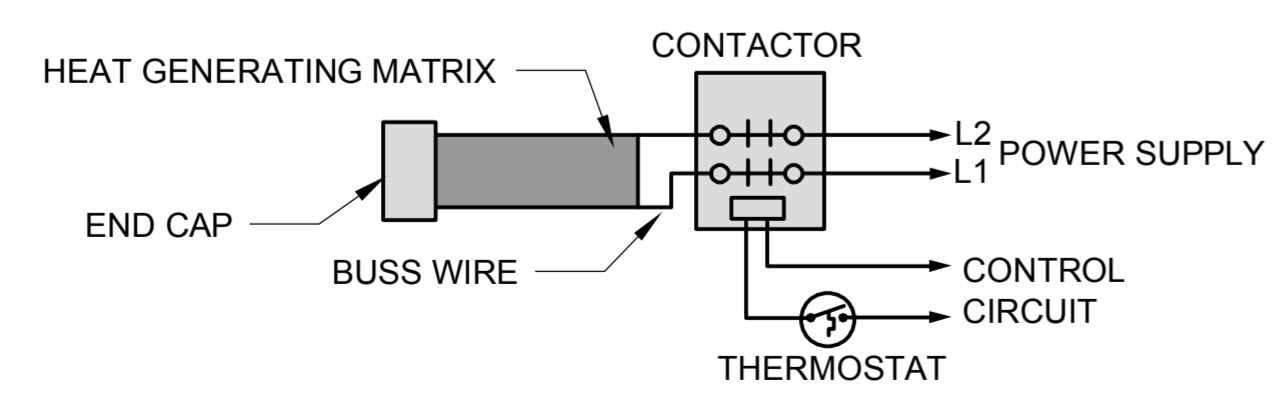


MEGGER TESTING
(FOR HEATER CABLE WITH BRAID)

- NOTES:
1. TEST FROM HEATING CABLE BUS WIRES TO BRAID.
 2. TEST SHOULD USE AT LEAST A 500 VDC MEGGER. DO NOT USE A MEGGER WITH AN EXCESS OF 2500 VDC MINIMUM ACCEPTABLE READINGS SHOULD BE 20 MEGOHMS PER CIRCUIT, REGARDLESS OF LENGTH.
 3. A RECORD SHOULD BE KEPT OF THE READINGS TAKEN FROM THE TIME THE CABLE IS FIRST INSTALLED ON THE PIPE.

TESTING DIAGRAM

SCALE: 2\"/>

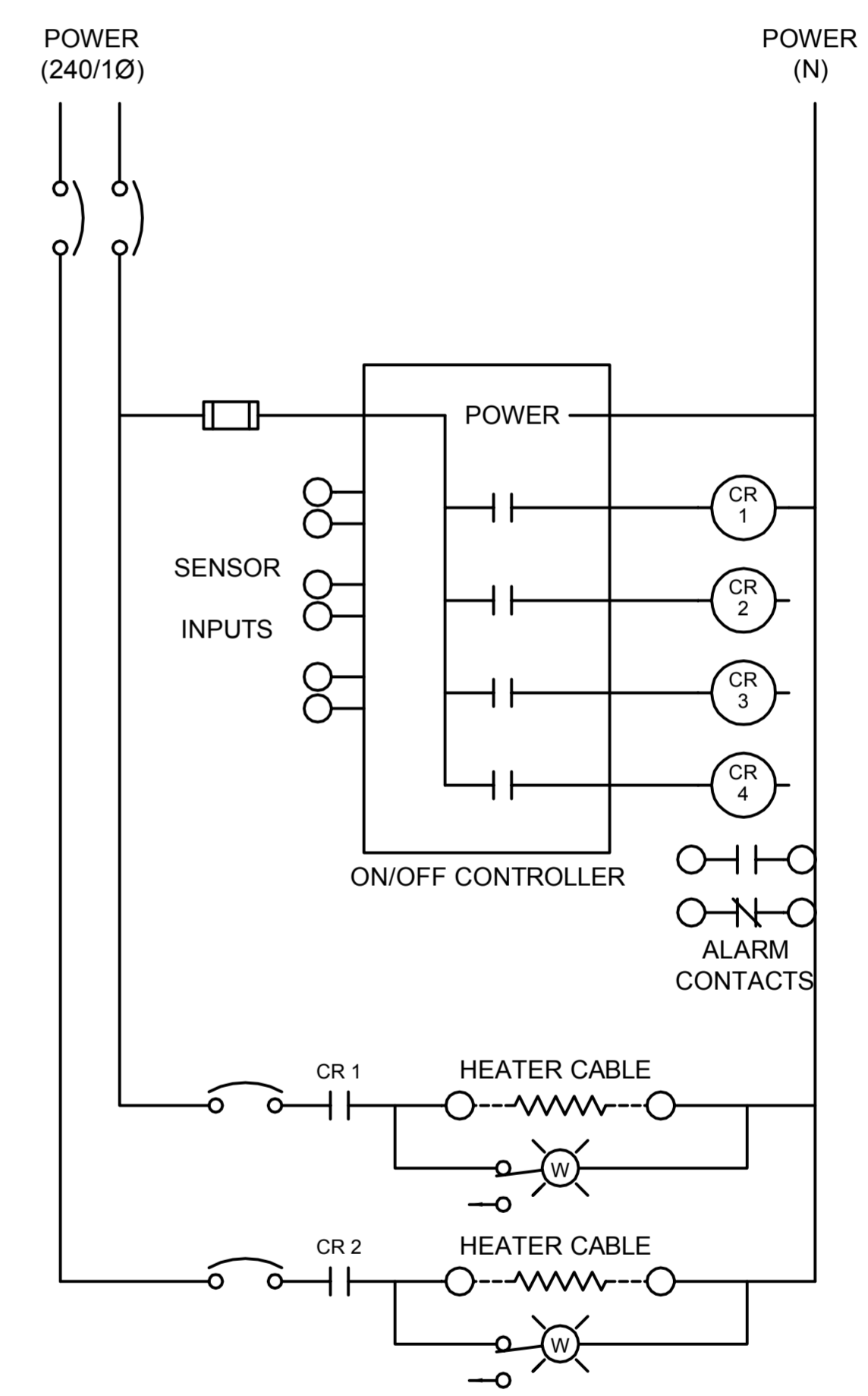


TYPICAL HEATER CIRCUIT WIRING DIAGRAM
SCALE: 2\"/>

CHECKLIST FOR SELF-REGULATING AND POWER-LIMITING HEAT TRACING

GENERAL INFORMATION			
PROJECT NUMBER:		INSTALLATION CONTRACTOR:	
UNIT NUMBER:		THERMON REFERENCE NUMBER:	
CUSTOMER REF. NUMBER:		INSPECTOR:	
RECORD 1: PRIOR TO INSTALLATION			
CABLE TYPE:		REEL NUMBER:	
REEL LENGTH (M):		INSULATION RESISTANCE (M OHMS):	
TESTED BY/DATE:		WITNESSED BY/DATE:	
RECORD 2: AFTER CABLE INSTALLATION			
LINE NUMBER:		THERMOSTAT NUMBER:	
EQUIPMENT NUMBER:		JUNCTION BOX NUMBER:	
CIRCUIT/HEATER NUMBER:		UNUSED ENTRIES PLUGGED OFF:	
CIRCUIT SWITCH NUMBER:		HEATER LENGTH (M):	
METAL SHEATH CONNECTED TO EARTH/GROUND:		INSULATION RESISTANCE (M OHMS):	
TESTED BY/DATE:		WITNESSED BY/DATE:	
RECORD 3: AFTER THERMAL INSULATION IS INSTALLED			
INSULATION WATERTIGHT:		INSULATION RESISTANCE (M OHMS):	
TESTED BY/DATE:		WITNESSED BY/DATE:	
RECORD 4: FINAL COMMISSIONING			
PANEL NUMBER:		AMBIENT TEMP. (°C):	
BREAKER NUMBER:		PIPE TEMP. (°C):	
VOLTS:		RECORDED AMPS (AFTER 5 MIN.):	
TESTED BY/DATE:		WITNESSED BY/DATE:	

*NOTE: MINIMUM ACCEPTABLE INSULATION RESISTANCE SHOULD BE 20 MEGOHMS FOR RECORDS 1 AND 2 AND 5 MEGOHMS FOR RECORD 3.



LOGICAL DIAGRAM FOR HEAT TRACE PANEL

SCALE: 2\"/>

WARNING

ELECTRIC HEAT TRACING

SHOCK AND FIRE HAZARD: SYSTEM MUST BE INSTALLED AND MAINTAINED ACCORDING TO MANUFACTURER'S INSTRUCTIONS. FOLLOW ELECTRICAL LOCKOUT PROCEDURES BEFORE WORKING ON THIS LINE OR REMOVING THERMAL INSULATION.

HEAT TRACED PIPE LABEL

SCALE: 2\"/>

- NOTES:
1. PLACE LABEL EVERY TEN (10) FEET.

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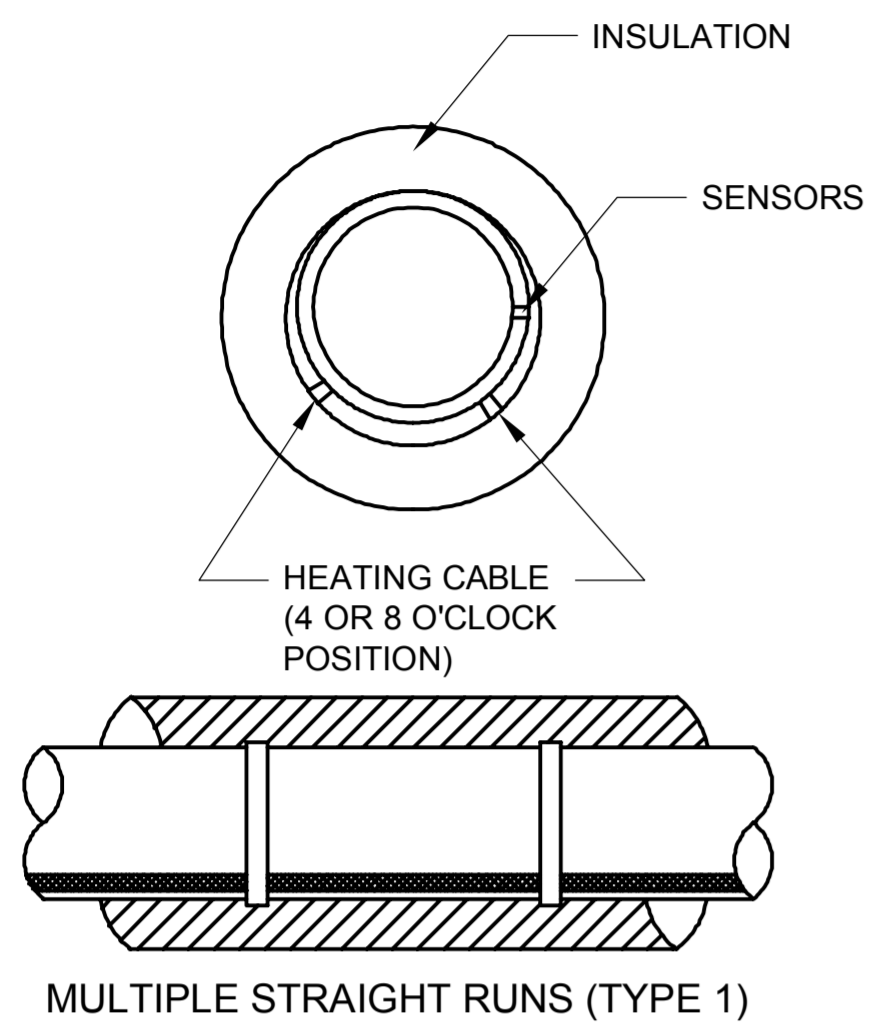
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	8/06/15	ISSUED FOR BIDS

CITY OF ANN ARBOR, MICHIGAN
MANCHESTER TANK MISC IMPROVEMENTS AND TANK COATING PROJECT
ELECTRICAL HEAT TRACE

Project No.: 200-31537-15001
Designed By: CSW
Drawn By: CSW
Checked By: AJK

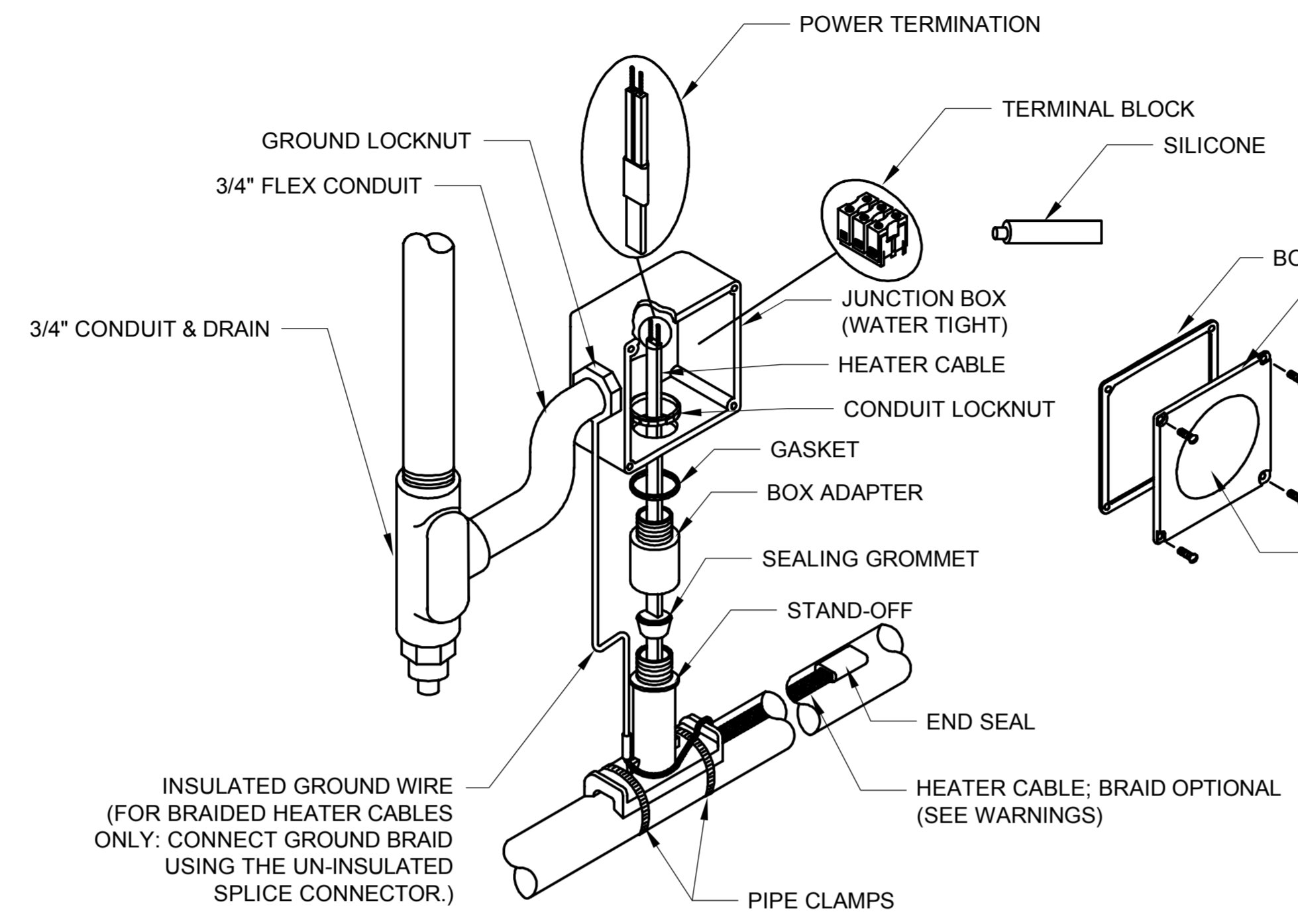
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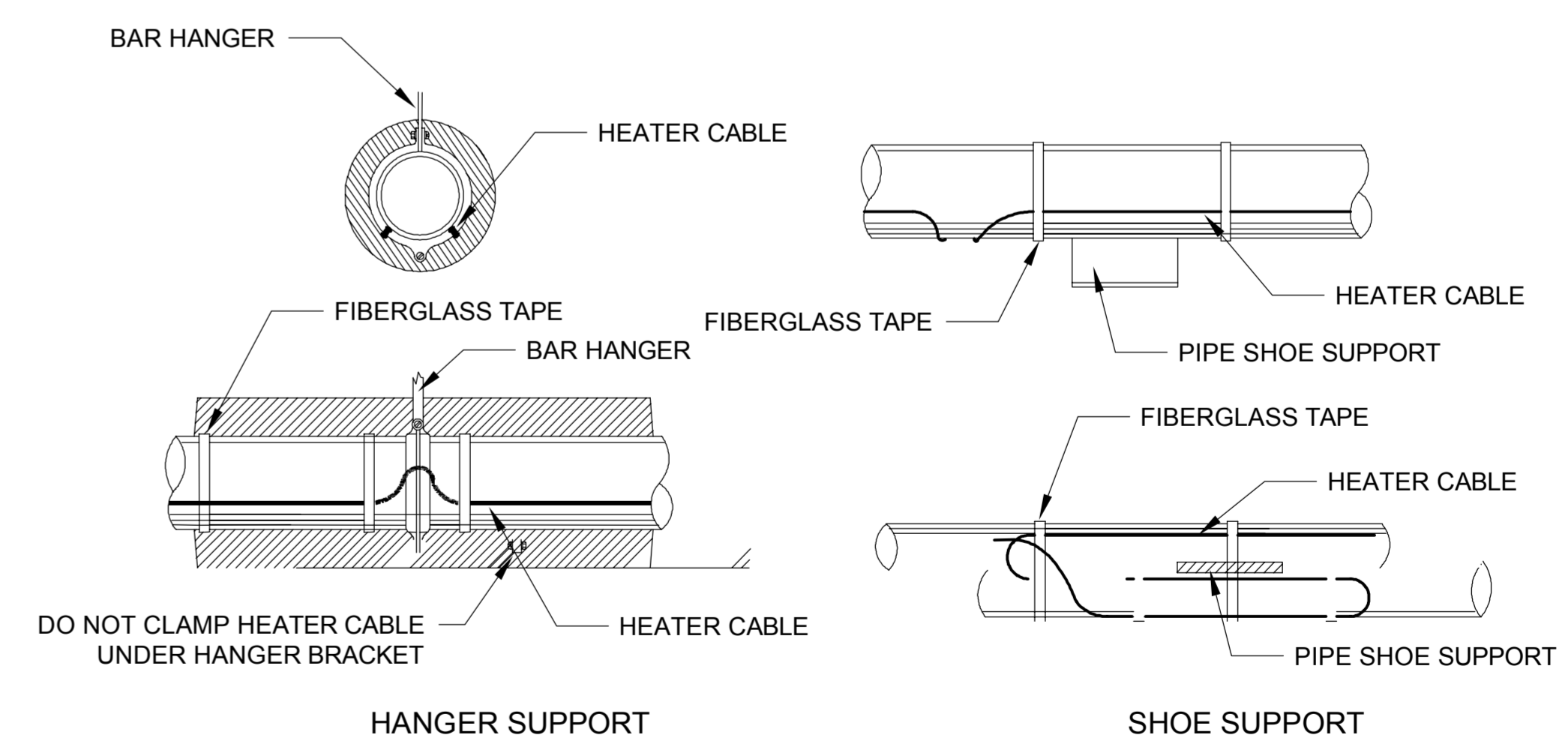
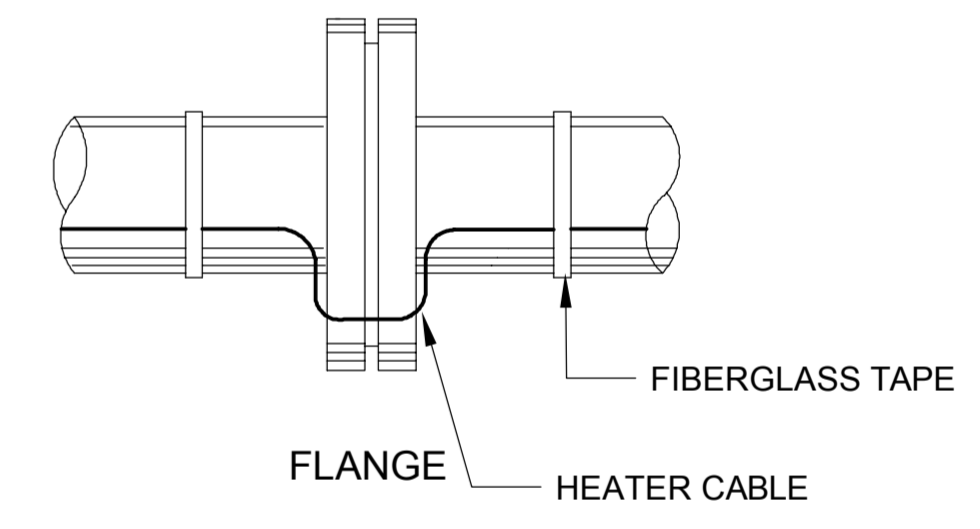
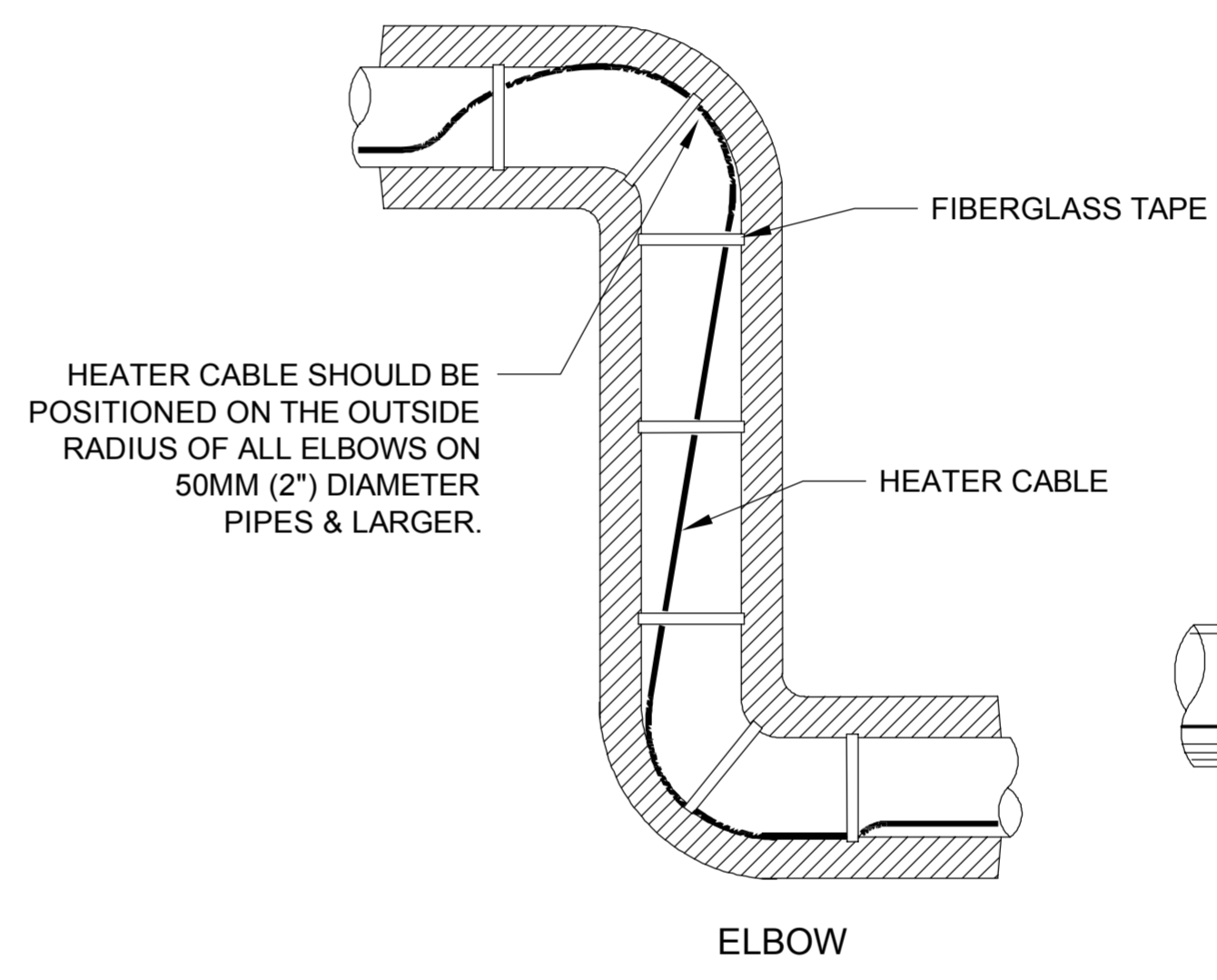
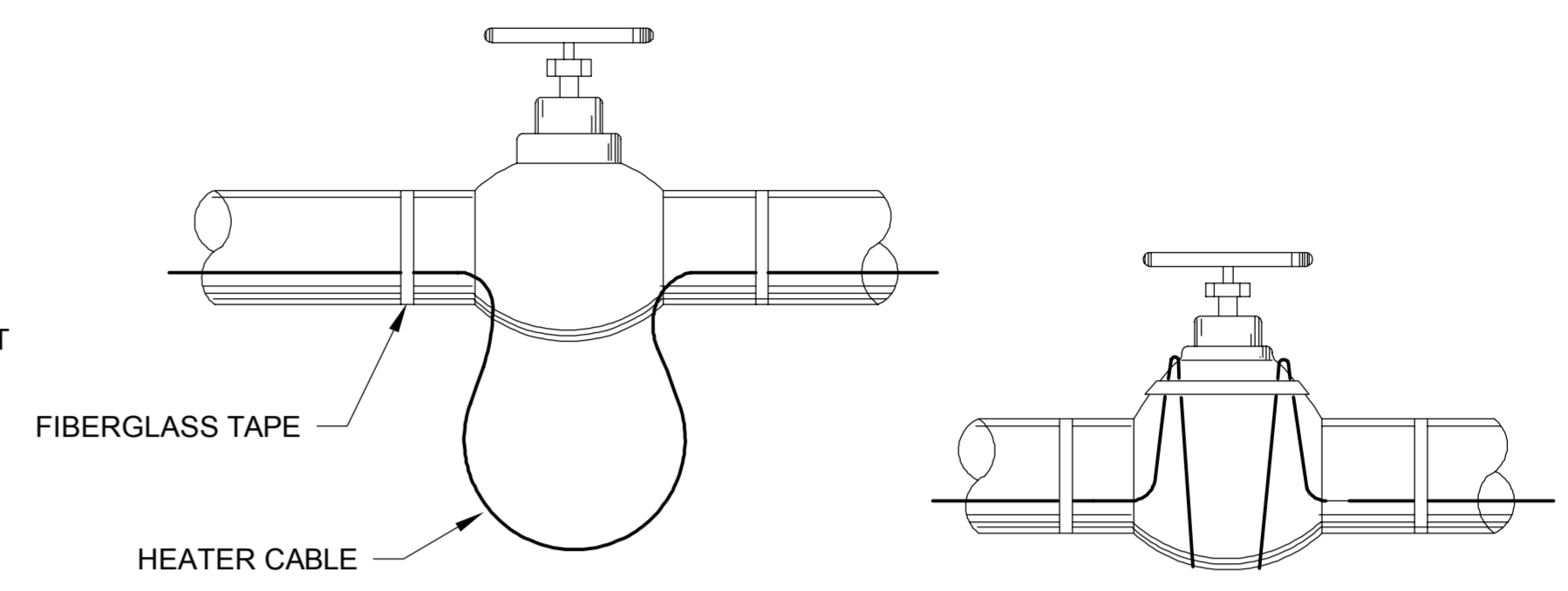
- STRAIGHT TRACING NOTES:**
1. WHEN STRAIGHT TRACING IS USED, INSTALL THE HEATER CABLE ON THE LOWER QUADRANT OF THE PIPE. THIS HELPS PREVENT PHYSICAL DAMAGE TO THE HEATER CABLE FROM FALLING OBJECTS AND BEING WALKED ON.
 2. ALTERNATIVE LOCATION IS THE 2 AND 10 O'CLOCK POSITION
 3. SECURE PIPE AT 12" INTERVALS WITH FIBERGLASS TAPE.

HEATER CABLE WRAP
SCALE: 2"=1'-0"

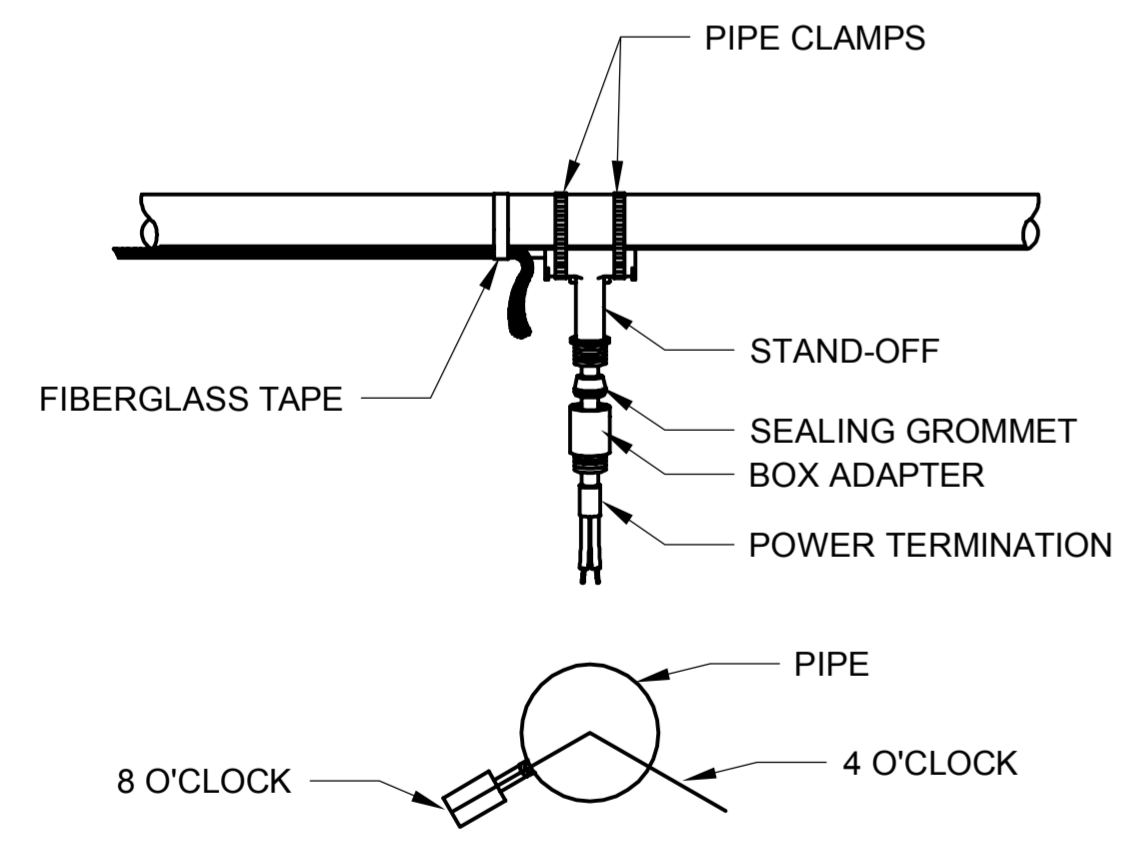


- NOTES:**
1. ARTICLE 427 OF THE NATIONAL ELECTRIC CODE REQUIRES THAT ALL HEATERS SHALL HAVE METAL COVERINGS AND BE PROVIDED WITH BRANCH CIRCUIT GROUND-FAULT PROTECTION.
 2. IF NUISANCE TRIPPING OF GROUND FAULT BREAKERS OCCURS DUE TO CONDENSATION IN THE JUNCTION BOX, ELECTRICAL CONNECTIONS SHOULD BE MOISTURE PROOFED BY USE OF A COATING OR SEALANT.

POWER CONNECTION BOX BRAIDED CABLE
SCALE: 2"=1'-0"



TYPICAL HEATER CABLE INSTALLATION
SCALE: 2"=1'-0"



- NOTES:**
1. DO NOT PLACE PIPE CLAMPS OVER THE HEATER CABLE.
 2. RECOMMEND INSTALLING AT THE 4 OR 8 O'CLOCK POSITIONS.

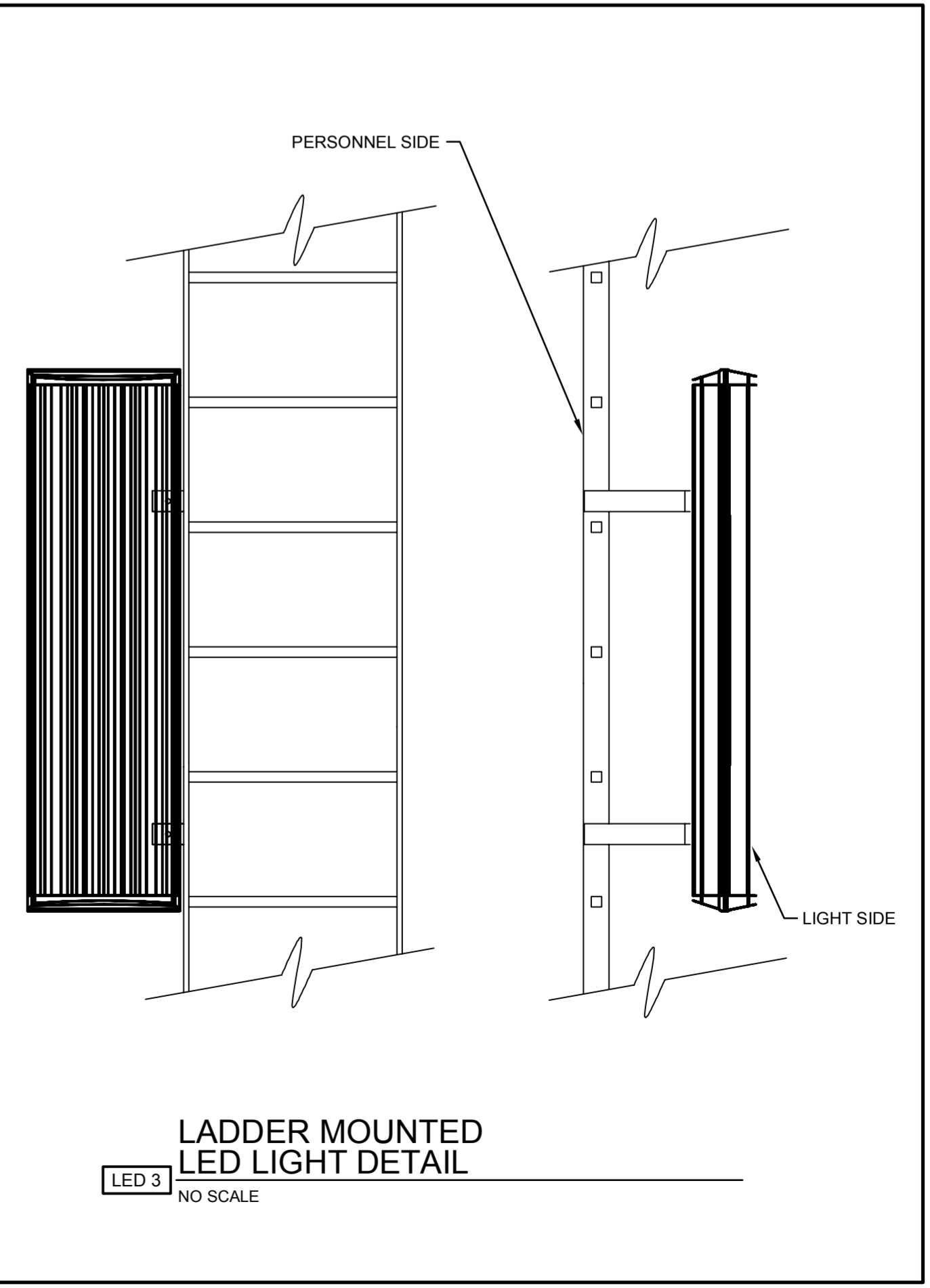
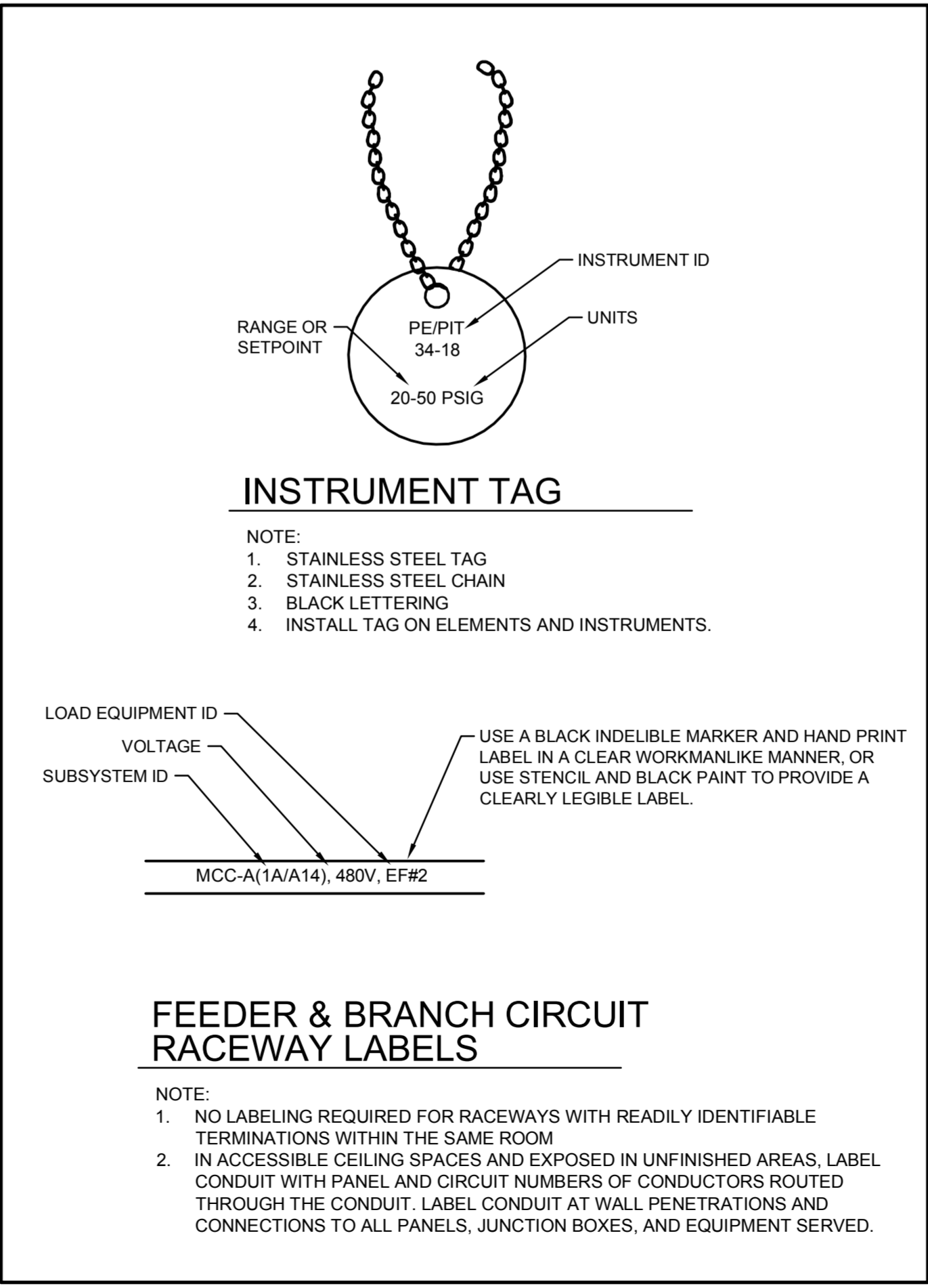
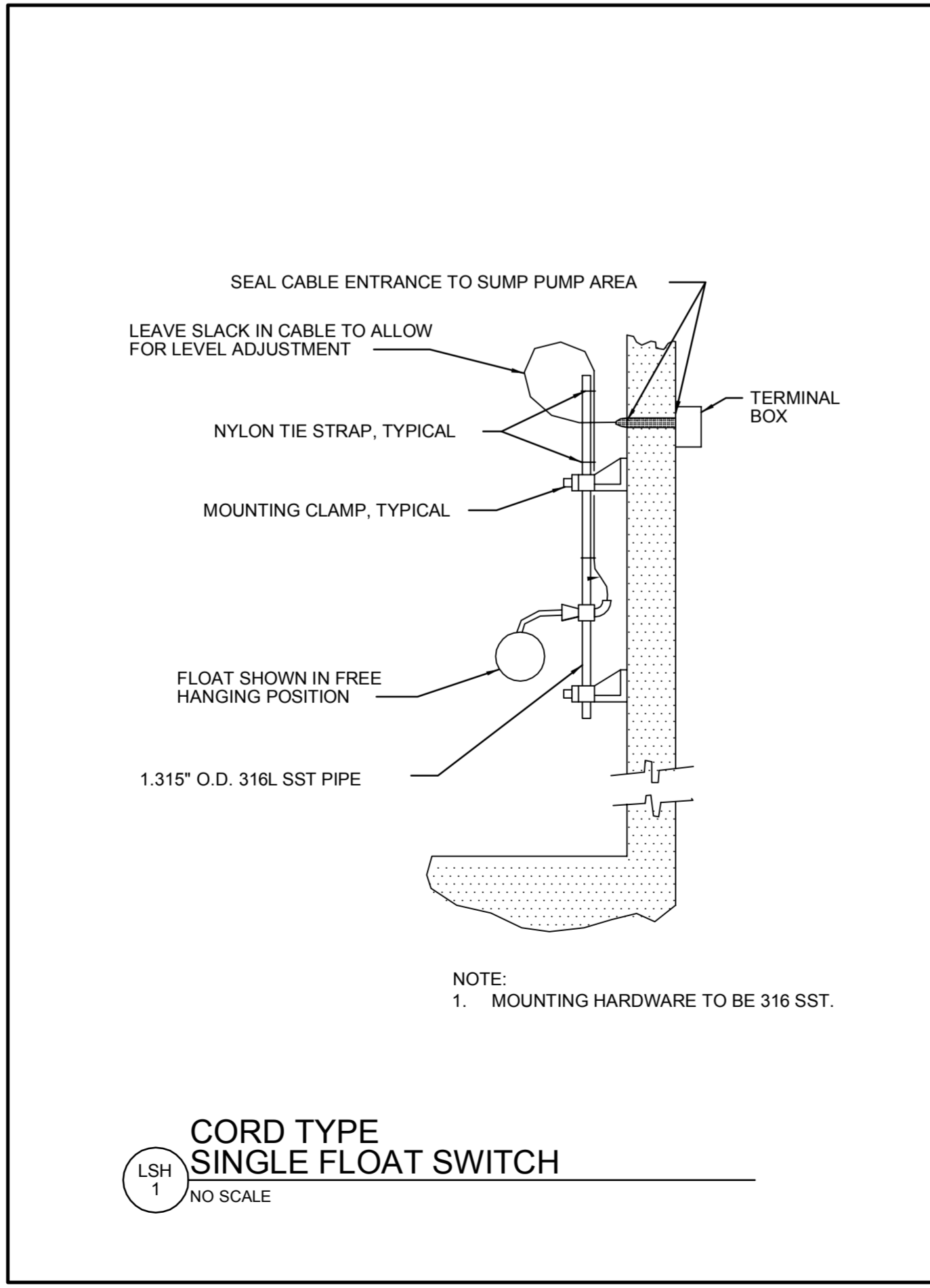
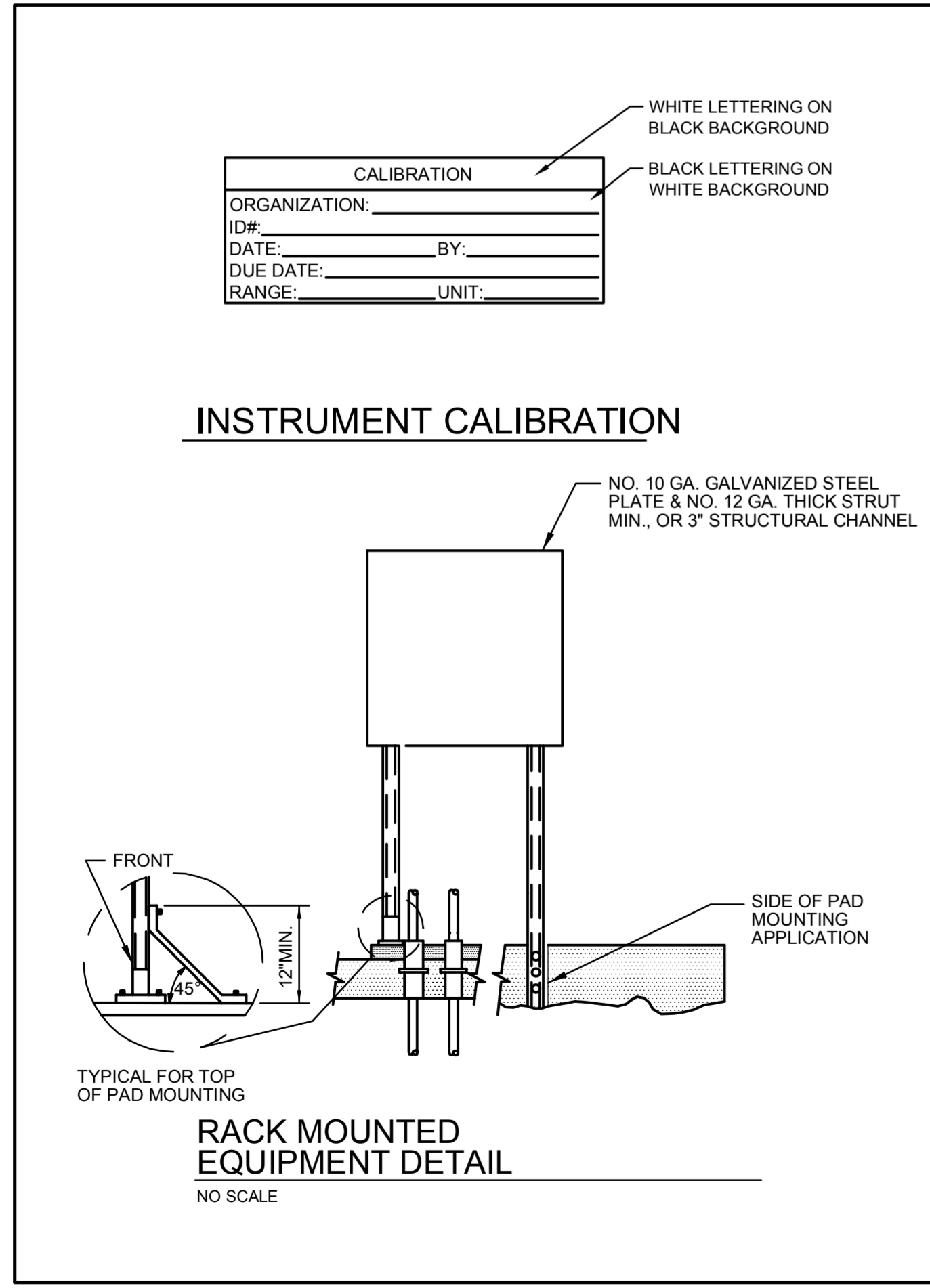
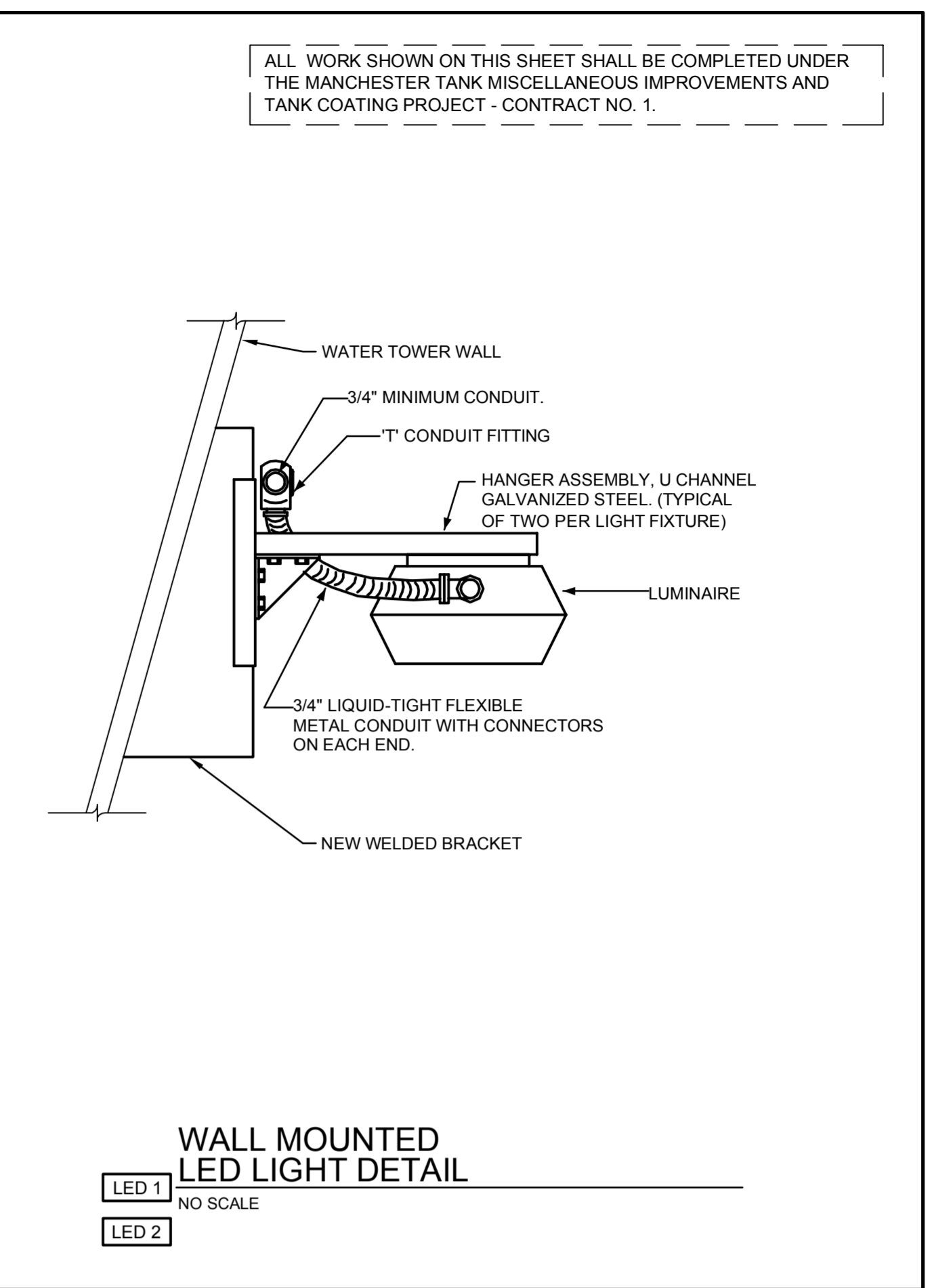
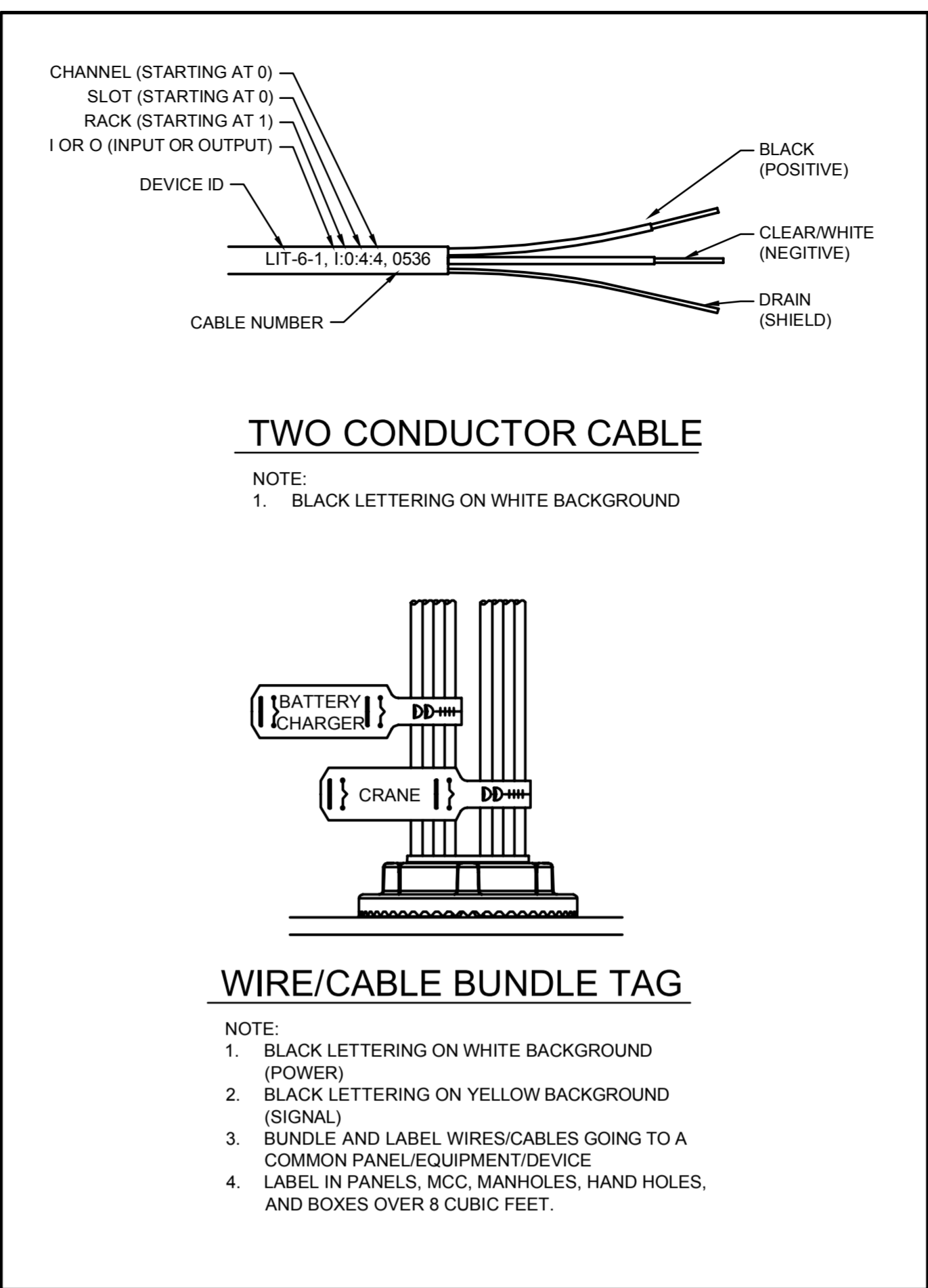
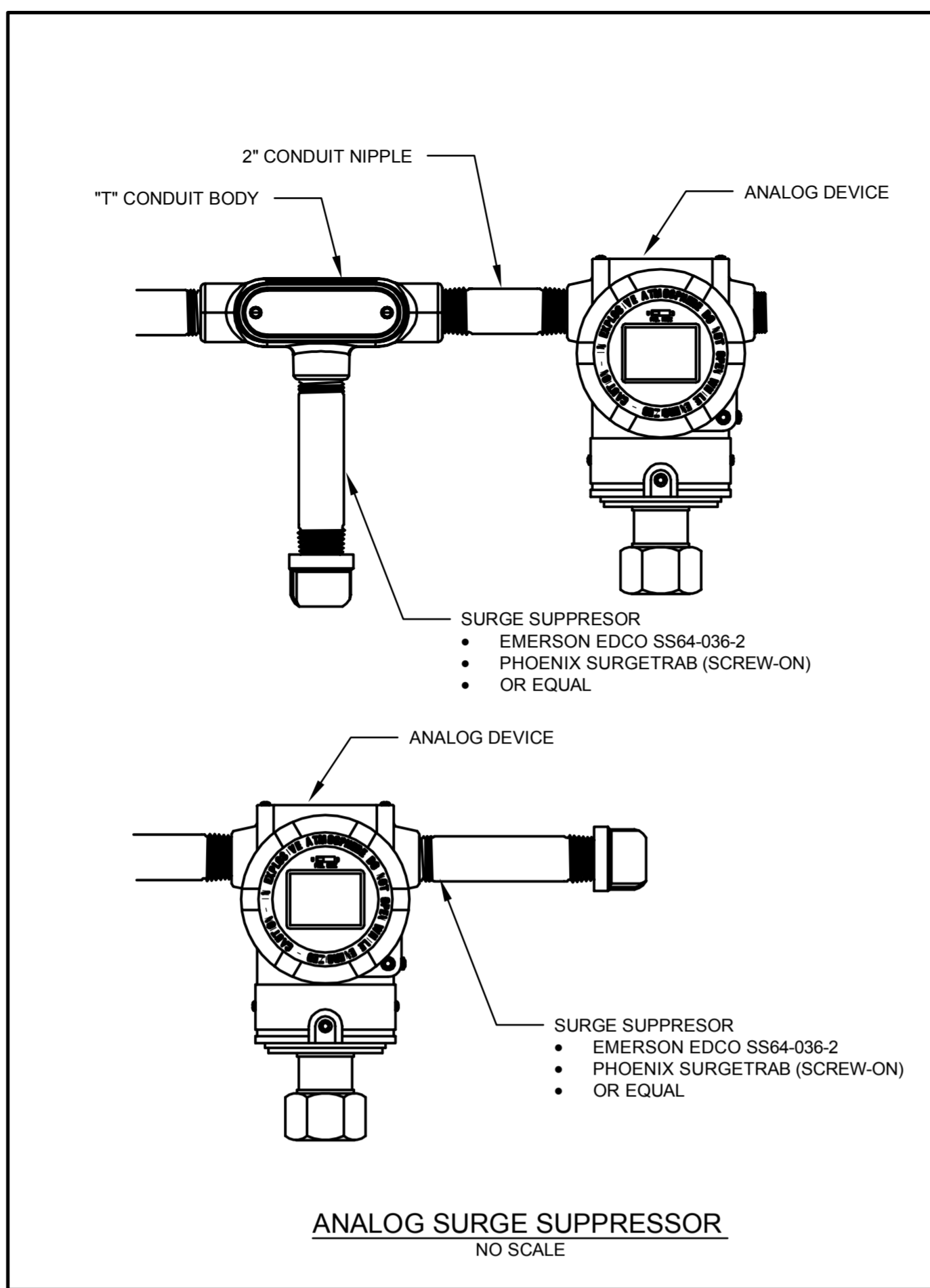
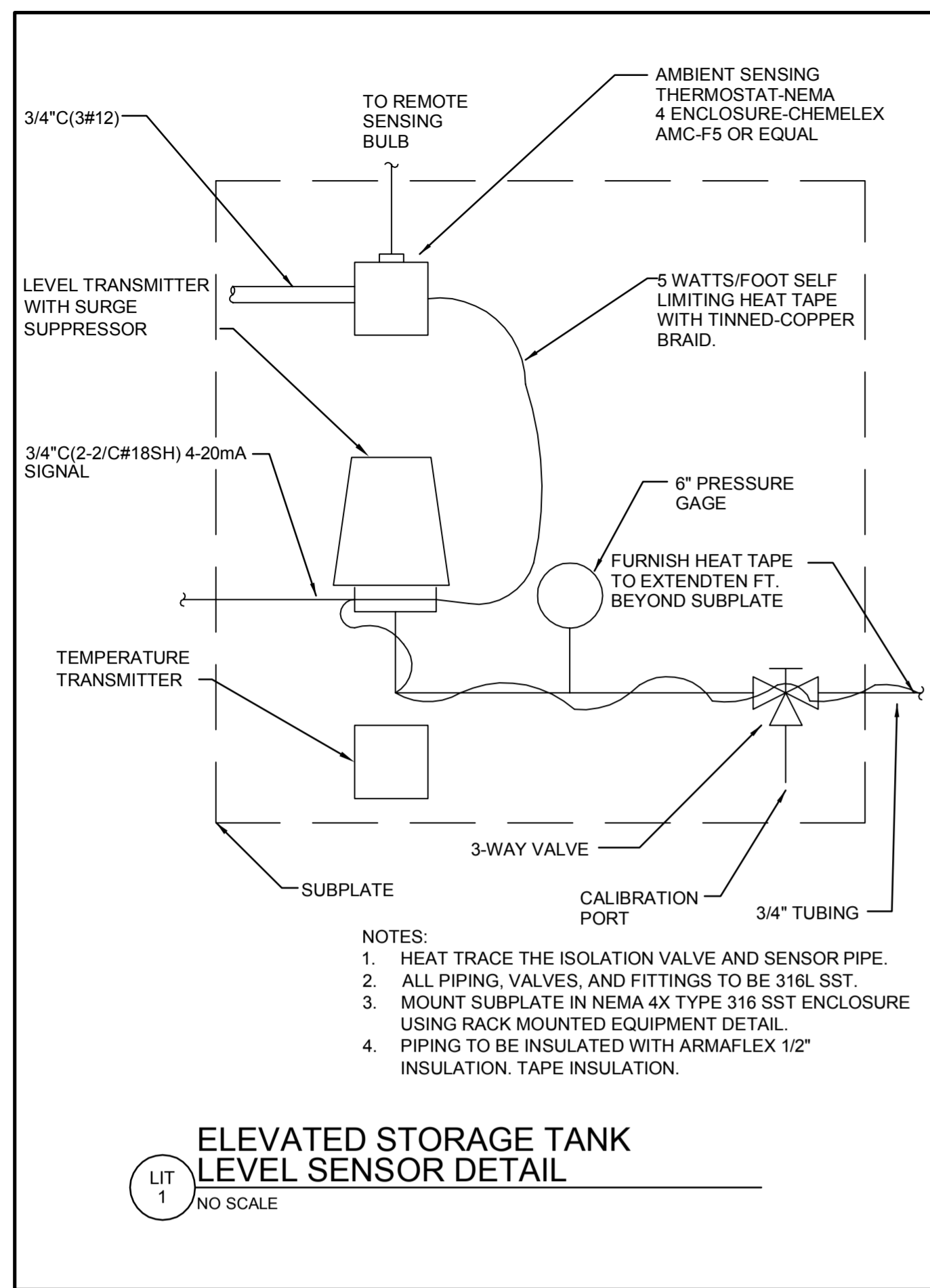
STAND-OFF INSTALLATION
SCALE: 2"=1'-0"

MARK	DATE	DESCRIPTION	BY
	8/06/15	ISSUED FOR BIDS	

CITY OF ANN ARBOR, MICHIGAN
MANCHESTER TANK MISC IMPROVEMENTS
AND TANK COATING PROJECT
ELECTRICAL HEAT TRACE

Project No.: 200-31537-15001
Designed By: CSW
Drawn By: CSW
Checked By: AJK

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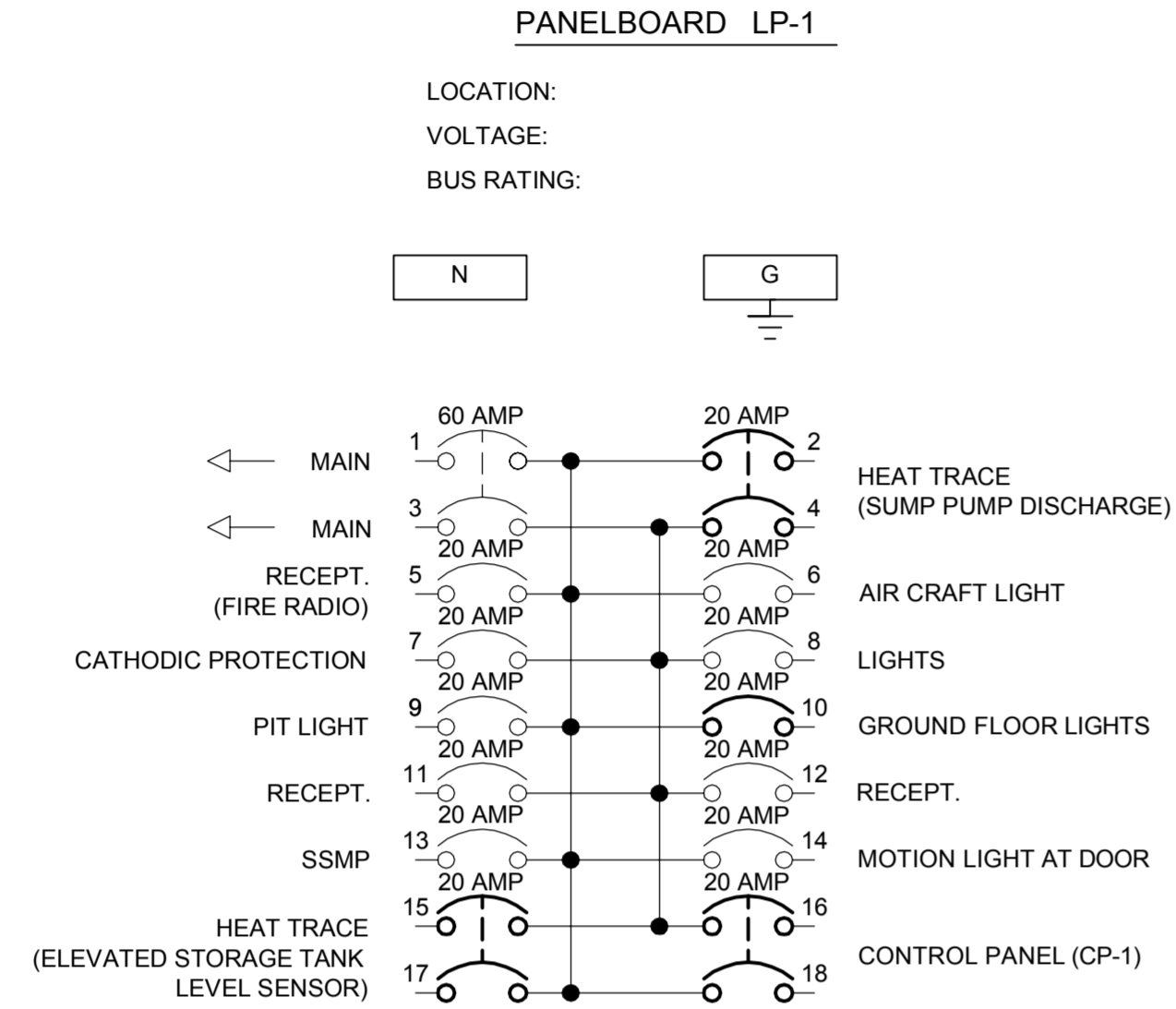
CITY OF ANN ARBOR, MICHIGAN
MANCHESTER TANK MISC IMPROVEMENTS AND TANK COATING PROJECT
ELECTRICAL DETAILS

Project No.: 200-31537-15001
Designed By: CSW
Drawn By: CSW
Checked By: AJK

E-502
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Bar Measures 1 inch

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- NOTES**
- PROVIDE THREE (3) DOUBLE POLE 20 AMP CIRCUIT BREAKERS IN EXISTING LP.
 - PROVIDE ONE (1) SINGLE POLE 20 AMP CIRCUIT BREAKERS IN EXISTING LP.
 - EXISTING PANELBOARD IS A SQUARE D, NQ18L1C.
 - MOVE EXISTING CIRCUIT BREAKER AND CIRCUIT FROM 16 TO 14.

LUMINAIRE SCHEDULE							
SYMBOL	DESCRIPTION	MOUNTING	LAMPS			MANUFACTURERS (OR EQUAL)	
			NO.	WATTAGE	TYPE	NAME	MODEL OR SERIES
LED 1	15" X 52" ONE-PIECE 5VA RATED FIBERGLASS ENCLOSED AND GASKETED LUMINAIRE WITH CLEAR ACRYLIC LENS, 4100K (WITH WET LOCATION FITTINGS)	WALL BRACKET (12' A.F.F.)	1	118	LED	LITHONIA OR APPROVED EQUAL	FHE LED 9L/35 PLC OR APPROVED EQUAL
LED 2	15" X 52" ONE-PIECE 5VA RATED FIBERGLASS ENCLOSED AND GASKETED LUMINAIRE WITH CLEAR ACRYLIC LENS, 4100K (WITH WET LOCATION FITTINGS)	WALL BRACKET (6' A.F.F.)	1	118	LED	LITHONIA OR APPROVED EQUAL	FHE LED 9L/35 PLC OR APPROVED EQUAL
LED 3	15" X 52" ONE-PIECE 5VA RATED FIBERGLASS ENCLOSED AND GASKETED LUMINAIRE WITH CLEAR ACRYLIC LENS, 4100K (WITH WET LOCATION FITTINGS)	LADDER BRACKET	1	118	LED	LITHONIA OR APPROVED EQUAL	FHE LED 9L/35 PLC OR APPROVED EQUAL
LED 4	THE LUMINAIRE SHALL CONSIST OF A LM6 MARINE GRADE CAST ALUMINUM BODY WITH A ROUND 316 GRADE STAINLESS STEEL SURFACE BEZEL. SHALL BE SEALED TO IP68.	WALL BRACKET/STIRRUP	12	1.2	LED	HOLOPHANE OR APPROVED EQUAL	TRAILBLAZER LT, 120VAC 45 DEG BEAM WARM WHITE OR APPROVED EQUAL

- HEAT TRACING FOR PIPING**
- SELF-REGULATING, PARALLEL-RESISTANCE HEATING CABLES
 - COMPLY WITH IEEE 515.
 - HEATING ELEMENT: PAIR OF PARALLEL NO. 16 AWG, TINNED, STRANDED COPPER BUS WIRES EMBEDDED IN CROSSLINKED CONDUCTIVE POLYMER CORE, WHICH VARIES HEAT OUTPUT IN RESPONSE TO TEMPERATURE ALONG ITS LENGTH. TERMINATE WITH WATERPROOF, FACTORY-ASSEMBLED, NON HEATING LEADS WITH CONNECTORS AT ONE END, AND SEAL THE OPPOSITE END WATERTIGHT. CABLE SHALL BE CAPABLE OF CROSSING OVER ITSELF ONCE WITHOUT OVERHEATING.
 - ELECTRICAL INSULATING JACKET: FLAME-RETARDANT POLYOLEFIN.
 - CABLE COVER: STAINLESS-STEEL BRAID.
 - MAXIMUM OPERATING TEMPERATURE (POWER ON): 150 DEG F.
 - MAXIMUM EXPOSURE TEMPERATURE (POWER OFF): 185 DEG F.
 - ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
 - CAPACITIES AND CHARACTERISTICS:
 - MAXIMUM HEAT OUTPUT: 3 W/FT.
 - ELECTRICAL CHARACTERISTICS FOR SINGLE-CIRCUIT CONNECTION:
 - VOLTS: 240.
 - PHASE: SINGLE.
 - HERTZ: 60.
 - FULL-LOAD AMPERES: 12 AMPS.
 - MINIMUM CIRCUIT AMPACITY: 16 AMPS.
 - MAXIMUM OVERCURRENT PROTECTION: 20 AMPS.
 - CONTROLS
 - PIPE-MOUNTED THERMOSTATS FOR FREEZE PROTECTION:
 - REMOTE BULB UNIT WITH ADJUSTABLE TEMPERATURE RANGE FROM 30 TO 50 DEG F. UNIT SHALL INCLUDE ALARM CONTACTS FOR REMOTE MONITORING.
 - SNAP ACTION; OPEN-ON-RISE, SINGLE-POLE SWITCH WITH MINIMUM CURRENT RATING ADEQUATE FOR CONNECTED CABLE.
 - ACCESSORIES
 - CABLE INSTALLATION ACCESSORIES: FIBERGLASS TAPE, HEAT-CONDUCTIVE PUTTY, CABLE TIES, SILICONE END SEALS AND SPLICE KITS, AND INSTALLATION CLIPS ALL FURNISHED BY MANUFACTURER, OR AS RECOMMENDED IN WRITING BY MANUFACTURER.
 - WARNING TAPE: CONTINUOUSLY PRINTED "ELECTRICAL TRACING"; VINYL, AT LEAST 3 MILS THICK, AND WITH PRESSURE-SENSITIVE, PERMANENT, WATERPROOF, SELF-ADHESIVE BACK.
 - WIDTH FOR MARKERS ON PIPES WITH OD, INCLUDING INSULATION, LESS THAN 6 INCHES: 3/4 INCH MINIMUM.
 - INSTALLATION
 - INSTALL ELECTRIC HEATING CABLE ACROSS EXPANSION, CONSTRUCTION, AND CONTROL JOINTS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS; USE CABLE-PROTECTION CONDUIT AND SLACK CABLE TO ALLOW MOVEMENT WITHOUT DAMAGE TO CABLE.
 - ELECTRIC HEATING-CABLE INSTALLATION FOR FREEZE PROTECTION FOR PIPING:
 - INSTALL ELECTRIC HEATING CABLES AFTER PIPING HAS BEEN TESTED AND BEFORE INSULATION IS INSTALLED.
 - INSTALL ELECTRIC HEATING CABLES ACCORDING TO IEEE 515.
 - INSTALL WARNING TAPE ON PIPING INSULATION WHERE PIPING IS EQUIPPED WITH ELECTRIC HEATING CABLES.
 - SET FIELD-ADJUSTABLE SWITCHES AND CIRCUIT-BREAKER TRIP RANGES.
 - FIELD QUALITY CONTROL
 - PERFORM THE FOLLOWING TESTS AND INSPECTIONS:
 - PERFORM TESTS AFTER CABLE INSTALLATION BUT BEFORE APPLICATION OF COVERINGS SUCH AS INSULATION, WALL OR CEILING CONSTRUCTION, OR CONCRETE.
 - TEST CABLES FOR ELECTRICAL CONTINUITY AND INSULATION INTEGRITY BEFORE ENERGIZING.
 - TEST CABLES TO VERIFY RATING AND POWER INPUT. ENERGIZE AND MEASURE VOLTAGE AND CURRENT SIMULTANEOUSLY.
 - REPEAT TESTS FOR CONTINUITY, INSULATION RESISTANCE, AND INPUT POWER AFTER APPLYING THERMAL INSULATION ON PIPE-MOUNTED CABLES.
 - CABLES WILL BE CONSIDERED DEFECTIVE IF THEY DO NOT PASS TESTS AND INSPECTIONS.
 - PREPARE TEST AND INSPECTION REPORTS.
 - REMOVE AND REPLACE DAMAGED HEAT-TRACING CABLES.

8/4/2015 9:04:05 AM P:\ER\31537200-31537-15001\CAD\DWG\SHEETFILES\E-601 LP SCHEDULE AND LUMINAIRE SCHEDULE.DWG - SCHLANDER, EMILY



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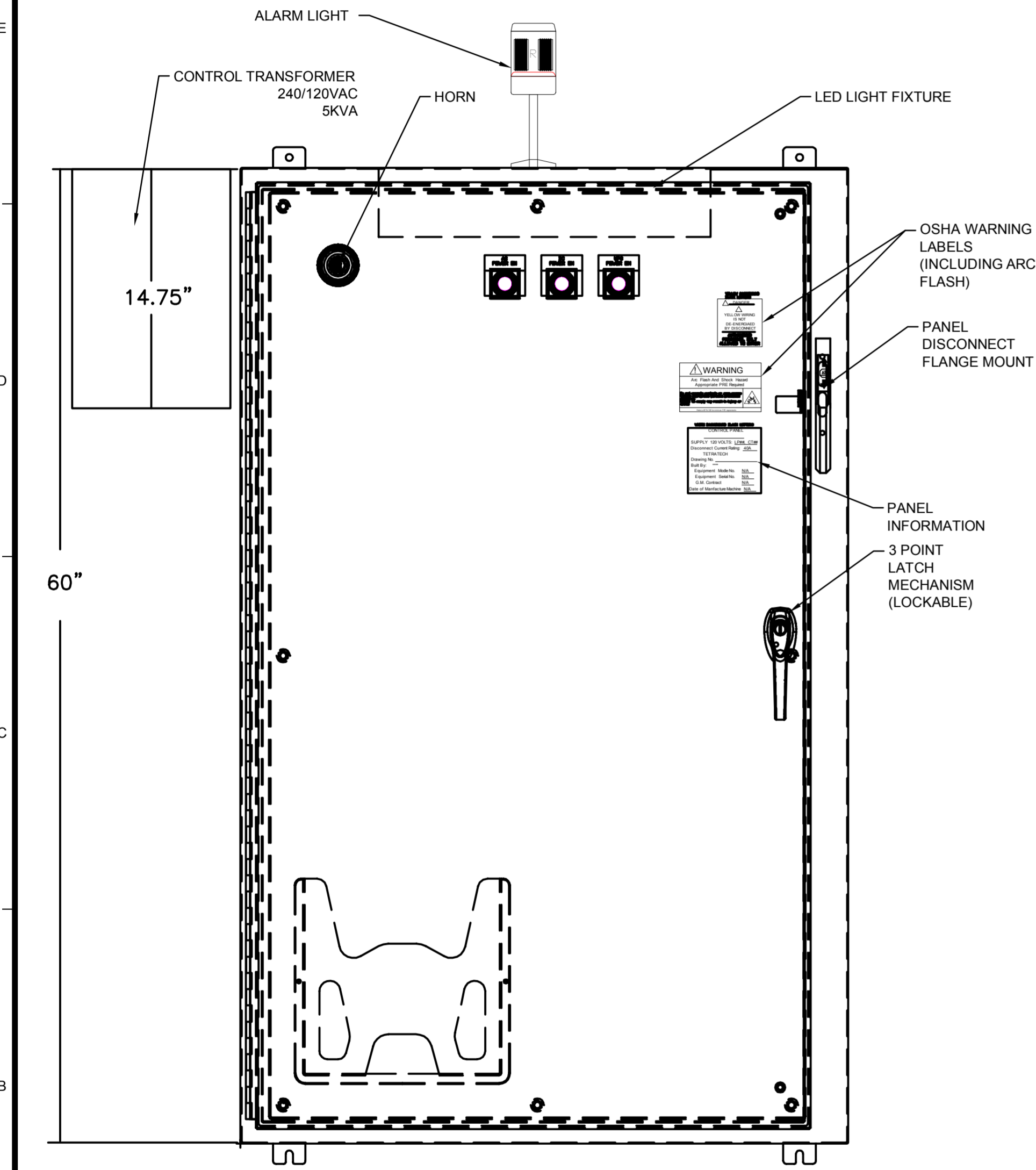
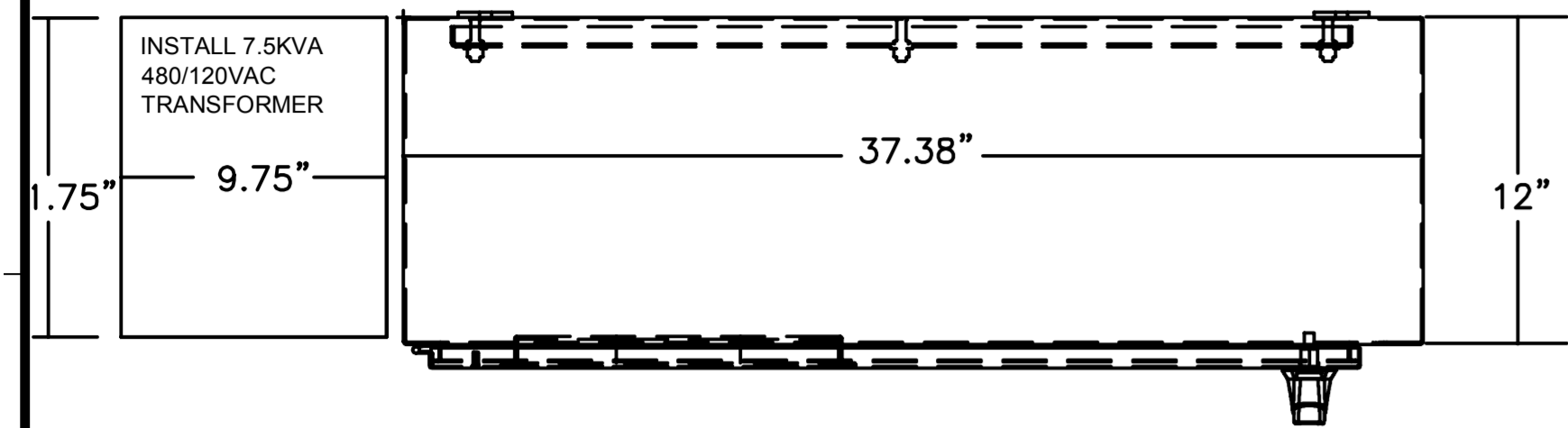
CITY OF ANN ARBOR, MICHIGAN
MANCHESTER TANK MISC IMPROVEMENTS
AND TANK COATING PROJECT
ELECTRICAL SCHEDULE

Project No.: 200-31537-15001
Designed By: CSW
Drawn By: CSW
Checked By: AJK

E-601

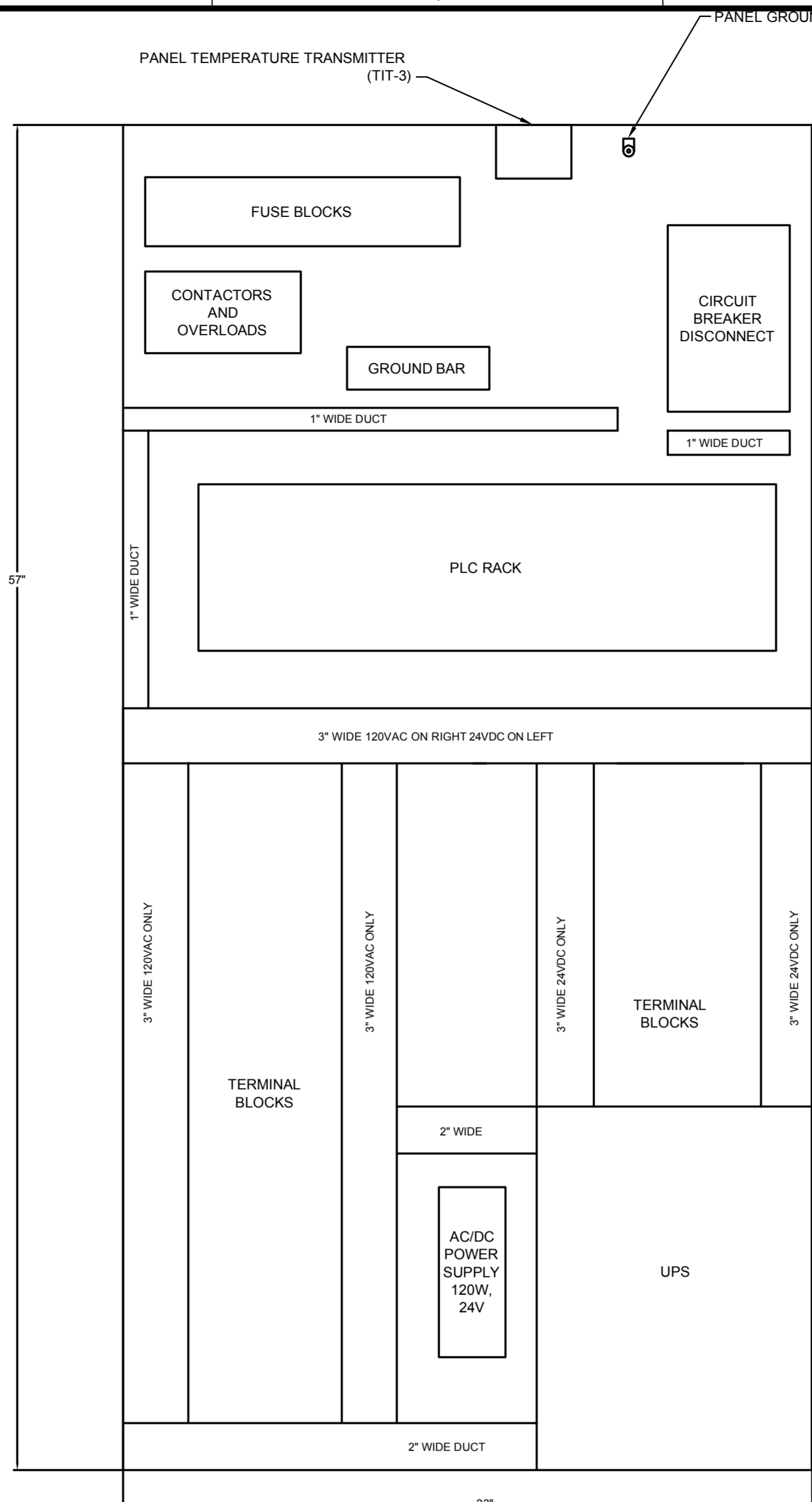
Copyright: Tetra Tech
Bar Measures 1 inch

NAMEPLATE LEGEND			
QTY.	NO.	LETTER HEIGHT	NOMENCLATURE
1	N-1	1"	MAIN CONTROL PANEL (CP-1)

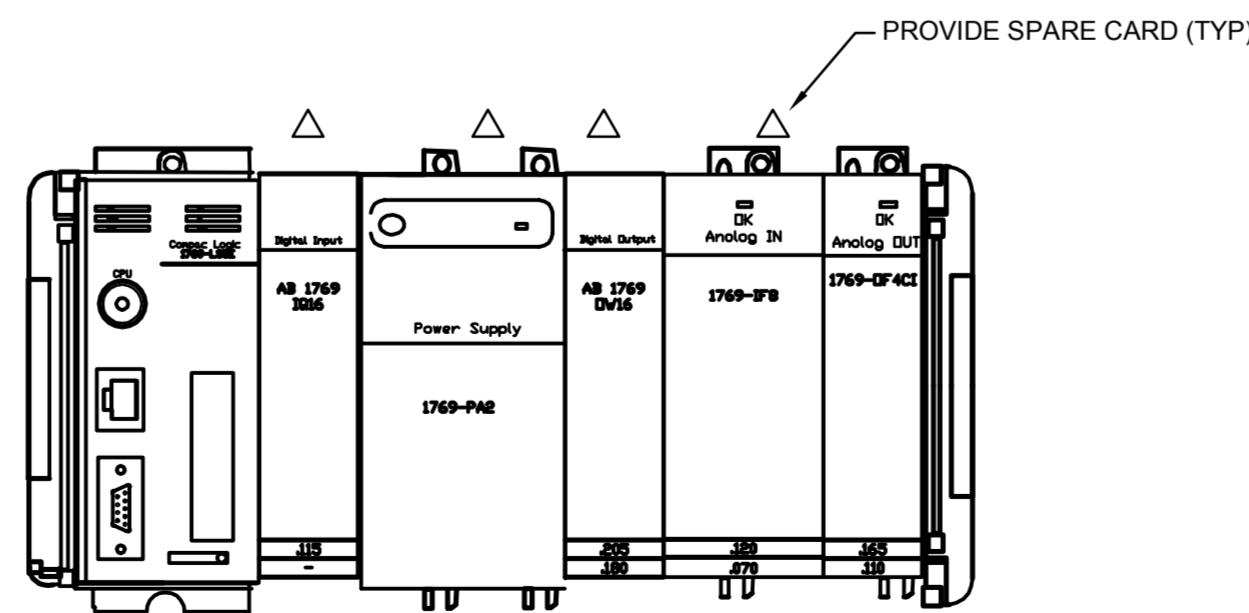


MAIN CONTROL PANEL (CP-1)
OUTSIDE I/O PANEL LAYOUT WITH TRANSFORMER
 NEMA 12 (NOT TO SCALE)

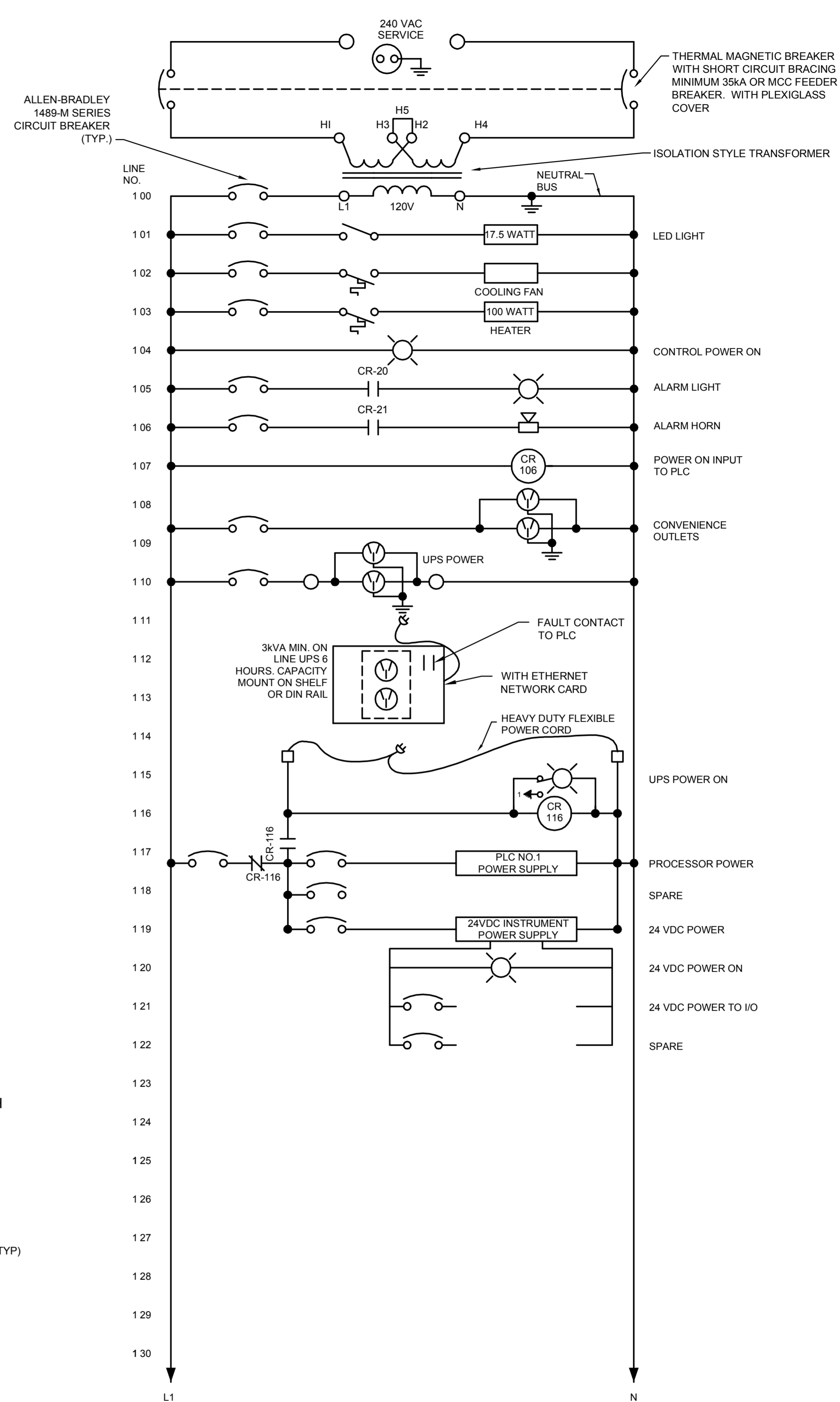
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MAIN CONTROL PANEL (CP-1)
INSIDE I/O PANEL LAYOUT
 NEMA 12 (NOT TO SCALE)



CP-1 I/O PLC LAYOUT
 (NOT TO SCALE)



CP-1 I/O PANEL LAYOUT
 120V AC



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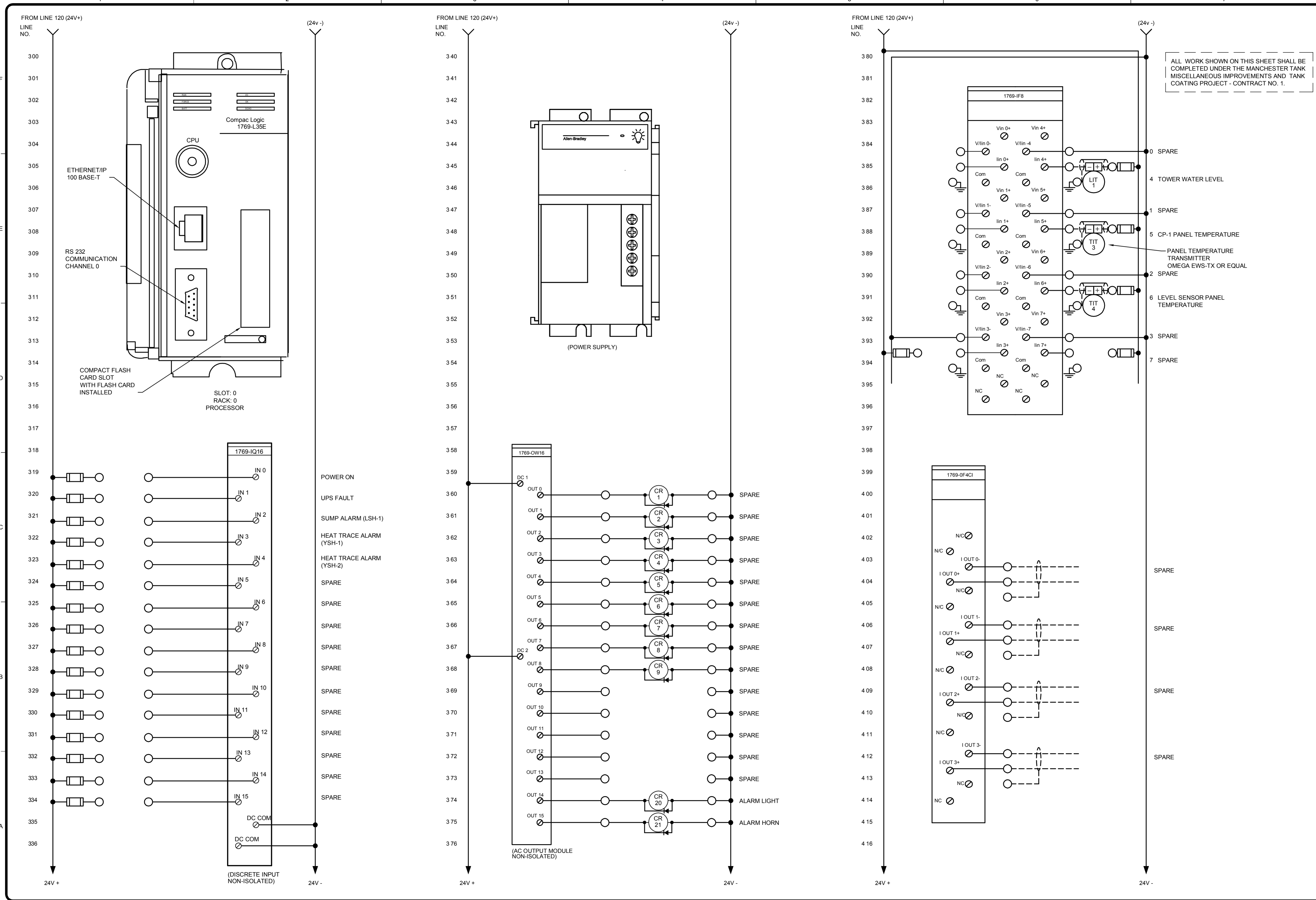
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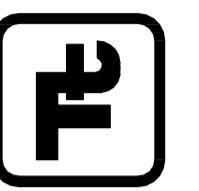
CITY OF ANN ARBOR, MICHIGAN
 MANCHESTER TANK MISC IMPROVEMENTS
 AND TANK COATING PROJECT
ELECTRICAL CONTROL PANEL

Project No.: 200-31537-15001
 Designed By: CSW
 Drawn By: CSW
 Checked By: AJK

E-801

8/4/2015 9:04:22 AM - P:\IER31537\200-31537-15001\CAD\SHEETFILES\E-801 - CONTROL PANEL.DWG - SCHLANDERER, EMILY





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AND TANK COATING PROJECT

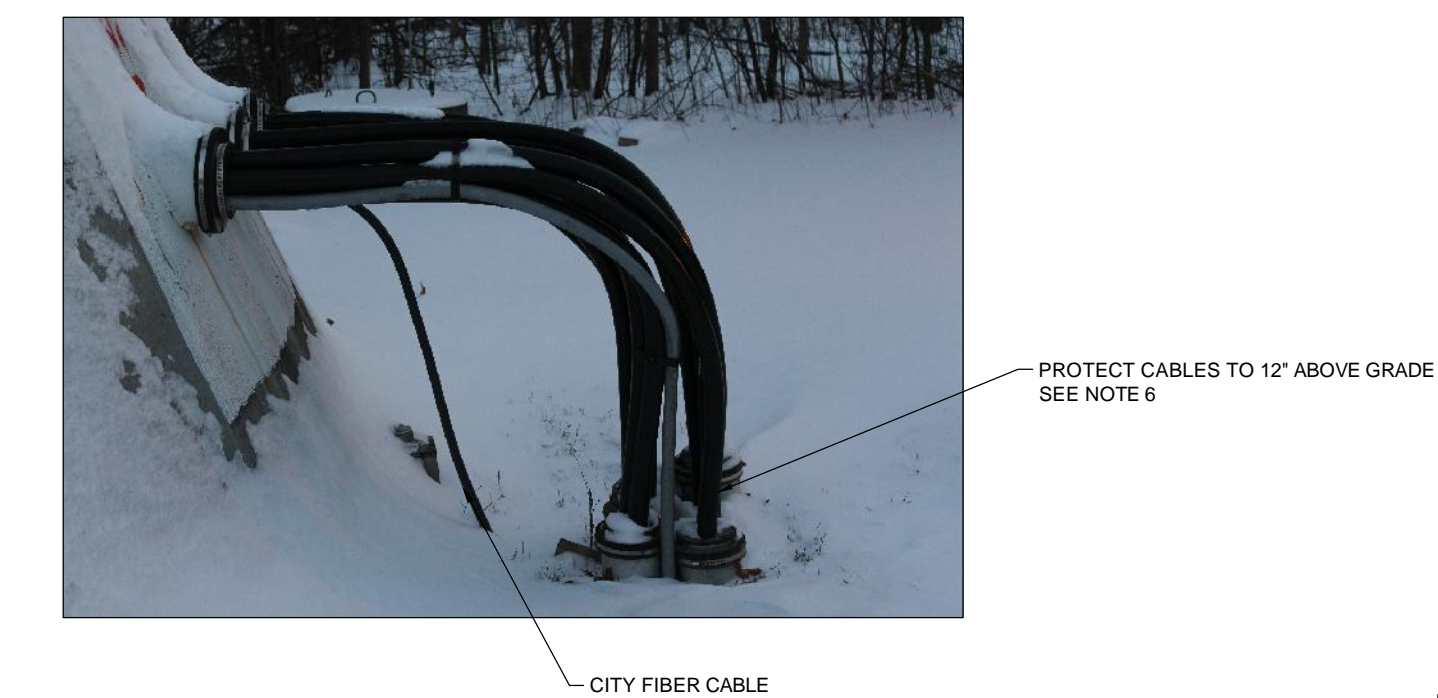
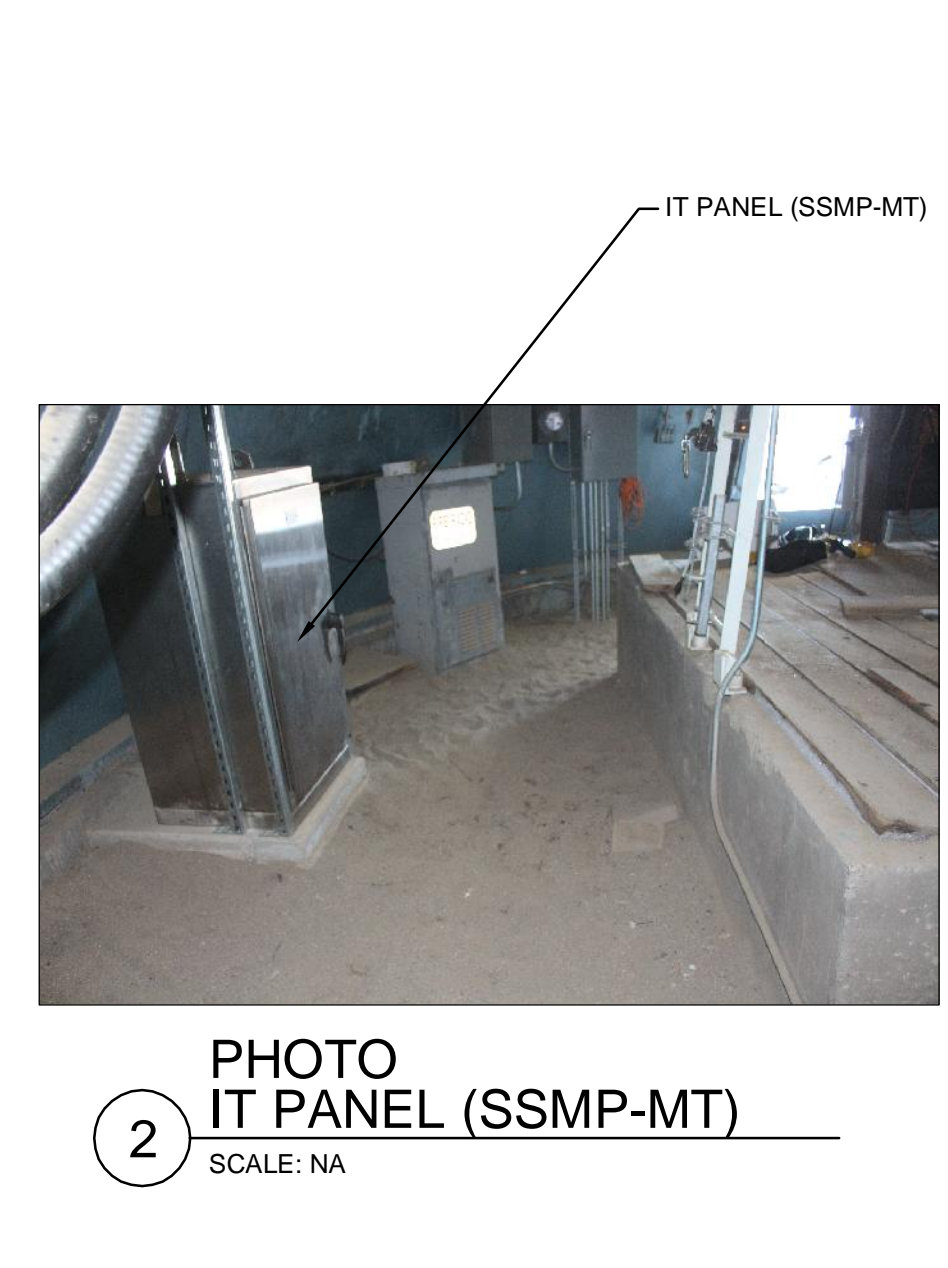
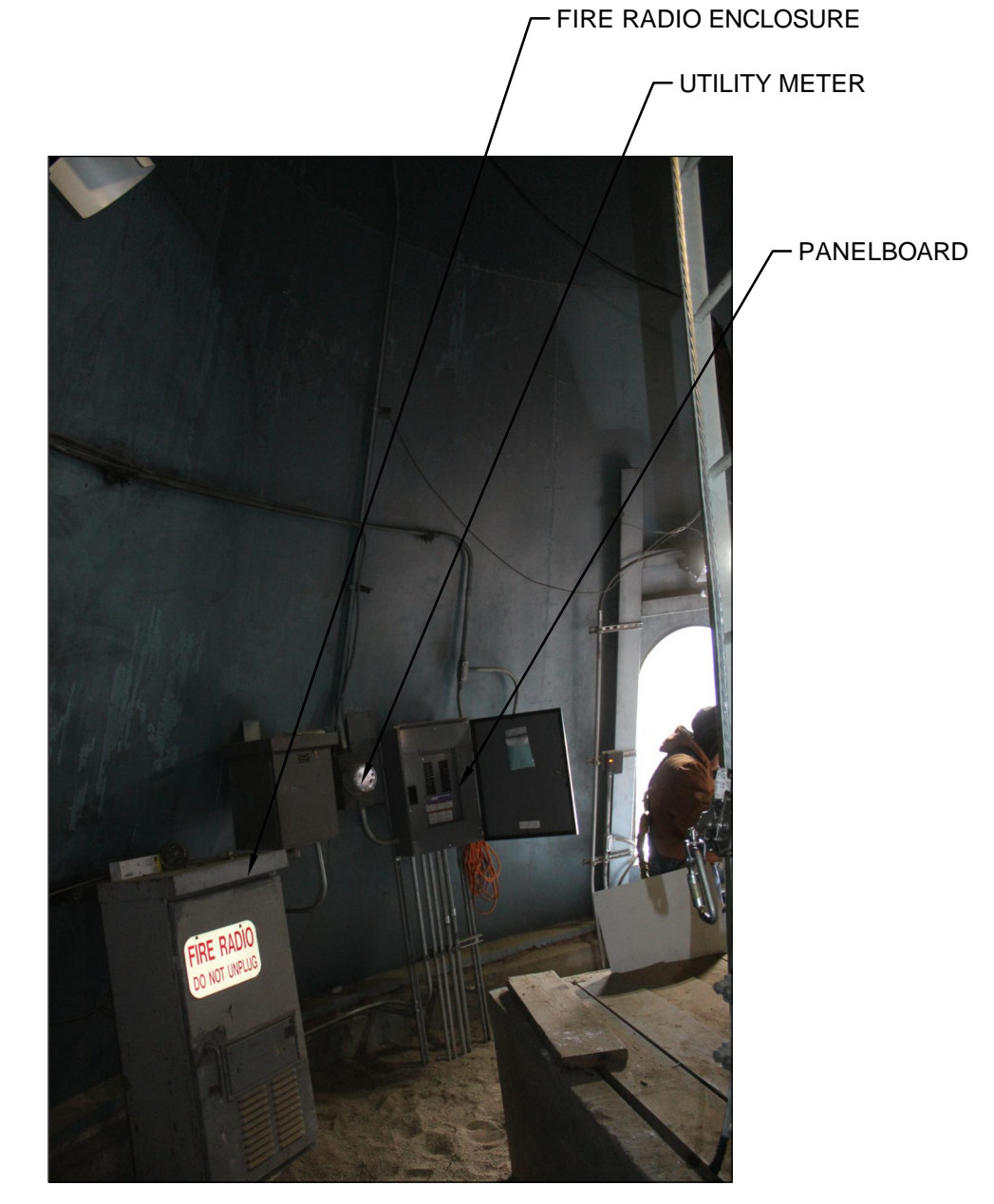
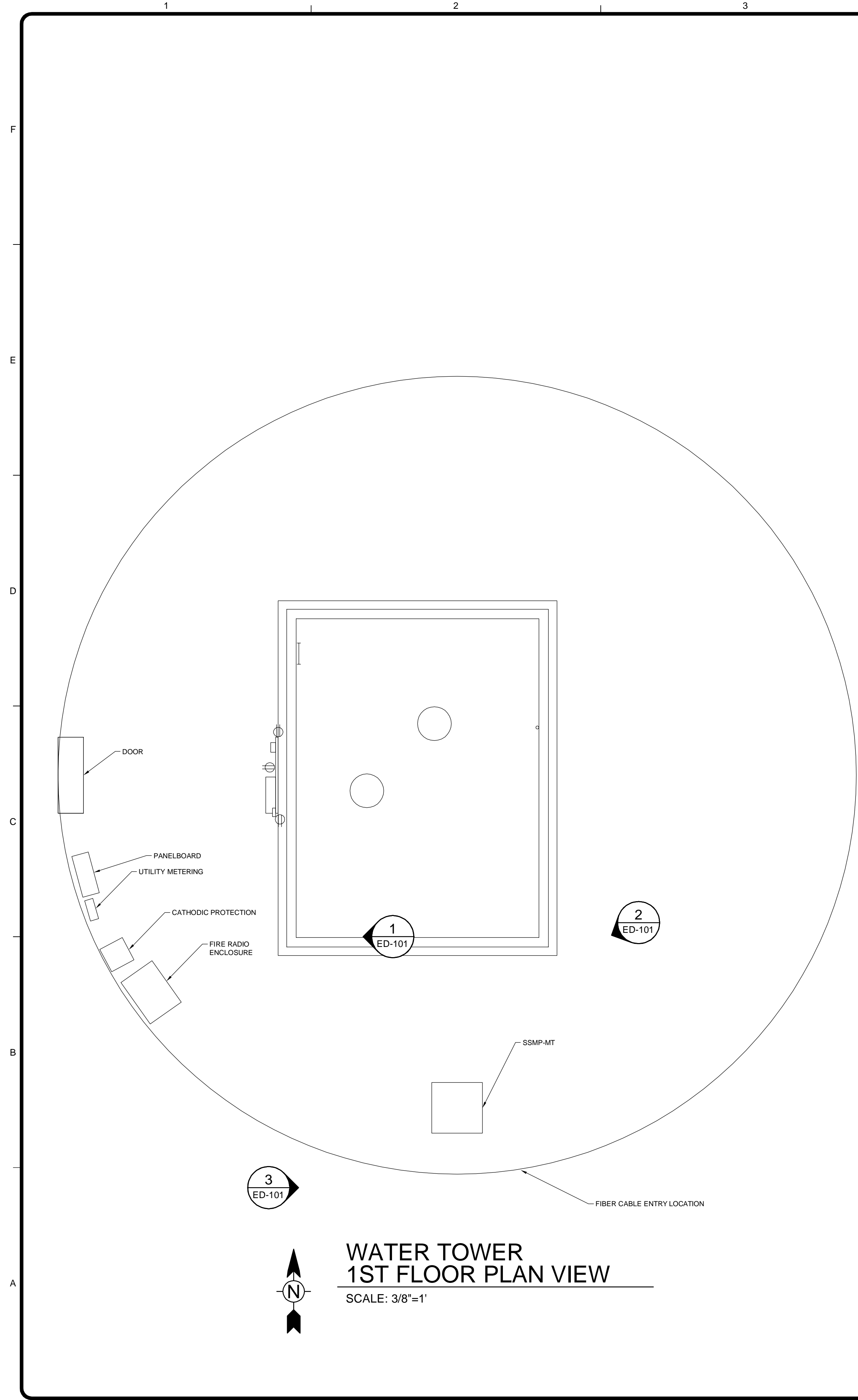
ELECTRICAL CONTROL PANEL

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E-802

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Bar Measures 1 inch

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- NOTES:**
- TEST AND DOCUMENT THE CONDITION OF THE FOLLOWING PANELS:
 - PANELBOARD
 - UTILITY METER (WORK WITH UTILITY COMPANY)
 - FIRE RADIO ENCLOSURE (WORK WITH FIRE DEPARTMENT)
 - FIRE RADIO ANTENNA, CABLE AND ASSOCIATED HARDWARE
 - CITY FIBER CONNECTION
 - TEMPORARY REMOVE AND STORE THE FOLLOWING EQUIPMENT PRIOR TO TANK COATING WORK TO BE DONE UNDER CONTRACT NO. 2:
 - PANELBOARD
 - UTILITY METER (WORK WITH UTILITY COMPANY)
 - FIRE RADIO ENCLOSURE (WORK WITH FIRE DEPARTMENT)
 - FIRE RADIO ANTENNA, CABLE AND ASSOCIATED HARDWARE
 - DOOR SWITCH
 - HATCH SWITCH
 - CAMERA AND CAMERA LIGHT
 - LIGHT ABOVE DOOR
 - MOTION SWITCH
 - SECURITY BADGE SCANNER
 - TOWER BEACON
 - AND ALL OTHER RELATED ITEMS
 - PRIOR TO COATING WORK UNDER CONTACT NO. 2, REMOVE CITY FIBER CABLE FROM PANEL (SSMP-MT) AND WATER TOWER. PROTECT CABLE AND FIBER ENDS FROM DAMAGE DURING CONSTRUCTION. REINSTALL CITY FIBER CABLE IN NEW TOWER PENETRATION TO TOWER AND SECURITY PANEL (SSMP-MT) AFTER COATING.
 - STORAGE SHALL BE PROTECTED FROM WEATHER, DUST, AND DEBRIS.
 - ONCE COATING WORK IS COMPLETE AND THE FLOOR ELEVATION HAS BEEN RAISED, REINSTALL EQUIPMENT TO ORIGINAL CONDITION. MODIFY EXISTING CONCRETE PAD. SEE C-500 "EQUIPMENT PAD MODIFICATION" DETAIL FOR CONCRETE PAD INFORMATION.
 - INSTALL HDPE SPLIT SLEEVE AROUND BOTTOM 12" OF CABLE.

ALL WORK SHOWN ON THIS SHEET SHALL BE COMPLETED UNDER THE MANCHESTER TANK MISCELLANEOUS IMPROVEMENTS AND TANK COATING PROJECT - CONTRACT NO. 1.

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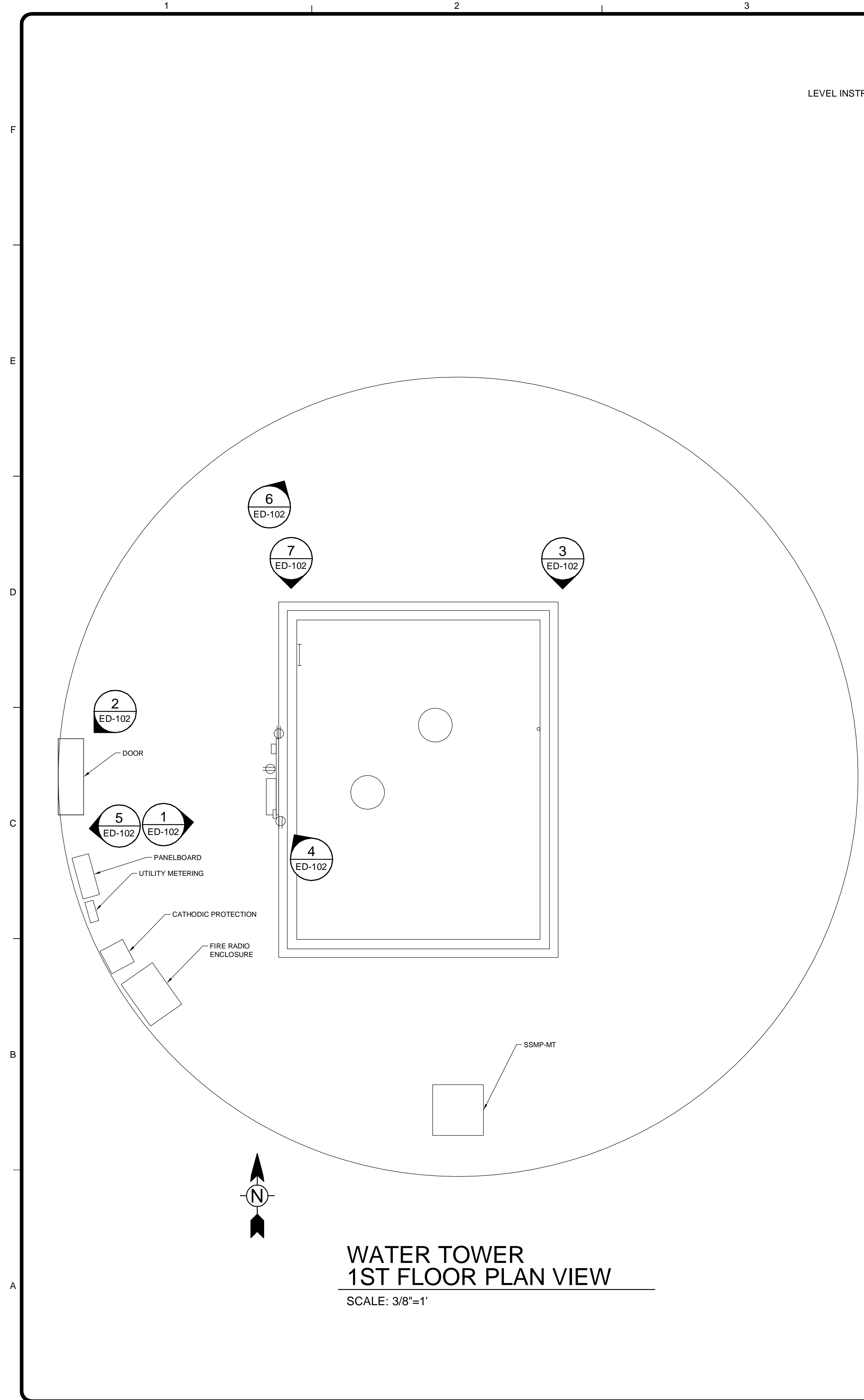
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MANCHESTER TANK MISC IMPROVEMENTS
AND TANK COATING PROJECT
**ELECTRICAL
REMOVAL PLAN**

Project No.: 200-31537-15001
Designed By: CSW
Drawn By: CSW
Checked By: AJK

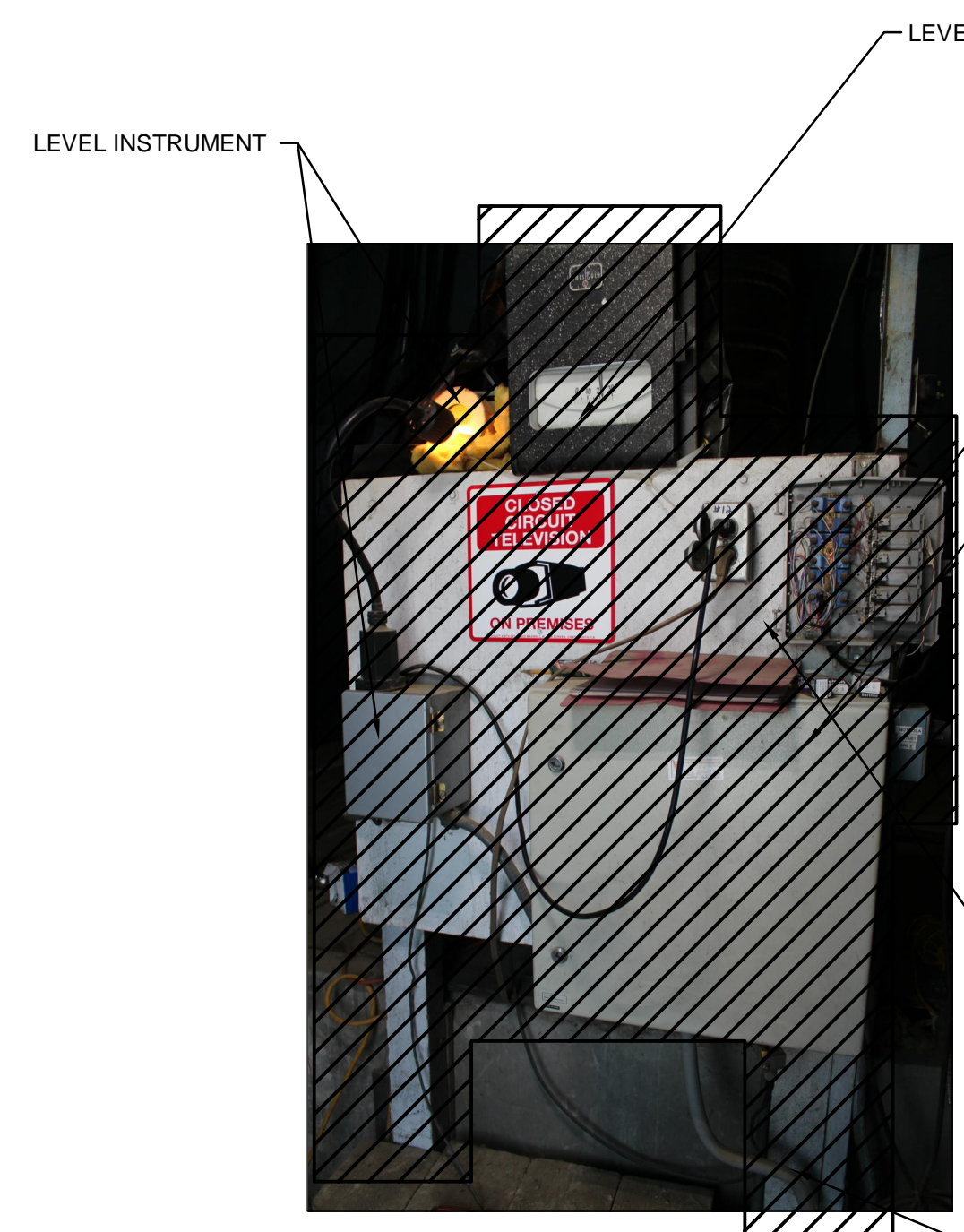
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8/5/2015 2:59:49 PM - P:\MER31537\200-31537-15001\CAD\SHHEETS\ED-102\DEMO PLAN VIEW.DWG - SCHLANDER, EMILY



**WATER TOWER
1ST FLOOR PLAN VIEW**
SCALE: 3/8"=1'

ALL WORK SHOWN ON THIS SHEET SHALL BE COMPLETED UNDER THE MANCHESTER TANK MISCELLANEOUS IMPROVEMENTS AND TANK COATING PROJECT - CONTRACT NO. 1.



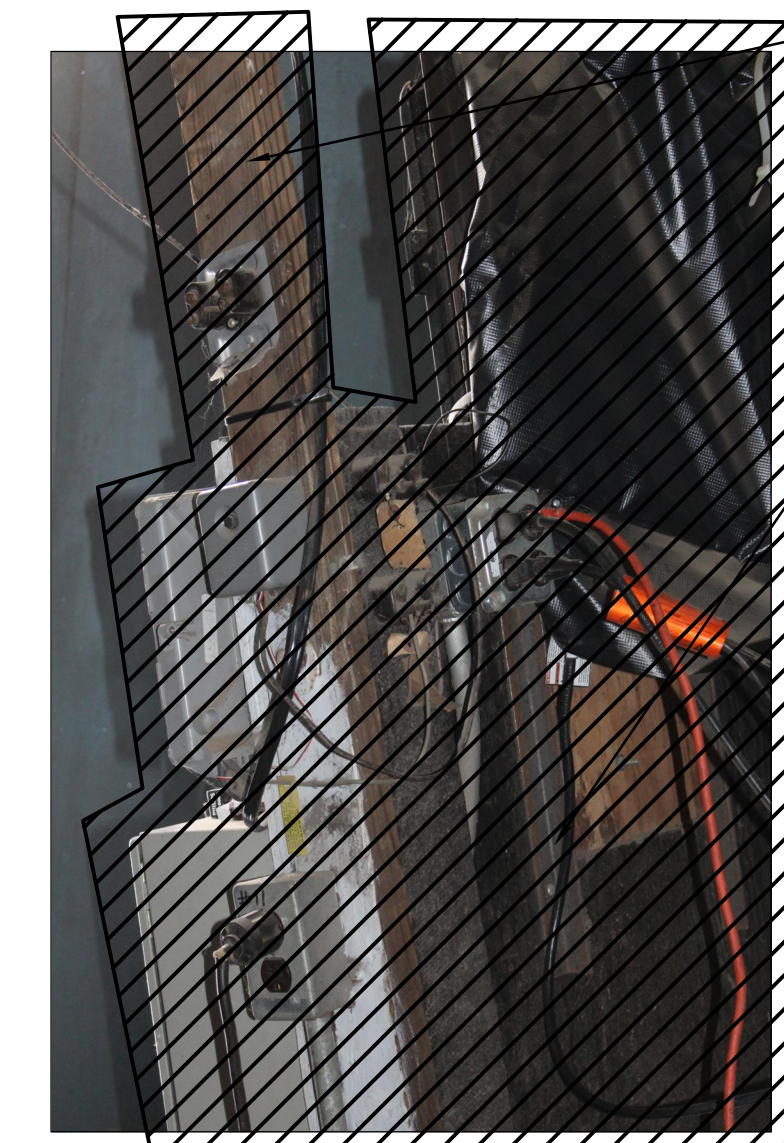
1 PHOTO CONTROL PANEL SUBPLATE
SCALE: NA



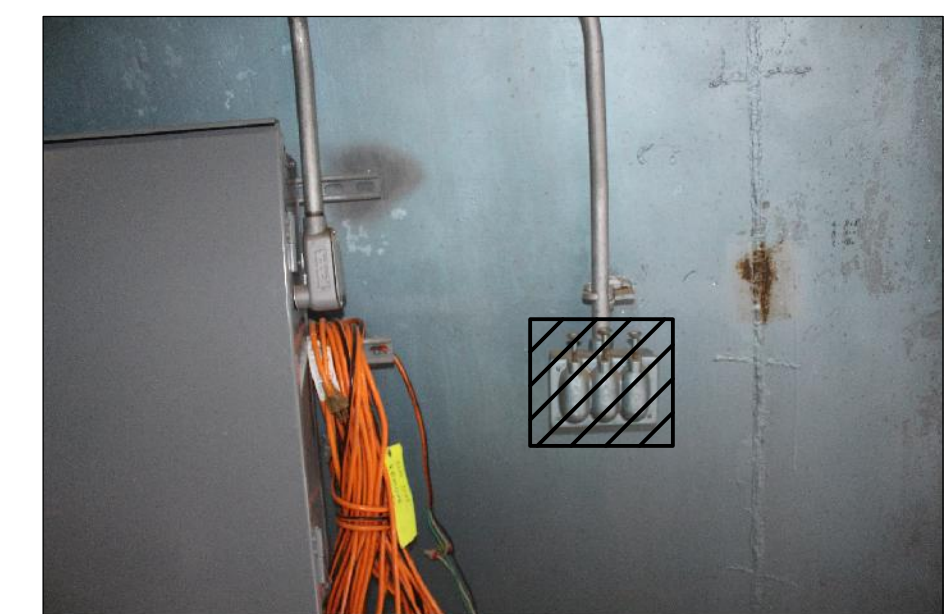
2 PHOTO DOOR CONTACT (SWITCH)
SCALE: NA



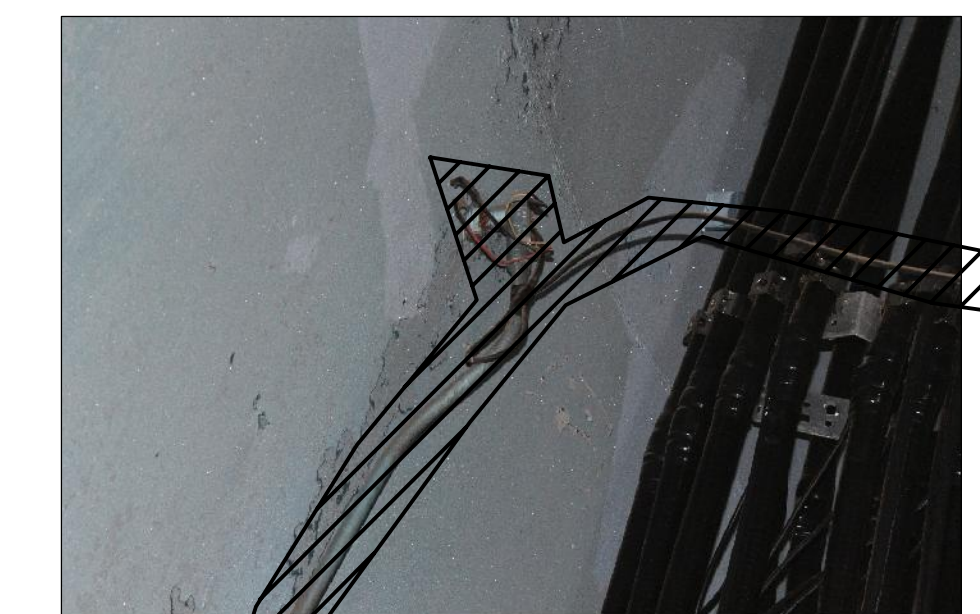
3 PHOTO HEAT TRACE & SUMP DISCHARGE
SCALE: NA



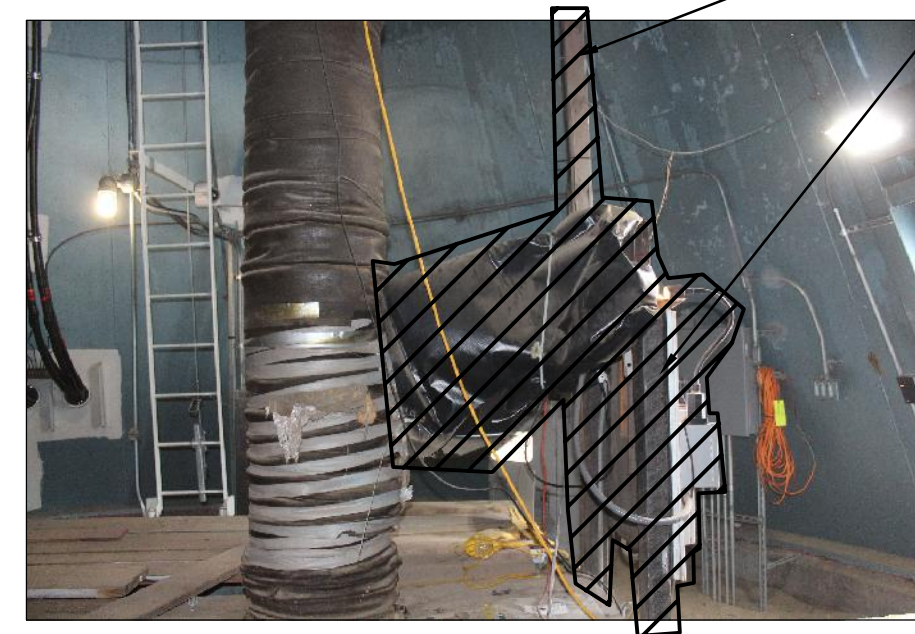
4 PHOTO RECEPTACLES
SCALE: NA



5 PHOTO LIGHT SWITCHES
SCALE: NA



6 PHOTO MOSCAD RADIO ANTENNA
SCALE: NA



7 PHOTO SENSING LINE
SCALE: NA

- NOTES:
1. REMOVE AND REPLACE RECEPTACLES WITH GFCI STYLE RECEPTACLES WITH WEATHERPROOF COVERS.
 2. REMOVE AND REPLACE LIGHT SWITCHES WITH WEATHERPROOF STYLE LIGHT SWITCHES.
 3. REMOVE CATHODIC PROTECTION PANEL.
 4. REMOVE TELEPHONE CIRCUITS.
 5. REMOVE AND REPLACE HEAT TRACING (SALVAGE FOR OWNER).
 6. REMOVE AND REPLACE LIGHT FIXTURES.
 7. REMOVE CONDUIT AND HARDWARE PRIOR TO COATING TO BE DONE UNDER CONTRACT NO. 2.
 8. REPLACE CONDUIT AND HARDWARE AFTER COATING WORK IS COMPLETE.
 9. REMOVE AND REPLACE LEVEL INSTRUMENT. REMOVE LEVEL INDICATOR.
 10. REMOVE MOSCAD RADIO PANEL. REPLACE WITH NEW CONTROL SCADA PANEL.
 11. REMOVE RADIO DOOR SWITCH, CONDUIT AND WIRE. (LEAVE SECURITY DOOR SWITCH IN PLACE)
 12. REMOVE WOODEN SUPPORTS AND BACKBOARD ASSOCIATED WITH INSTRUMENT PANEL.
 13. ALL CONDUIT (EXISTING AND NEW) TO BE PAINTED BY CONTRACT NO. 2 CONTRACTOR PRIOR TO BEING RE-INSTALLED BY CONTRACT NO. 1 CONTRACTOR.

WORK TO COMPLETED UNDER THE MANCHESTER TANK MISCELLANEOUS IMPROVEMENTS AND TANK COATING PROJECT - CONTRACT NO. 2.

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CITY OF ANN ARBOR, MICHIGAN

MANCHESTER TANK MISC IMPROVEMENTS AND TANK COATING PROJECT

ELECTRICAL

DEMO PLAN

Project No.: 200-31537-15001

Designed By: CSW

Drawn By: CSW

Checked By: AJK

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