

# ROUTE I-95 REST AREA TOURIST INFORMATION CENTER PUBLIC WATER SYSTEM UPGRADE PWS ID RI2980178



**AERIAL VICINITY PLAN**

SCALE: 1" = 100'

**LOCATION:  
PARCEL ID 05A-050-002  
RICHMOND, RHODE ISLAND**

**CLIENT:  
RHODE ISLAND DEPARTMENT  
OF TRANSPORTATION**

**MARCH 2022**

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RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS AS  
SPECIFIED IN THE ...FTER OF APPROVAL  
DATED: JUN 15 2022 FILE # 22-0124  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE  
*Martin D. Wenzel*

RI Environmental Management  
APR 25 2022  
Office of Water Resources

REVISION	DATE	DESCRIPTION	BY	APP
1	4/19/22	RIDEM COMMENTS INCORPORATED	SEK	RFF
		SHEET	DATE	
		COVER SHEET	3/11/22	
		DRAWN BY	SEK	
		DESIGNED	SEK	
		CHECKED	RFF	
		APPROVED	RFF	
		SHEET	G-1	

		CLIENT RI DEPT. OF TRANSPORTATION 2 CAPITOL HILL PROVIDENCE, RI 02903 PROJECT RHODE ISLAND WELCOME CENTER
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**ABBREVIATIONS**

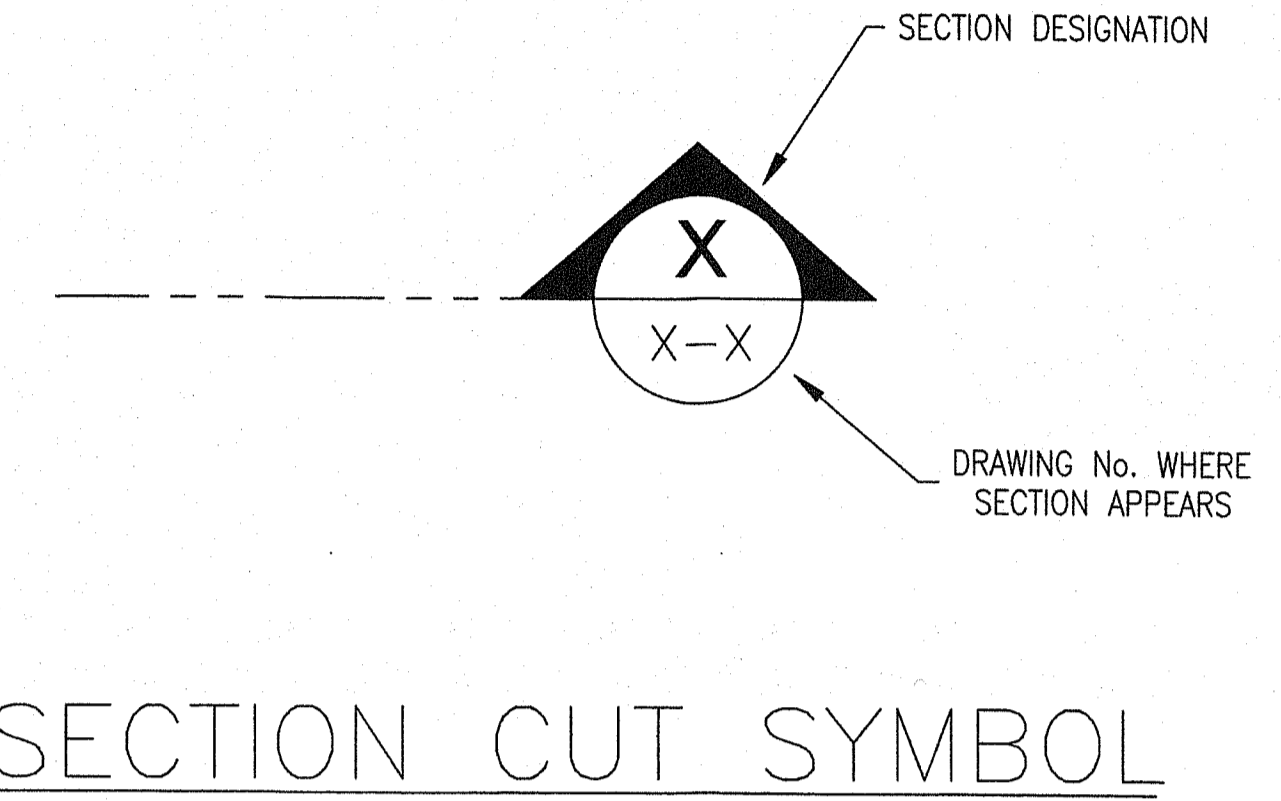
EX	EXISTING
PR	PROPOSED
BF	BAG FILTER
BGS	BELOW GROUND SURFACE
CF	CARTRIDGE FILTER
CPVC	CHLORINATED POLYVINYL CHLORIDE
CS	CARBON STEEL
CMU	CONCRETE MASONRY UNIT
Cond.	CONDUCTIVITY
CONN.	CONNECTION
CONT.	CONTINUOUS
CV	CONTROL VALVE
CW	COLD WATER
Cu	COPPER
Dp	DEEP OR DEPTH
Ø	DIAMETER OR PHASE
DIP	DUCTILE IRON PIPE
DISCH.	DISCHARGE
DT	CHEMICAL DYE TANK
EA.	EACH
E.W.	EACH WAY
FFV	FOUR FUNCTION VALVE
FRP	FIBERGLASS REINFORCED PLASTIC
FQI	FLOW INDICATOR TOTALIZER
FT	FOOT OR FEET MEASUREMENT
GAL	GALLON
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRADE	EXTERIOR GRADE ELEVATION
HP	HORSEPOWER
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
LB	POUND
L.F.	LINEAR FOOT
MAX	MAXIMUM
MFGR	MANUFACTURER
MIN.	MINIMUM
MP	ELECTRONIC METERING PUMP
MMF	MULTI-MEDIA FILTERS
MX	MECHANICAL AGITATOR
Na <sub>2</sub> CO <sub>3</sub>	SODIUM CARBONATE
NaOCL	SODIUM HYPOCHLORITE
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
NO. OR #	NUMBER
NPT	NOMINAL PIPE THREAD
O.C.	ON CENTER
OD	OUTSIDE DIAMETER
P	PRESSURE GAGE
PE	POLYETHYLENE
PI	PRESSURE INDICATOR
PS	PRESSURE SWITCH
PSIG	POUNDS PER SQUARE INCH GAGE
PPT	PRESSURE TANK
P-XXX	PUMP
PRV	PRESSURE RELIEF VALVE
PVC	POLYVINYL CHLORIDE
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
SCH.	SCHEDULE
Sq	SQUARE
SS	STAINLESS STEEL
ST	SAMPLE TAP
STL	STEEL
STD	STANDARD
SV, SOV	SOLENOID VALVE
TDH	TOTAL DYNAMIC HEAD
T-XXX	TANK IDENTIFICATION
T/	TOP OF
TT	TEMPERATURE TRANSMITTER
TYP.	TYPICAL
VAC	VOLTS OF ALTERNATING CURRENT
W/	WITH
1Ø OR 1PH	1 PHASE ELECTRICAL SERVICE
3Ø OR 3PH	3 PHASE ELECTRICAL SERVICE
60Hz	60 HERTZ ELECTRICAL SERVICE

**PROCESS SYMBOLS LEGEND**

	HORIZONTAL CENTRIFUGAL PUMP
	ELECTRONIC CHEMICAL METERING PUMP
	MECHANICAL AGITATOR
	GATE VALVE
	BALL VALVE
	CHECK VALVE
	ADJUSTABLE PRESSURE REGULATING VALVE WITH GAUGE
	SOLENOID VALVE
	ELECTRONIC MOTOR OPERATED VALVE
	AUTOMATIC CONTROL VALVE
	ROTAMETER
	REDUCER
	UNION
	FLEXIBLE CONNECTION
	SAMPLE TAP
	PRESSURE GAUGE
	STATIC MIXER ORIFICE PLATE-FLANGED
	FLANGED CONNECTION
	REDUCED PRESSURE BACKFLOW PREVENTER
	CARTRIDGE FILTER HOUSING
	FOUR FUNCTION VALVE
	ADJUSTABLE PRESSURE RELIEF VALVE
	CONTINUATION OF PIPING
	DRAIN STANDPIPE W/TRAP
	TANK VENT W/FILTER
	QUICK COUPLE CONNECTION

**INSTRUMENTATION LEGEND**

	CONTROL SIGNAL
	COMMUNICATIONS LINK
	FIELD MOUNTED DEVICE
	LOCAL PANEL MOUNTED DEVICE
	LEVEL ALARM LOW
	LEVEL ALARM HIGH
	PROGRAMMABLE LOGIC CONTROLLER (ANALOG)
	PROGRAMMABLE LOGIC CONTROLLER (DISCRETE)
	CONTROL INTERLOCK SIGNAL
AAH	ANALOG ALARM HIGH
AAL	ANALOG ALARM LOW
AE	ANALOG ELEMENT
AI	ANALOG INDICATOR
AIT	ANALOG INDICATOR/TRANSMITTER
AIR	ANALOG RECORDER
CAIH	CHLORINE ALARM HIGH
CIAL	CHLORINE ALARM LOW
DI	DIGITAL INDICATOR
FAH	FLOW ALARM HIGH
FAL	FLOW ALARM LOW
FE	FLOW ELEMENT
FIT	FLOW INDICATOR/TRANSMITTER
FTC	FAIL TO CLOSE
FTO	FAIL TO OPEN
FTS	FAIL TO START
GENSET	EMERGENCY GENERATOR
HOA	HAND/OFF/AUTOMATIC
HS	HAND SWITCH
KC	TIMER CONTROL
LAH	LEVEL ALARM HIGH
LAHH	LEVEL ALARM HIGH HIGH
LAL	LEVEL ALARM LOW
LALL	LEVEL ALARM LOW LOW
LC	LEVEL CONTROLLER
LI	LEVEL INDICATOR
LS	LEVEL SWITCH
LSHH	LEVEL SWITCH HIGH HIGH (ALARM)
LSH	LEVEL SWITCH HIGH
LSL	LEVEL SWITCH LOW
LSLL	LEVEL SWITCH LOW LOW (ALARM)
LT	LEVEL TRANSMITTER
NC	MOTOR CONTROLLER
NIL	MOTOR RUN LIGHT
NJS	MOTOR RUN SWITCH
PAH	PRESSURE ALARM HIGH
PAL	PRESSURE ALARM LOW
pHAH	pH ALARM HIGH
pHAL	pH ALARM LOW
PI	PRESSURE INDICATOR
PIT	PRESSURE INDICATOR/TRANSMITTER
PSL	PRESSURE SWITCH LOW
PT	PRESSURE TRANSDUCER
TAH	TEMPERATURE ALARM HIGH
TAL	TEMPERATURE ALARM LOW
TC	TEMPERATURE CONTROLLER
TE	TEMPERATURE ELEMENT
TS	TEMPERATURE SWITCH
VFD	VARIABLE FREQUENCY DEVICE
XC	EQUIPMENT CONTROLLER



Environmental Management  
**APR 25 2022**  
Office of Water Resources

**RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**  
**OFFICE OF WATER RESOURCES**  
**FRESHWATER WATERSHEDS PROGRAM**  
APPROVED WITH CONDITIONS AS  
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*Martin D. Wenzel*

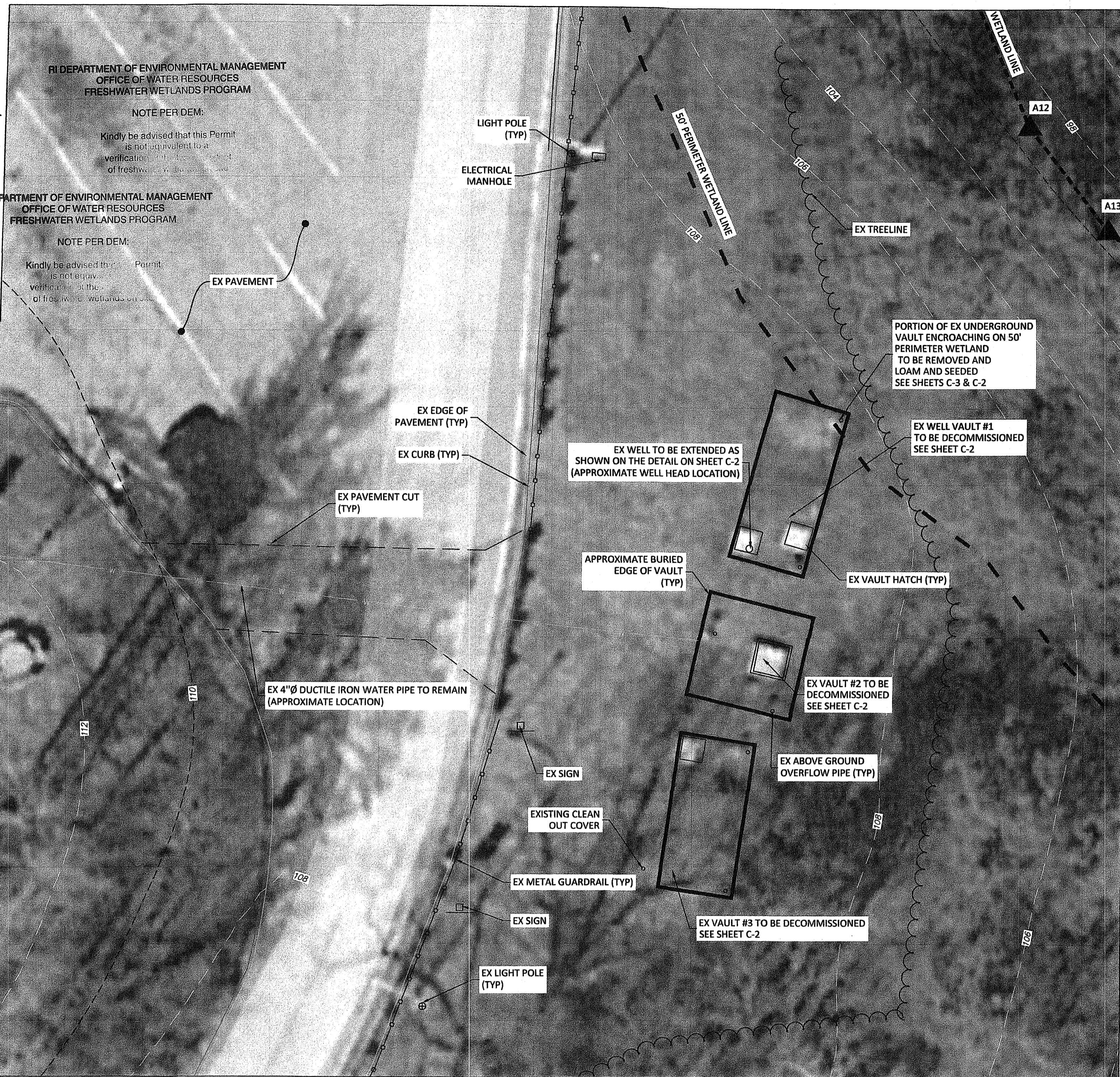
**ROBERT F. FERRARI**  
No. 1111 4658  
REGISTERED  
PROFESSIONAL ENGINEER  
4/16/22

1	4/19/22	RIDEM COMMENTS INCORPORATED	SEK	RFF
REVISION	DATE	DESCRIPTION	BY	APP
SHEET <b>LEGEND, SYMBOLS, &amp; ABBREVIATIONS</b>			DATE	3/11/22
			DRAWN BY	SEK
CLIENT			DESIGNED	SEK
PROJECT			CHECKED	RFF
RHODE ISLAND WELCOME CENTER			APPROVED	RFF
			SHEET	G-2

0 10' 20'  
SCALE: 1" = 10'

This mapping was developed and intended to be viewed at a scale of 1"=10' on a 24"x36" sheet. Reduced versions may not be legible.

By GPS Observations Made On-site: MARCH 2022



RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM

NOTE PER DEM:  
Kindly be advised that this Permit is not equivalent to a verification of the extent of freshwater wetlands on site.

**GENERAL NOTES:**

1. THE SITE IS LOCATED IN THE TOWN OF RICHMOND ON ASSESSORS PLAT 5B LOT 50-2.
2. THE SITE IS APPROXIMATELY 10.31± ACRES AND IS ZONED R-3.USE OF AND/OR RELIANCE UPON THIS ZONING DESIGNATION SHALL BE AT THE USER'S SOLE RISK AND IS SUBJECT TO VERIFICATION OF CURRENT ZONING STATUS BY THE TOWN OF RICHMOND, RHODE ISLAND.
3. THE OWNER OF THIS LOT IS :  
RHODE ISLAND DEPARTMENT OF TRANSPORTATION  
2 CAPITOL HILL  
PROVIDENCE, RI 02903
4. THE SITE IS LOCATED IN FEMA ZONE X (44009C0064J EFFECTIVE DATE 4/3/2020).
5. WETLANDS SHOWN ON THIS PLAN HAVE BEEN FLAGGED BY AVIZINIS ENVIRONMENTAL SERVICES INC (REPORT INCLUDED). THESE FLAGS WERE THEN LOCATED BY ALFRED W DIORIO RLS INC. ALONG WITH OTHER SELECT FEATURES SHOWN ON THIS PLAN.
6. LOCATION OF WETLAND FLAGS AND OTHER ELEMENTS DEPICTED ON THIS PLANSET WERE DETERMINED BY DATA TRANSMITTED FROM SMARTNET REFERENCE STATIONS USING THE SMARTNET RTK REFERENCE NETWORK VIA LEICA GS18 GPS RECEIVER, TOGETHER WITH SITE OBSERVATIONS MADE ON THE DATE(S) CITED HEREON BY ALFRED W DIORIO RLS INC.
7. THE TOPOGRAPHY SHOWN ON PLANS IS LIDAR DATA ACQUIRED FROM RIGIS WEBSITE. STATEWIDE ELEVATION CONTOUR LINES (2-FT INTERVALS) DERIVED FROM A DIGITAL ELEVATION MODEL ORIGINALLY PRODUCED AS PART OF THE 2011 NORTHEAST LIDAR PROJECT. DATUM NAVD88/NAD83.
8. THE PROPERTY LINE SHOWN ON PLANS IS A COMPILATION OF BEST AVAILABLE SOURCES INCLUDING ASSESSOR MAPS AND GIS RESOURCES.
9. SOILS ON SITE WITHIN THE LIMIT OF WORK ARE HINCKLEY LOAMY SAND, 8 TO 15 PERCENT SLOPES HYDROLOGIC SOIL GROUP A.
10. INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE AND WAS CREATED BY UTILIZING A VARIETY OF BEST AVAILABLE SOURCES FROM RIGIS, RIDEM RESOURCE MAPS, AND OTHER SOURCES.
11. THE AERIAL PHOTOGRAPHY USED IS APPROXIMATE AND USED FOR ILLUSTRATIVE PURPOSES ONLY.
12. THIS COMPILATION PLAN HAS BEEN PREPARED FROM SOURCES OF INFORMATION AND DATA WHOSE POSITIONAL ACCURACY AND RELIABILITY HAS NOT BEEN VERIFIED. THE PROPERTY LINES DEPICTED HEREON DO NOT REPRESENT A BOUNDARY OPINION, AND OTHER INFORMATION DEPICTED IS SUBJECT TO SUCH CHANGES AS AN AUTHORITY FIELD SURVEY MAY DISCLOSE.
13. ASSOCIATED LOCATIONS. THE GEOMETRIC POINTS AND/OR MONUMENTATION ASSOCIATED WITH THE BOUNDARY(S) OF THE SUBJECT SITE REPRESENTED HEREON ARE CONSISTENT WITH THE CLASS OF SURVEY SPECIFIED IN THE SURVEYOR'S STATEMENT. THE LOCATION OF ALL OTHER ASSOCIATED SITE FEATURES AS MAY BE DEPICTED HEREON, ARE CONSISTENT WITH EITHER A CLASS III OR CLASS IV STANDARD OF SURVEY, UNLESS EXPRESSLY STATED TO THE CONTRARY.
14. UTILITY LOCATIONS. UTILITY LINES AND LOCATIONS THAT ARE VISIBLE AND APPARENT HAVE BEEN DEPICTED HEREON. THE EXISTENCE OF ANY UNDERGROUND UTILITIES, AND THE LOCATION OF THOSE UTILITIES, HAVE BEEN ESTIMATED FROM ASSOCIATED SURFACE FEATURES AND/OR RECOLLECTIONS OF KNOWLEDGEABLE PARTIES, UNLESS EXPRESSLY STATED HEREON. THE USE OF AND RELIANCE UPON THESE UTILITY LOCATIONS SHALL BE AT THE USER'S SOLE RISK AND SHALL BE SUBJECT TO VERIFICATION OF THE ACTUAL LOCATION BY THE APPROPRIATE REGULATORY AGENCY. SAID VERIFICATION TO BE AT THE DIRECTION AND EXPENSE OF THE END USER OF THIS DATA.

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OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM

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RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM

APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED: JUN 15 2022 FILE # 22-01  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION

SCALE: 1" = 80'

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By GPS Observations Made On-site: MARCH 2022

**PROJECT AREA INSET**

THIS PLAN, AND UNDERLYING SURVEY PRODUCT, WAS PREPARED FOR THE EXCLUSIVE USE OF THE PERSON, PERSONS, OR ENTITY NAMED IN THIS DECLARATION. SAID DECLARATION DOES NOT EXTEND TO ANY UNNAMED PERSON, PERSONS, OR ENTITY WITHOUT AN EXPRESS RE-DECLARATION BY THE SURVEYOR OF RECORD NAMING SAID PERSON, PERSONS, OR ENTITY.

TO NWSI IT IS HEREBY DECLARED THAT THIS SURVEY HAS BEEN CONDUCTED AND THIS PLAN HAS BEEN PREPARED PURSUANT TO 435-RICR-00-00-1.9 OF THE RULES AND REGULATIONS ADOPTED BY THE RHODE ISLAND STATE BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS ON NOVEMBER 25, 2015, AS FOLLOWS:

THE TYPE OF SURVEY IS COMPILATION PLAN PREPARED IN ACCORDANCE WITH A CLASS IV STANDARD. SELECT SITE FEATURES HAVE BEEN FIELD LOCATED IN ACCORDANCE WITH HORIZONTAL MEASUREMENT SPECIFICATIONS OF CLASS IV.

IN ADDITION, ANY TOPOGRAPHIC ELEMENTS DEPICTED HEREON HAVE NOT BEEN SURVEYED AND ARE LIDAR INFORMATION FROM THE RIGIS DATABASE.

FURTHER, THE INFORMATION DEPICTED HEREON WAS OBTAINED (A) FROM EXISTING SOURCES OF INFORMATION WHICH HAVE NOT BEEN FIELD VERIFIED BY THE SURVEYOR OF RECORD; (B) THAT THE PURPOSE OF THE CONDUCT OF THE SURVEY AND FOR THE PREPARATION OF THE PLAN WAS SOLELY TO SUPPORT A CLASS IV COMPILATION PLAN, AND (C) THAT THIS INFORMATION IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND IS SUBJECT TO ALL LIMITATION, NOTATIONS, AND QUALIFICATION STATED HEREON.

ALFRED W. DIORIO, PLS, CPESC, [RI PLS #1752]  
PRINCIPAL SURVEYOR AND PRESIDENT, ALFRED W. DIORIO, RLS, INC.  
RI CERTIFICATE OF AUTHORIZATION NO. A37

Alfred W. DiOrio, RLS, Inc.  
PO Box 999, Ashaway, Rhode Island 02804  
401/377-8124  
Cellular 401/742-1850  
www.awdris.com Email: al@awdris.com

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM

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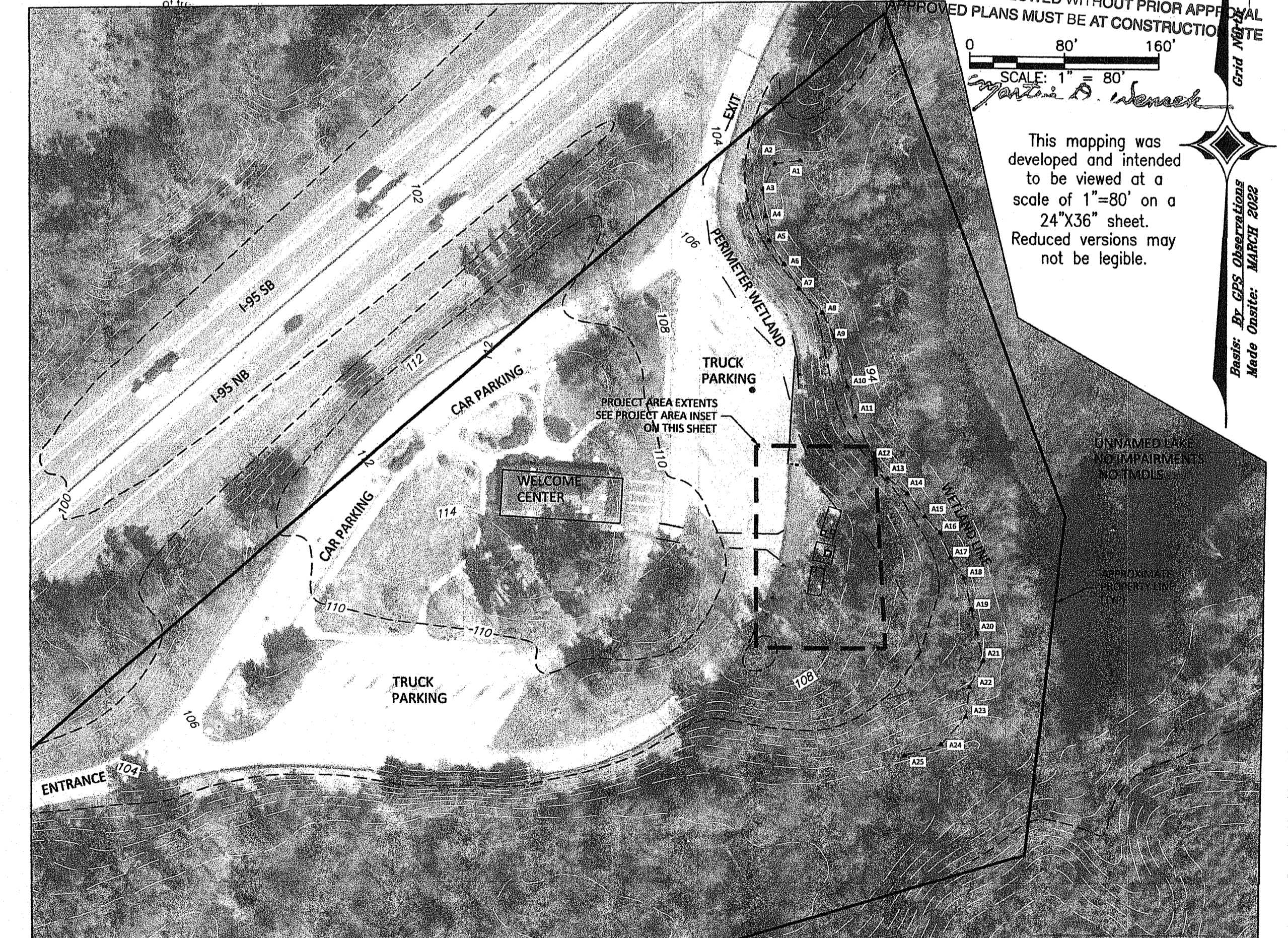
	TREELINE
	GUARDRAIL
	EXISTING PAVEMENT
	EXISTING CURB
	EXISTING UNDERGROUND VAULT
	EXISTING WATER DISTRIBUTION LINE
	EXISTING PAVEMENT SAWCUT LINE
	50' PERIMETER WETLAND
	WETLAND LINE AND FLAG
	EXISTING MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING LIGHT POLE
	EXISTING SIGN

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
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RI 34-13-1 INDEX
ABUTTING STREETS
I-95 NORTHBOUND

Alfred W. DiOrio, RLS, Inc.  
Professional Land Surveyors • Land Use Consultants  
Certified Professional Erosion Control Specialists  
Licensed OWTS Designers • Installers • Inspectors • Soil Evaluators  
Hopkinton, Rhode Island



**OVERALL PROPERTY AREA**

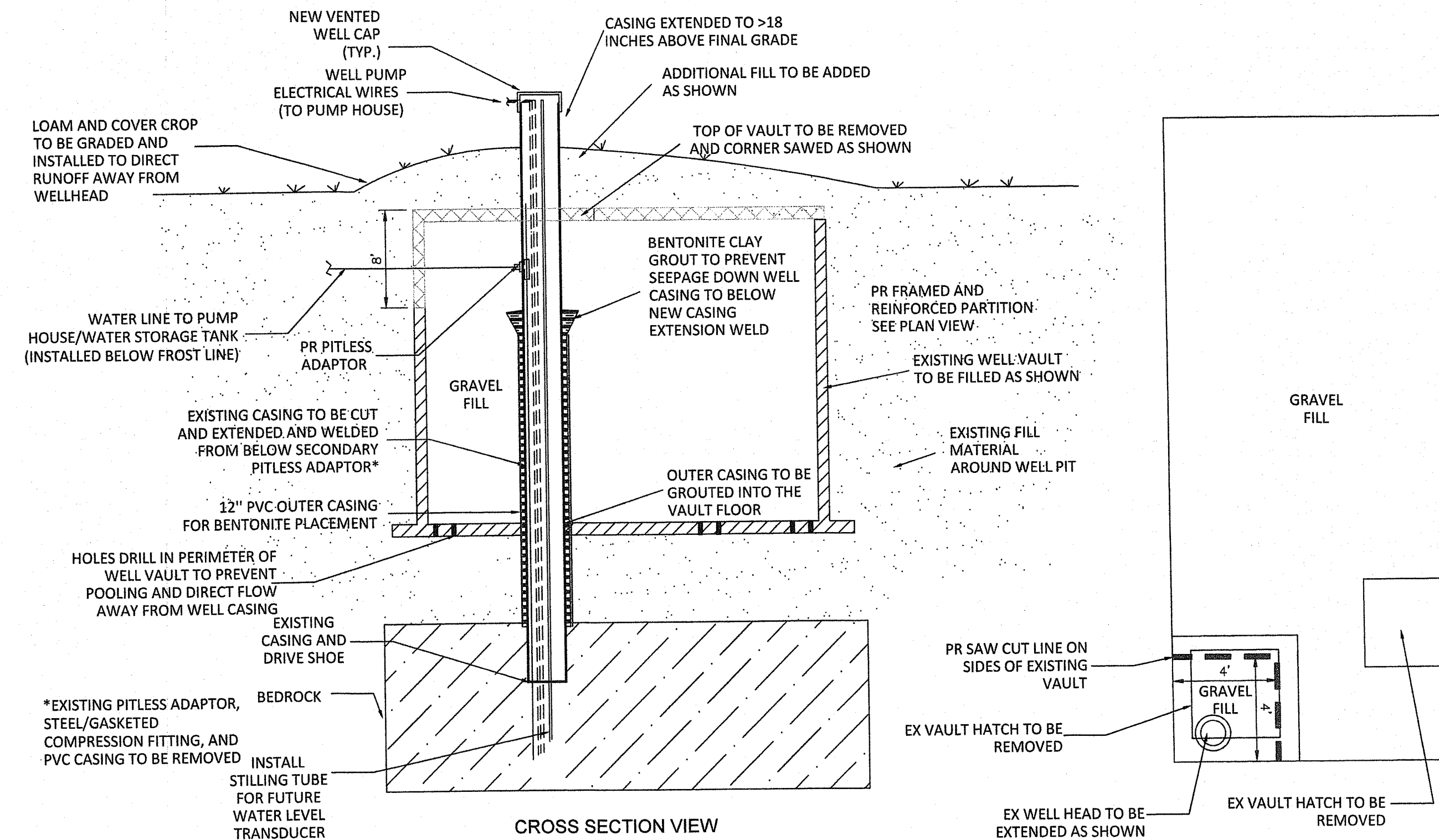
	REVISION	DATE	DESCRIPTION	BY	APP
				DATE	3/15/22
SHEET			EXISTING CONDITIONS PLAN	DRAWN BY	SEK
CLIENT			RI DEPT. OF TRANSPORTATION 2 CAPITOL HILL PROVIDENCE, RI 02903	CHECKED	RFJ
PROJECT			RHODE ISLAND WELCOME CENTER	APPROVED	RFJ
				SHEET	C-1



**VAULT #3 DECOMMISSIONING PROCEDURE**

1. ALL WORK WITHIN VAULT TO BE RESTRICTED TO THOSE PERMITTED FOR CONFINED SPACE ENTRY PER OSHA STANDARDS.
2. REMOVE VAULT TOP AND PROPERLY DISPOSE OFFSITE.
3. REMOVE EXISTING TANK AND ALL EQUIPMENT FROM VAULT INCLUDING PROPERLY DECOMMISSIONING ELECTRIC.
4. CONTRACTOR TO USE CONCRETE HOLE SAW TO CUT THIRTY (30) 4" Ø HOLES IN THE FLOOR OF THE EXISTING VAULT USING AN APPROPRIATE MASONRY BIT. HOLES TO BE SPACED A MINIMUM OF 2' ON CENTER.
5. ALL DRAINAGE OUTLET PIPES TO BE CAPPED WITH 6" ROUND END CAP: PVC, 6 IN FOR NOMINAL PIPE SIZE BY GRAINGER OR APPROVED EQUIVALENT.
6. RIDOT PROJECT MANAGER AND ENGINEER OF RECORD TO INSPECT VAULT AND APPROVE THE CONTRACTOR APPROVED TO CONTINUE TO STEP 7.
7. FILL VAULT WITH ENGINEERED GRAVEL MEETING RIDOT SECTION 303 FROM STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION 2004 EDITION (AMENDED MARCH 2018) COMPACT IN 12" LIFTS TO THE GRADES SHOWN ON THE PLAN.
8. PLACE 4" OF LOAM AND SEED DISTURBED AREA.

**VAULT #1 (WELL VAULT) - EXTENSION AND DECOMMISSIONING NOTES**



**NOTES**

1. ALL WORK WITHIN VAULT TO BE RESTRICTED TO THOSE PERMITTED FOR CONFINED SPACE ENTRY PER OSHA STANDARDS.
2. REMOVE VAULT TOP AND SAWCUT CORNER AS SHOWN ON DETAIL ABOVE.
3. REMOVE EXISTING TANK AND ALL EQUIPMENT FROM VAULT INCLUDING ELECTRICAL EQUIPMENT.
5. CONTRACTOR TO USE CONCRETE HOLE SAW TO CUT THIRTY (30) 4" Ø HOLES IN THE FLOOR OF THE EXISTING VAULT USING AN APPROPRIATE MASONRY BIT. HOLES TO BE SPACED A MINIMUM OF 2' ON CENTER.
6. EXTEND WELL CASING AND INSTALL 12" PVC OUTER CASING FOR BENTONITE SEAL AS SHOWN.
7. FILL IN BETWEEN INNER AND NEWLY PLACED OUTER CASING WITH BENTONITE MATERIAL TO SEAL WELL.
8. ALL DRAINAGE OUTLET PIPES TO BE CAPPED WITH 6" ROUND END CAP: PVC, 6 IN FOR NOMINAL PIPE SIZE BY GRAINGER OR APPROVED EQUIVALENT.
9. RIDOT PROJECT MANAGER AND ENGINEER OF RECORD TO INSPECT VAULT AND APPROVE THE CONTRACTOR APPROVED TO CONTINUE TO STEP 9.
10. FILL AROUND NEWLY EXTENDED WELL WITH ENGINEERED GRAVEL MEETING RIDOT SECTION 303 FROM STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION 2004 EDITION (AMENDED MARCH 2018) COMPACT IN 12" LIFTS TO THE GRADES SHOWN ON THE PLAN.
11. PLACE 4" OF LOAM AND SEED IN DISTURBED AREA.

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM

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*Christopher D. Senack*

**VAULT #2 DECOMMISSIONING PROCEDURE**

1. ALL WORK WITHIN VAULT TO BE RESTRICTED TO THOSE PERMITTED FOR CONFINED SPACE ENTRY PER OSHA STANDARDS.
2. EXCAVATE TO EXPOSE THE TOP OF THE VAULT.
3. REMOVE VAULT TOP AND PROPERLY DISPOSE OFFSITE.
4. REMOVE EXISTING PUMPS AND ALL EQUIPMENT FROM VAULT INCLUDING PROPERLY DECOMMISSIONING PANEL ELECTRIC.
5. CONTRACTOR TO USE CONCRETE HOLE SAW TO CUT THIRTY (30) 4" Ø HOLES IN THE FLOOR OF THE EXISTING VAULT USING AN APPROPRIATE MASONRY BIT. HOLES TO BE SPACED A MINIMUM OF 2' ON CENTER.
6. ALL DRAINAGE OUTLET PIPES TO BE CAPPED WITH 6" ROUND END CAP: PVC, 6 IN FOR NOMINAL PIPE SIZE BY GRAINGER OR APPROVED EQUIVALENT.
7. RIDOT PROJECT MANAGER AND ENGINEER OF RECORD TO INSPECT VAULT AND APPROVE THE CONTRACTOR APPROVED TO CONTINUE TO STEP 8.
8. FILL VAULT WITH ENGINEERED GRAVEL MEETING RIDOT SECTION 303 FROM STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION 2004 EDITION (AMENDED MARCH 2018) COMPACT IN 12" LIFTS TO THE GRADES SHOWN ON THE PLAN.
9. PLACE 4" OF LOAM AND SEED DISTURBED AREA.

Environmental Management  
APR 25 2022  
Office of Water Resources

	1	4/19/22	RIDEM COMMENTS INCORPORATED	SEK	RFF
	REVISION	DATE	DESCRIPTION	BY	APP
	SHEET			DATE	3/11/22
	CLIENT			DRAWN BY	SEK
	PROJECT			CHECKED	RFF
	PROJECT			APPROVED	RFF
	PROJECT			SHEET	C-2



**NOTES:**  
 1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.  
 2. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.  
 3. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.  
 4. DRAWING SHOWS TRANSITION CURB FOR ONE DIRECTION. FOR OTHER DIRECTION USE OPPOSITE HAND AND INCLUDE A 1/2" x 4" EPOXY COATED DOWEL.

REVISIONS		
NO.	BY	DATE
1	M.P.	Mar 05

RHODE ISLAND DEPARTMENT OF TRANSPORTATION  
**PRECAST CONCRETE SLOPED FACE TRANSITION CURB**  
 JUNE 15, 1998  
 R.I. STANDARD 7.2.1

**NOTES:**  
 1. SHALL BE IN ACCORDANCE WITH SECTION 208 OF THE R.I. STANDARD SPECIFICATIONS.  
 2. 2"x2"x4'-6" (MAX.) OAK POSTS FOR SILT FENCE SHALL BE LOCATED 8'-0" (MAX.) O.C. IN WETLAND AREAS AND 4'-0" (MAX.) O.C. IN WETLAND RAVINE, GULLY OR DROP-OFF AREAS AS SHOWN ON PLANS.  
 3. 1"x1"x4'-6" (MIN.) POSTS PERMITTED FOR PRE-FABRICATED SILT FENCE.  
 4. SILT FENCE SHALL BE INSTALLED BEFORE ANY GRUBBING OR EARTH EXCAVATION TAKES PLACE.

REVISIONS		
NO.	BY	DATE
1	M.P.	Mar 05

RHODE ISLAND DEPARTMENT OF TRANSPORTATION  
**SILT FENCE DETAIL**  
 JUNE 15, 1998  
 R.I. STANDARD 9.2.0

**NOTES:**  
 1. SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE R.I. STANDARD SPECIFICATIONS.  
 2. POST AND OFFSET BRACKET TO BE FABRICATED FROM 6"x4" x 1/2" LBS/FT. STEEL "M" SECTIONS.  
 3. POST AND BRACKET BOLT HOLES TO BE OAL UNLESS OTHERWISE SPECIFIED.  
 4. ALL HOLES IN OFFSET BRACKETS SHALL BE 13/16".

REVISIONS		
NO.	BY	DATE
1	M.P.	Mar 05

RHODE ISLAND DEPARTMENT OF TRANSPORTATION  
**STEEL BEAM GUARDRAIL**  
 JUNE 15, 1998  
 R.I. STANDARD 34.2.0

**NOTES:**  
 1. SHALL BE IN ACCORDANCE WITH SECTIONS 901, 902 OF THE R.I. STANDARD SPECIFICATIONS.  
 2. SHALL BE IN ACCORDANCE WITH SECTION 213 OF THE R.I. STANDARD SPECIFICATIONS.  
 3. SETBACK FROM CURB FACE OR BERM AS SPECIFIED ON PLANS, 8" LESS THAN 40 MPH; 13" LESS THAN 50 MPH.  
 4. W-BEAM POSTS W/STANDARD 72 INCHES OR AS SPECIFIED ON PLANS.  
 5. THREE BEAM POSTS W/STANDARD 81 INCHES OR AS SPECIFIED ON PLANS.  
 6. TOP OF RAIL HEIGHT MEASURED FROM 10:1 SURFACE.

REVISIONS		
NO.	BY	DATE
1	M.P.	Mar 05

RHODE ISLAND DEPARTMENT OF TRANSPORTATION  
**ROADSIDE GUARDRAIL INSTALLATION**  
 JUNE 15, 1998  
 R.I. STANDARD 34.1.0

**NOTES:**  
 1. SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE R.I. STANDARD SPECIFICATIONS.  
 2. A 10" DRILLED HOLE 1'-6" DEEP IS AN ACCEPTABLE SUBSTITUTE.  
 3. WET SAND FILL, HAND COMPACTED SHALL BE USED TO BACKFILL SONOTUBE AFTER INSERTING GUARDRAIL POST.

REVISIONS		
NO.	BY	DATE
1	M.P.	Mar 05

RHODE ISLAND DEPARTMENT OF TRANSPORTATION  
**TYPICAL GUARDRAIL POST INSTALLATION IN LEDGE**  
 JUNE 15, 1998  
 R.I. STANDARD 34.1.2

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
 APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL  
 DATED: \_\_\_\_\_ FILE #:  
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

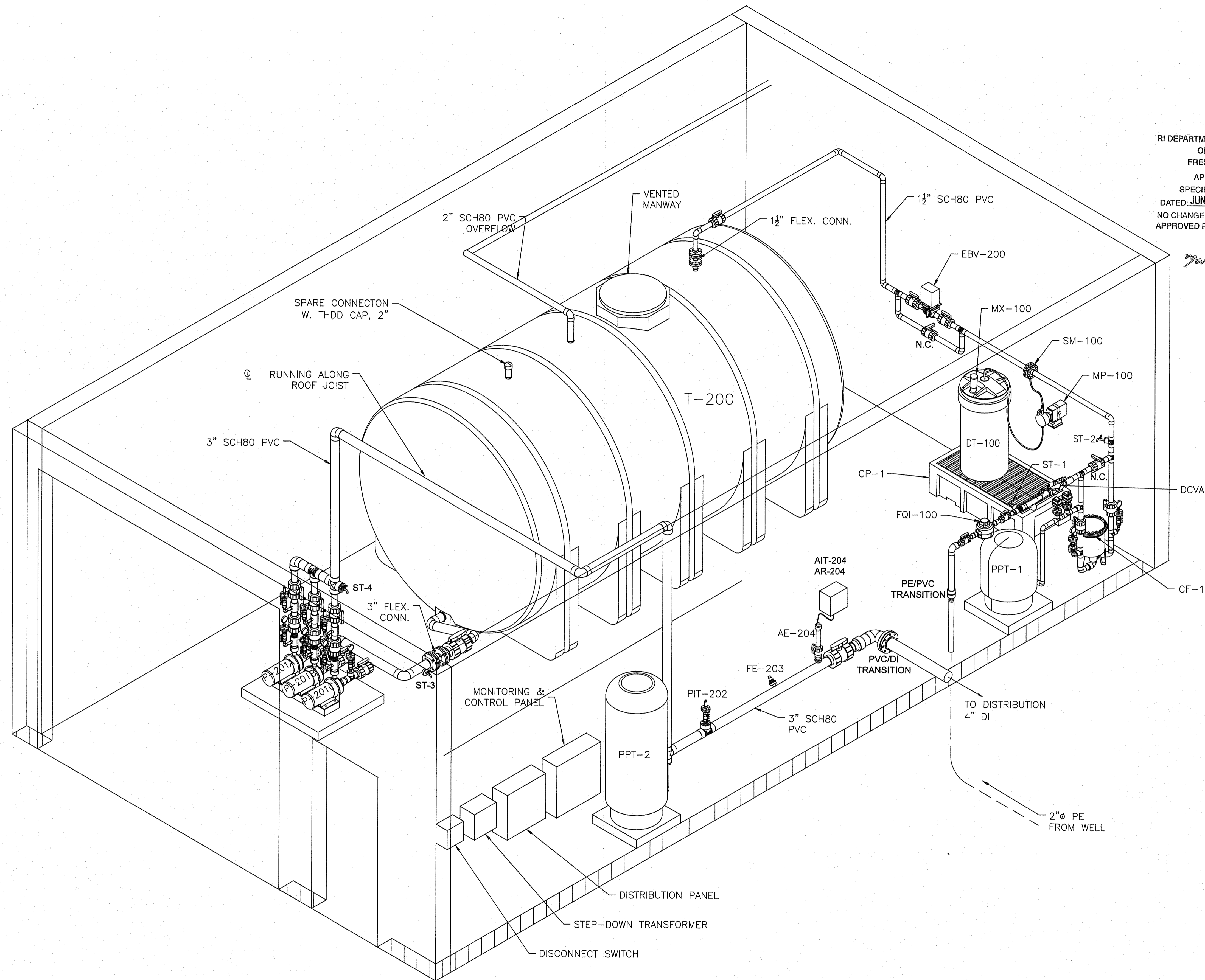
RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
 APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL  
 DATED: APR 15 2022 FILE #:  
 NO CHANGES ALL...  
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

	1	4/19/22	RIDEM COMMENTS INCORPORATED	SEK	RF
	REVISION	DATE	DESCRIPTION	BY	APP
			SHEET	DATE	3/11/22
CLIENT RI DEPT. OF TRANSPORTATION 2 CAPITOL HILL PROVIDENCE, RI 02903			DRAWN BY	SEK	
PROJECT RHODE ISLAND WELCOME CENTER			CHECKED	RF	
			APPROVED	RF	
			SHEET	C-4	



**Mechanical Piping & Installation Notes:**

1. All process piping, unless otherwise noted, shall be Schedule 80 PVC, provided with either cemented or flanged connections.
2. Connections to valves, tanks or equipment shall be made with flanged or threaded connections, unless specifically approved by the Owner or specified elsewhere herein.
3. The minimum pipe size for water system piping shall be 3/4". Vents shall be a minimum 1/2" or as noted on the Drawings.
4. Pipe Installation:
  - a. Horizontal pipes shall be supported at uniform spacing. Continuous supports using angles or channel members may be substituted in lieu of the individual supports.
  - b. Changes in pipe size shall be done with the appropriate size concentric reducing fitting.
  - c. No connection at any tank or equipment component, no valve, or any other item of equipment shall support the weight of any pipe.
  - d. Pipelines shall be installed straight and true, parallel to structure lines with a minimum use of offsets and couplings. Provide only such offsets as may be required to provide necessary headroom or clearance and to provide necessary flexibility in pipe lines.
  - e. Changes in direction of pipelines shall be made only with fittings to pipe bends. Changes in size shall be made only with fittings.
  - f. Unless otherwise indicated, install all supply piping, including isolation valves, to equipment, tanks and control valves at line size, with reduction in size being made only at inlet to the control valve or equipment component.
  - g. All pipe shall be cut to each measurement and installed without springing or forcing. Particular care shall be taken to avoid creating, even temporarily, undue loads, forces or strains on valves, equipment or building elements with piping connections or piping supports.
  - h. Install all work so that all parts required are readily accessible for inspections, operation, maintenance and repair. Minor deviations from the drawings may be made to accomplish this, but changes of magnitude shall not be made without prior written approval from the Owner.
  - i. Make easily accessible all equipment, sample locations, controls, valves, etc., and any and all other equipment and apparatus, as may be required to be reached from time to time for operation and maintenance.
  - j. All piping and connected equipment, including flow meters, filters, strainers, traps and other specialties and accessories shall be supported in a manner that will not result in or produce objectionable or excessive stress, deflection, swaying, sagging or vibration in the piping or in the building structure either during erection, cleaning, testing or normal operation of the systems. Piping shall not shake or buckle between supports or anchors or prevent proper movement due to expansion and contraction. Piping shall be supported at equipment and valves such that they can be disconnected and removed without further supporting the piping. Piping shall not introduce any strains or distortion to the connected equipment.
  - k. Hangers and supports shall be installed complete, including lock nuts, clamps, rods, bolts, couplings, swivels, inserts and required accessory items. Hangers and supports for horizontal piping shall have adequate means of vertical adjustment for proper alignment of pipe and shall be provided with lock nuts.
5. Valves:
  - a. Valves shall be installed with the stems positioned in the horizontal or above the centerline of the pipe. All valves shall be accessible for operation, maintenance or removal.
  - b. All packing, gaskets, discs, seats, diaphragms, lubricants, etc., shall conform to recommendations of the valve manufacturer for the intended service.
6. Floor Penetrations: Sleeves through masonry floors shall be schedule 40 black steel pipe, provided with a waterstop, extending 2" above finished floors.
7. Restraint Couplings:
  - a. Flexible of pipe couplings shall be Dresser Style 62, or approved equal. Coupling rings shall be furnished without pipe stops and gaskets shall be of the plain type. Follower rings shall be designed to adequately confine the gaskets.
  - b. Flexible couplings on pressure lines shall be suitably harnessed in accordance with the recommendations of the manufacturer, or otherwise protected against a separation from thrust. All joints shall be arranged to prevent rotation of the pipe by a method approved by the Owner.
8. Unions:
  - a. Unions shall be installed at all locations shown on the drawings and as required for the isolation of all traps, threaded valves, and connections to threaded equipment, unless shown otherwise on the drawings.
  - b. Unions in piping 2" and smaller shall be ground joint, screwed; 125 psig working pressure.
  - c. Connections in piping 2.5" and larger shall be flanged type with gaskets designed for the working pressure of the unions.
9. Flanged Joints:
  - a. Flanged connections shall conform to the requirements of ANSI B16.
  - b. Flanged joints shall be made with bolts, bolt studs with nut on each end, or studs with nuts where the flange is tapped. The number and size of bolts shall conform to the same ANSI Standard as the flanges.
  - c. Bolting for services up to 500° F shall be ANSI/ASTM A307 Grade B with square head bolts and heavy hexagonal nuts conforming to ANSI B18.2.1 "Square and Hex Bolts" and B182.2 "Square and Hex Nuts". Bolt studs and studs shall be of the same quality as machine bolts.
  - d. Gaskets for flat face flanges shall be full face type. Gaskets for raised face flanges shall conform to requirements for "Group I Gaskets" in ANSI B16.5. Gaskets 12" in diameter and smaller shall be 1/16 in. thick Teflon coated type by John Crane - Style 11FF, free flow with neoprene insert.



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 DATED JUN 15 2022 FILE # 22-014  
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*Martin D. W...*

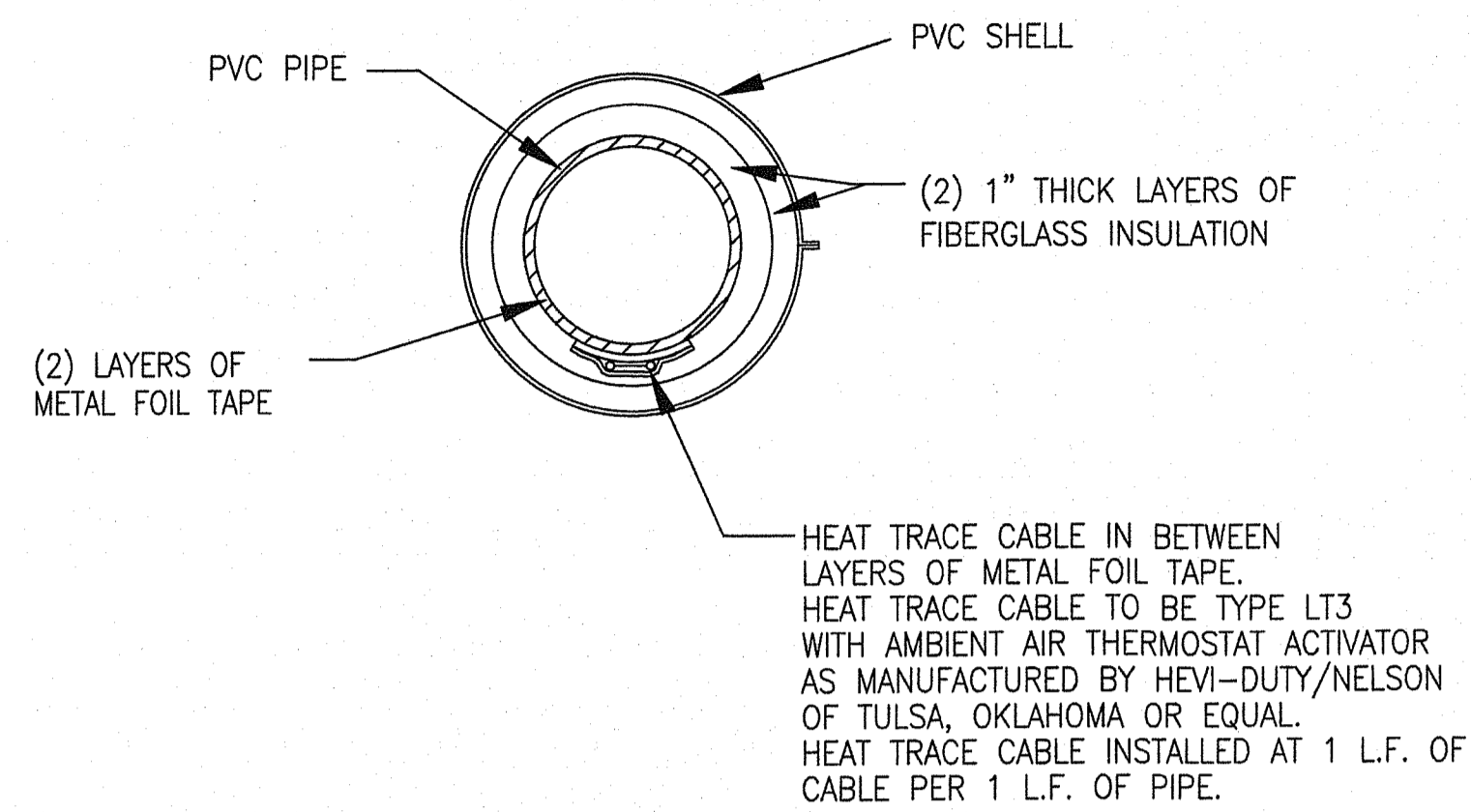
10. Wall Penetrations: Where so depicted the pipe to wall penetration closures shall be "Chemical Service Link-Seal" as manufactured by Thunderline Corporation - Belleville, Mich. 48111. Seals shall be modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the pipe and wall opening. Links shall be loosely assembled with bolts to form a continuous rubber belt around the pipe with a pressure plate under each bolt head and nut. After the seal assembly is positioned in the sleeve, tightening of the bolts shall cause the rubber sealing elements to expand and provide an absolutely water-tight seal between the pipe and wall opening. The seal shall be constructed so as to provide electrical insulation between the pipe and wall sleeve, thus reducing chances of cathodic reaction between these two members.
11. All exterior, above ground piping shall be provided heat tracing and insulation for freeze protection, extending to a depth 42" below grade. Refer to Specification Section 15250
12. Identification nameplates, tags and labels shall be provided and fastened upon pumps, motors, valves, pipelines, and other mechanical equipment components. Refer to Specification Section 15050 for additional information.
13. Storage Tank Emergency Overflow:
  - a. The emergency overflow pipe shall extend through the exterior building wall and turn vertically down to a point of termination 12" above a splash block
  - b. The overflow shall be provided with a flop check valve with integrated 24-mesh screen.
14. All wetted materials for construction including pipe, fittings, valves, specials, pumps, tanks, filters, lubricants, etc., shall be ANSI/NSF 60/61 compliant as applicable.

Environmental Management  
 APR 25 2022  
 Office of Water Resources

ROBERT F. FERRARI  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 4658  
 4/18/22

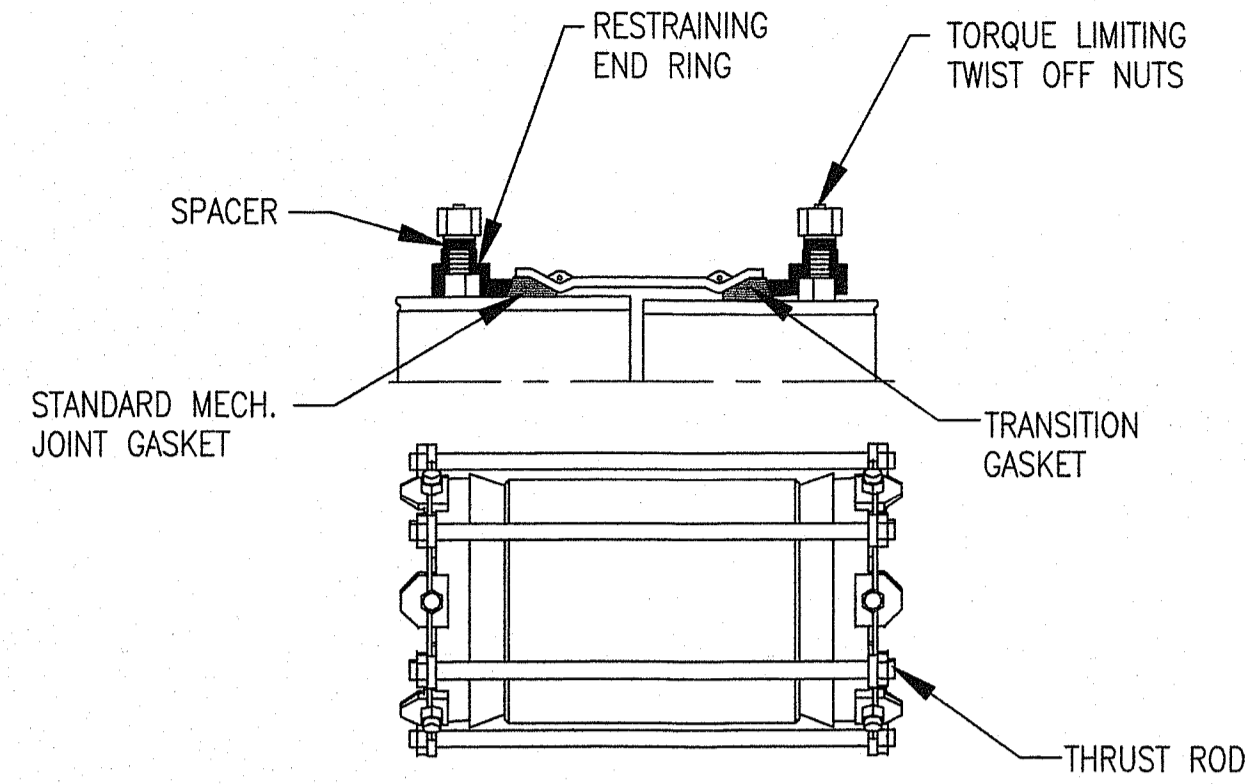
1	4/19/22	RIDEM COMMENTS INCORPORATED	SEK	RFF
REVISION	DATE	DESCRIPTION	BY	APP
		SHEET ISOMETRIC EQUIPMENT LAYOUT PLAN	DATE 3/11/22	
		CLIENT RI DEPT. OF TRANSPORTATION 2 CAPITOL HILL PROVIDENCE, RI 02903	DRAWN BY SEK	
		PROJECT RHODE ISLAND WELCOME CENTER	CHECKED RFF	
			APPROVED RFF	
			SHEET M-2	

NWST  
 NORTHEAST  
 Water Solutions  
 INC.



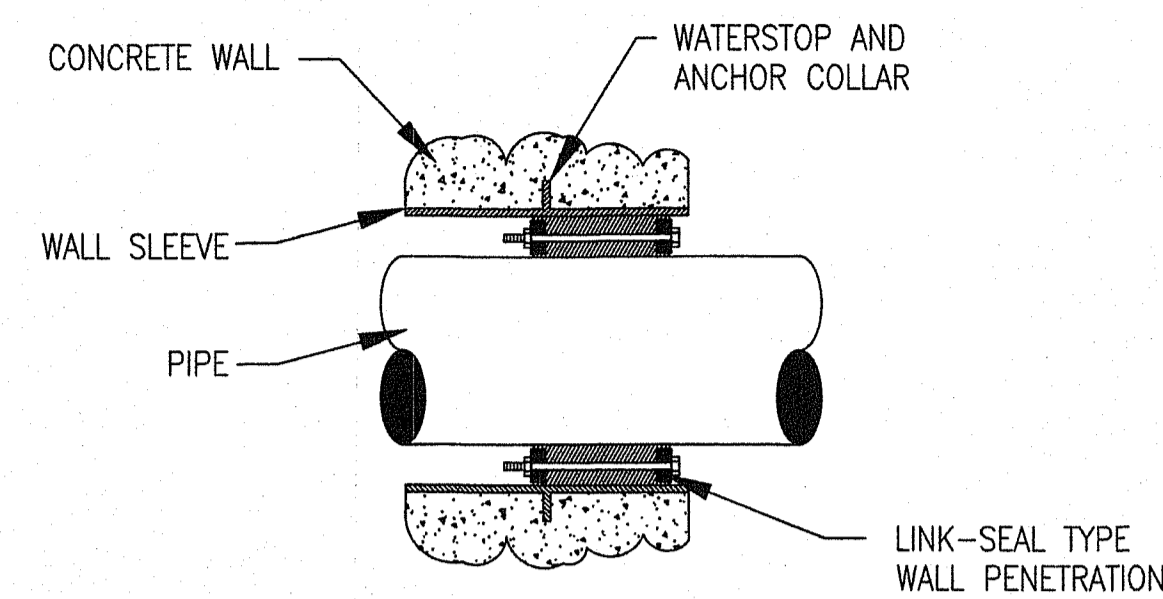
**EXTERIOR PIPING INSULATION AND HEAT TRACING DETAIL**

NOT TO SCALE



**TYPICAL RESTRAINT COUPLING DETAIL**

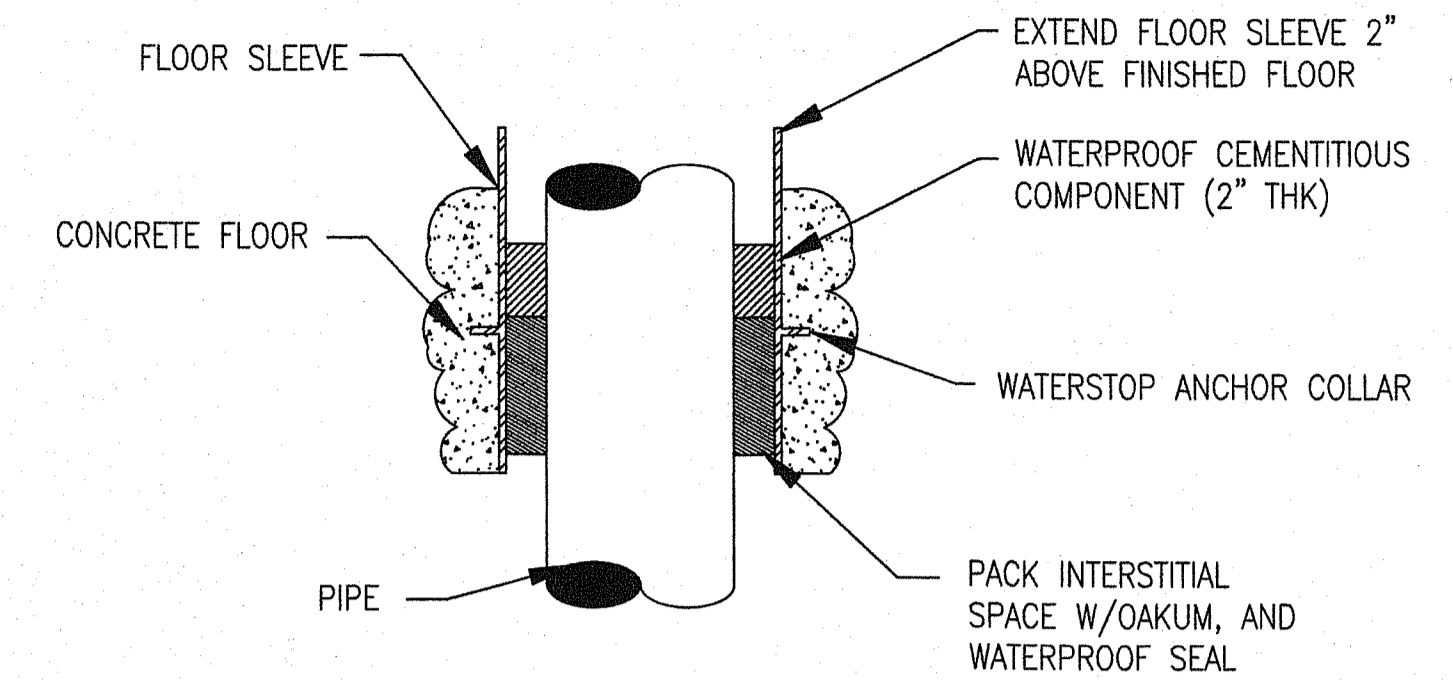
NOT TO SCALE



**CUT-AWAY OF COMPLETED LINK-SEAL AND SLEEVE INSTALLATION.**

**TYPICAL WALL SLEEVE DETAIL**

NOT TO SCALE



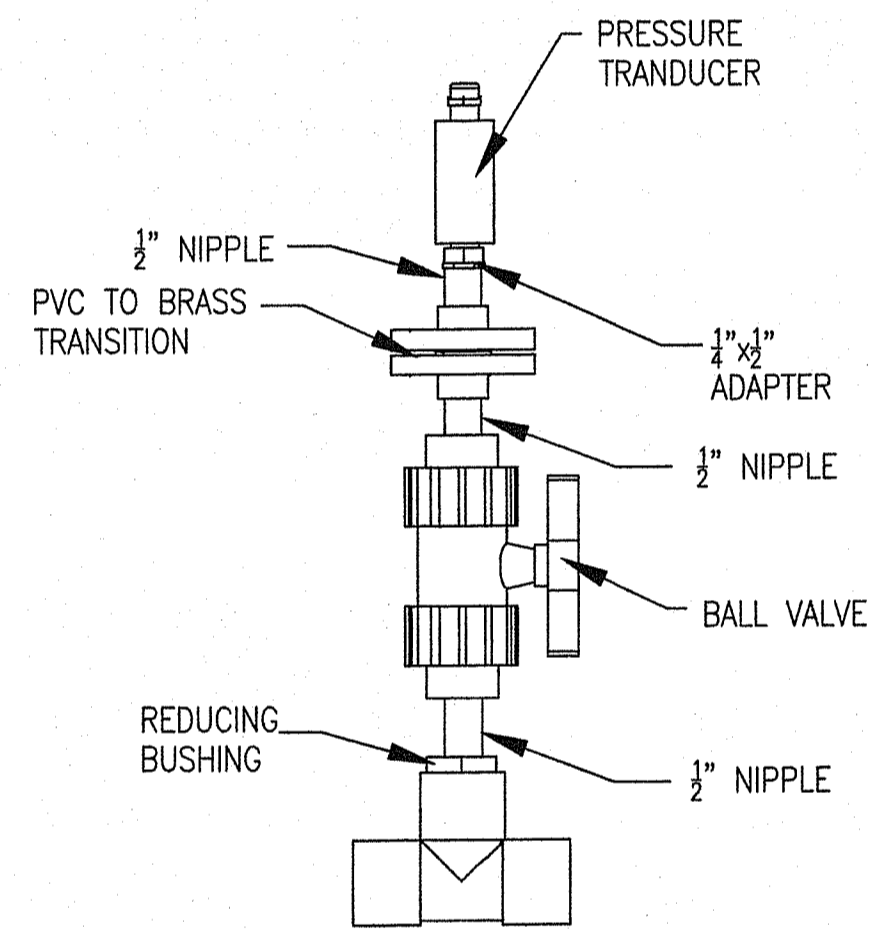
**CUT-AWAY OF COMPLETED LINK-SEAL AND SLEEVE INSTALLATION.**

**TYPICAL FLOOR SLEEVE DETAIL**

NOT TO SCALE

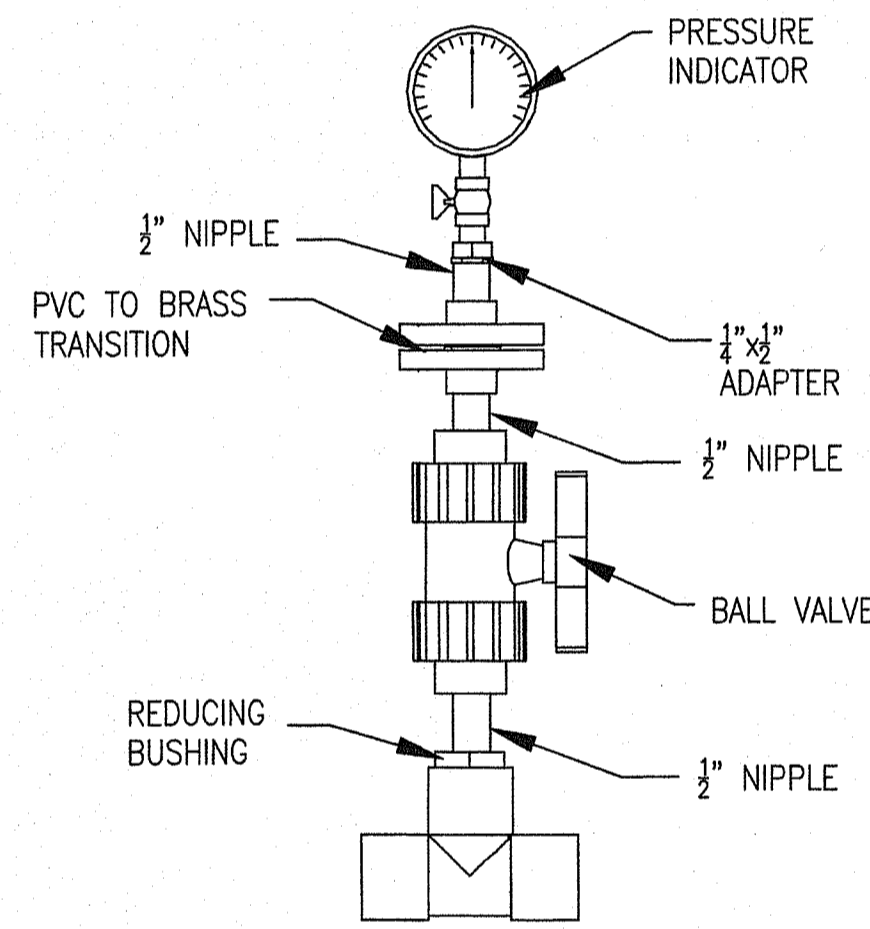
RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
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DATED: APR 15 2022 FILE #: 22-0124  
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*Justin D. Wemack*



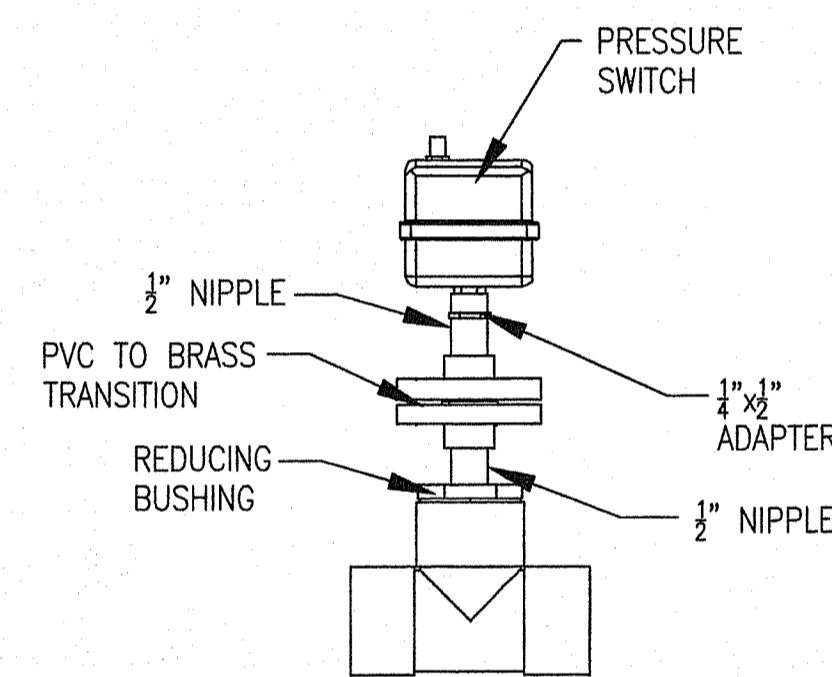
**TYPICAL PRESSURE TRANSDUCER INSTALLATION**

NOT TO SCALE



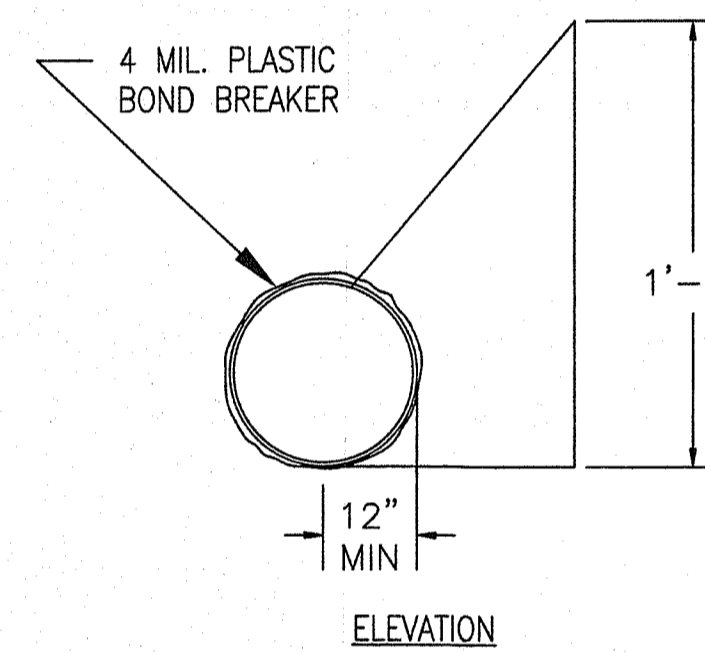
**TYPICAL PRESSURE INDICATOR INSTALLATION**

NOT TO SCALE



**TYPICAL PRESSURE SWITCH INSTALLATION**

NOT TO SCALE

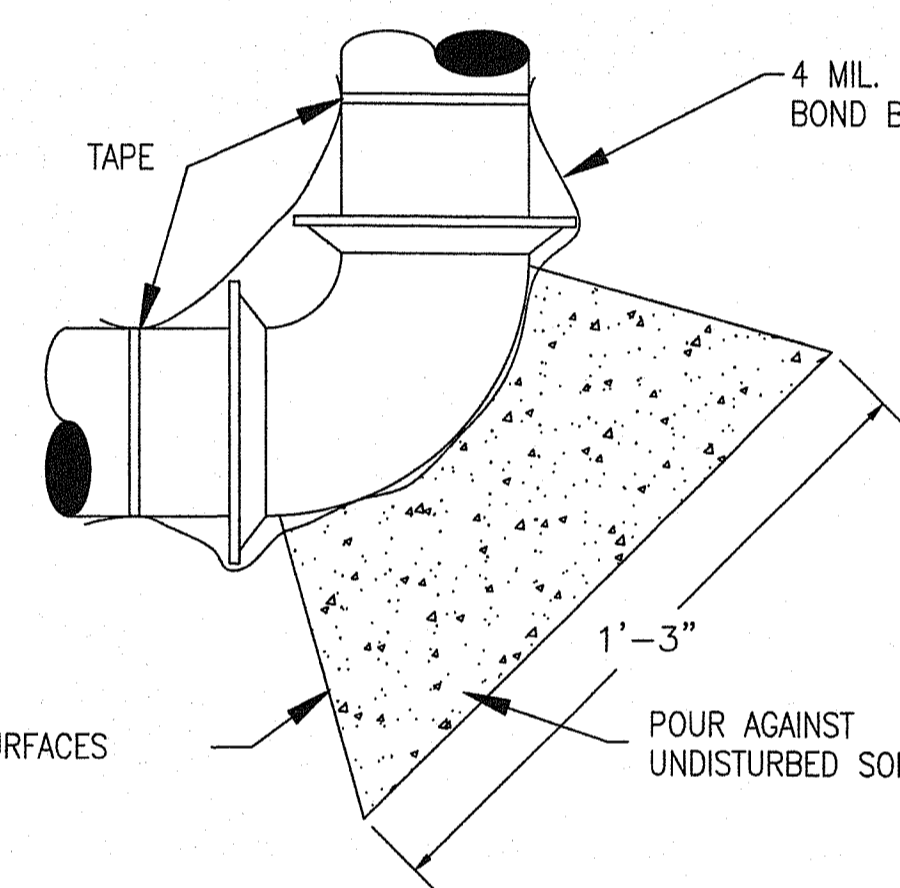


FORM VERTICAL SURFACES WITH SAND BAGS

**TYPICAL REACTION BLOCK DETAIL**

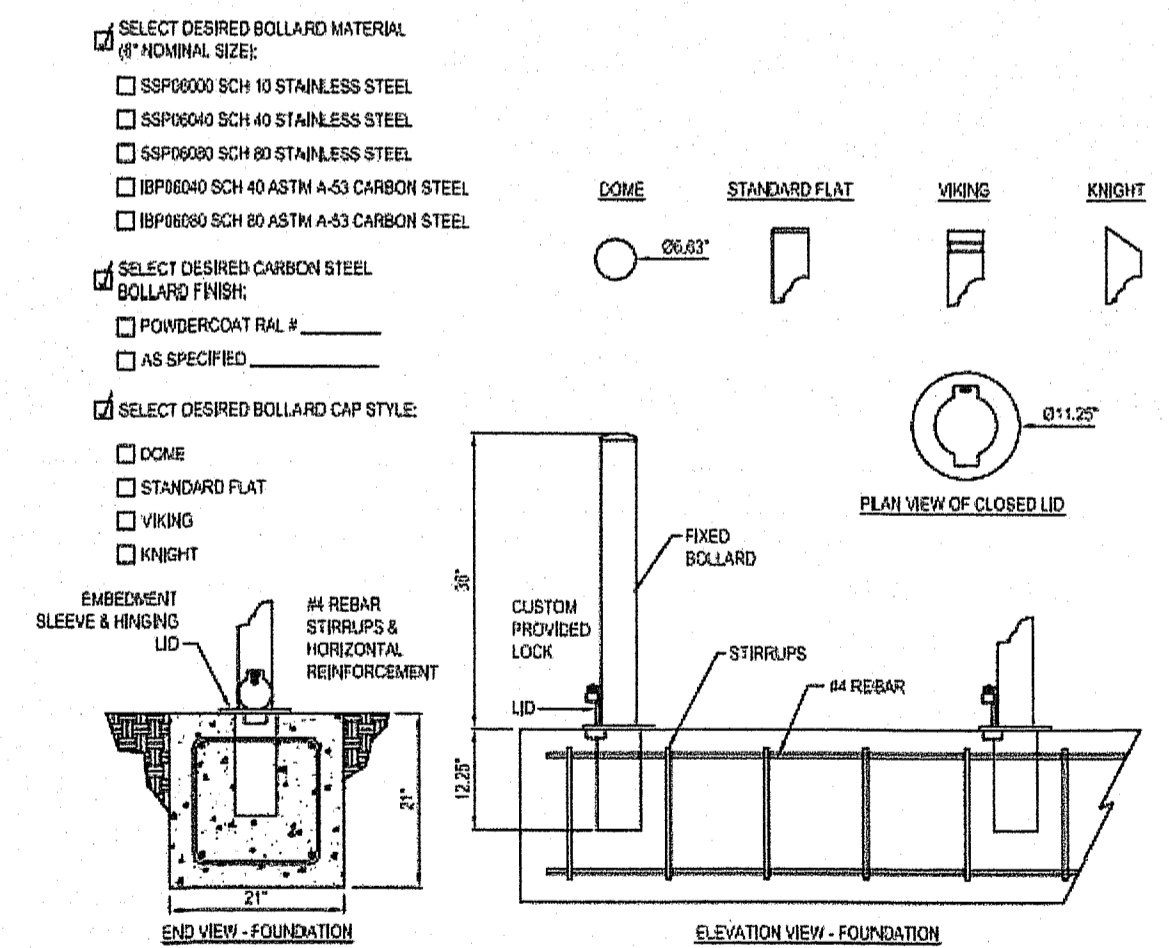
NOT TO SCALE

NOTE:  
WRAP 4 MIL. PLASTIC AROUND PIPE & FITTINGS AT ALL LOCATIONS WHERE THEY WILL COME INTO CONTACT WITH CONCRETE.



**TYPICAL SMOOTHBORE SAMPLE TAP INSTALLATION**

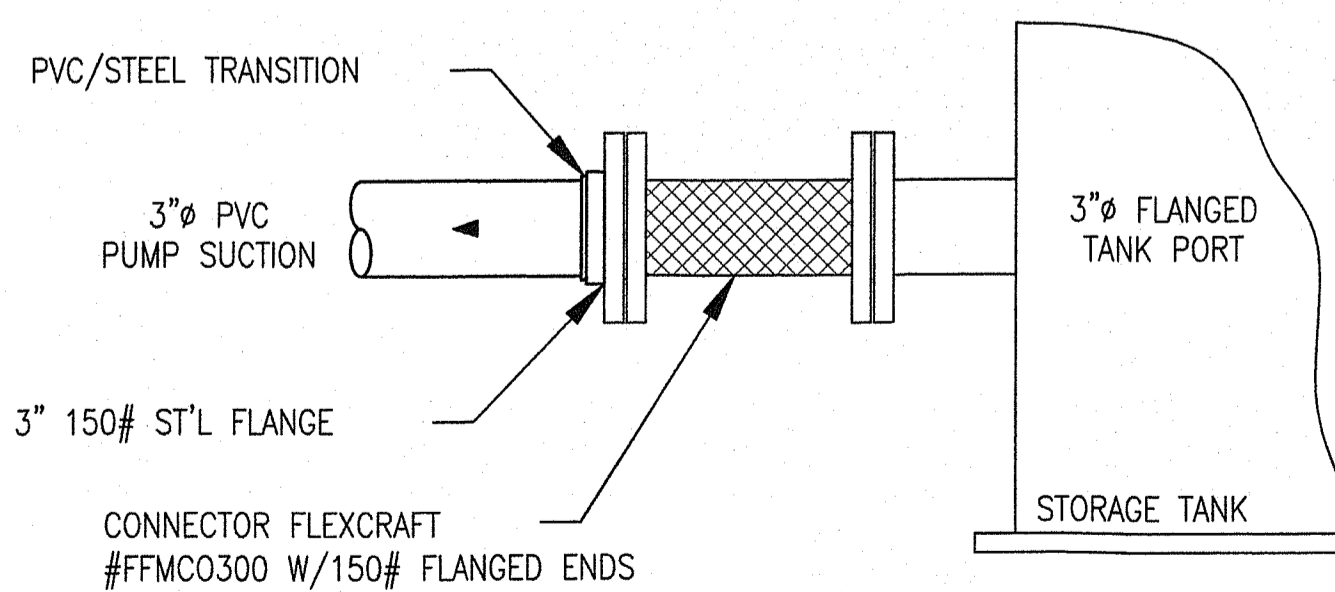
NOT TO SCALE



NOTES:  
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.  
2. ALL DIMENSIONS ARE CONSIDERED TRUE AND REFLECT MANUFACTURER'S SPECIFICATIONS.  
3. DO NOT SCALE DRAWING.  
4. CONTRACTOR'S NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT [www.CADnetdl.com](http://www.CADnetdl.com). REFERENCE NUMBER 2005-034.

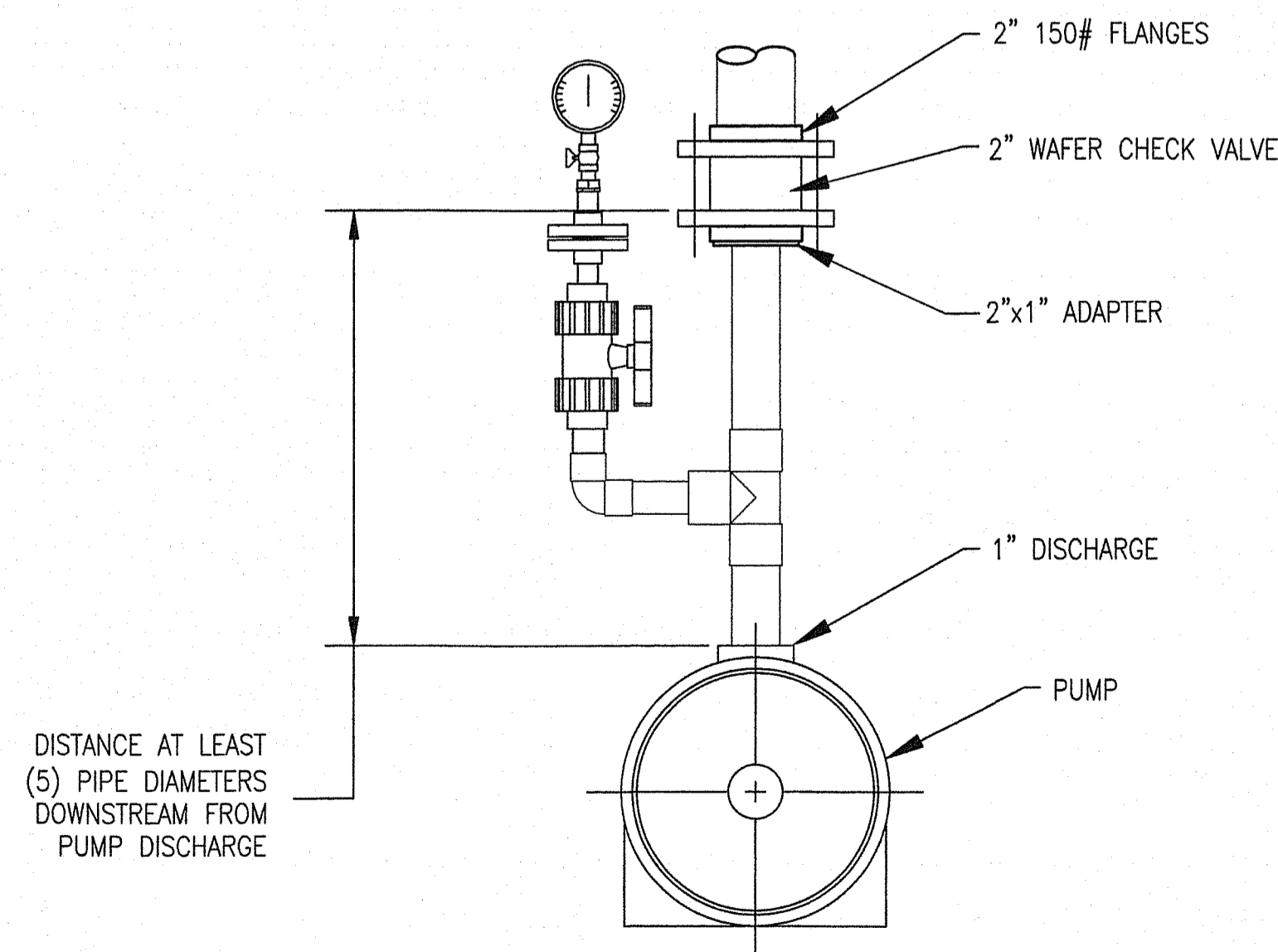
**TYPICAL REMOVEABLE BOLLARD DETAIL**

NOT TO SCALE



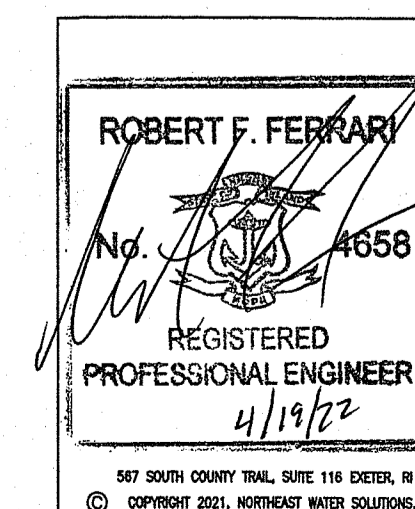
**TYPICAL FLEXIBLE CONNECTION INSTALLATION**

NOT TO SCALE



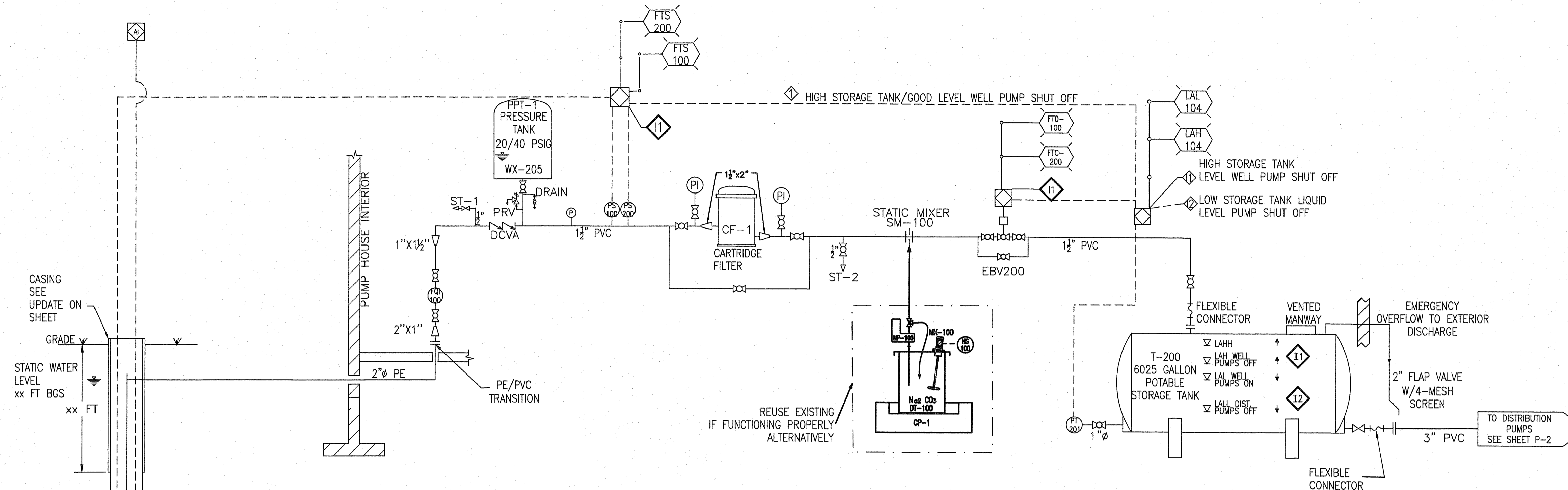
**WAFER CHECK VALVE INSTALLATION**

NOT TO SCALE



1	4/19/22	REVISION	DATE	DESCRIPTION	SEK	RFF
				RIDEM COMMENTS INCORPORATED	BY	APP
				SHEET	DATE	3/11/22
				MECHANICAL DETAIL SHEET	DRAWN BY	SEK
				CLIENT	DESIGNED	SEK
				RI DEPT. OF TRANSPORTATION	CHECKED	RFF
				2 CAPITOL HILL	APPROVED	RFF
				PROVIDENCE, RI 02903	SHEET	M-3
				PROJECT		
				RHODE ISLAND WELCOME CENTER		

Environmental Management  
APR 25 2022  
Office of Water Resources



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*Robert F. Ferrari*

**EXISTING WELL PUMP**  
 MFR: CLA-VAL-CO  
 MODEL: 49GAB-Y-01 3 HP  
 POWER: 230 VAC, 1 PHASE  
 PUMP RATE: 25 GPM HP

**WATER LEVEL TRANSDUCER (LT-100)**  
 MFR: ENDRESS + HAUSER  
 QUANTITY: TWO (2)  
 MODEL: WATER PILOT FMX21  
 RANGE: 0-300 FT (0-130 PSIG)  
 OUTPUT: 4-20 mA  
 CABLE LENGTH: 300 FT

**MECHANICAL FLOWMETER (FQI-100)**  
 MFR: BADGER METER CO.  
 QTY: ONE (1)  
 MODEL: DISC METER  
 SIZE: 1"  
 CAPACITY: 0.25 TO 40 GPM  
 MAX PRESSURE: 150 PSIG

**DOUBLE CHECK VALVE ASSEMBLY WITH STRAINER (DCVA)**  
 MFR: WATTS  
 QTY: ONE (1)  
 MODEL: LF007M2-QT-S 1 1/2"  
 INLET Ø: 1 1/2"  
 OUTLET Ø: 1 1/2"

**WELL PUMP PRESSURE TANK (PPT-1)**  
 MFR: AMTROL  
 MODEL: WX-205  
 TOTAL VOL/TANK: 34 GAL  
 ACCEPTANCE VOL/TANK: 30 GAL  
 CUT-IN PRESSURE: 30 PSIG  
 CUT-OUT PRESSURE: 50 PSIG  
 CONNECTIONS: 1.25" NPT

**WELL PUMP PRESSURE SWITCH (PS-100, PS-200)**  
 MFR: SQUARE-D  
 MODEL: 9013FSG1J21  
 POWER: 120VAC  
 CUT-IN RANGE: 10 TO 45 PSIG  
 CUT-OUT RANGE: 20 TO 60 PSIG  
 ADJUSTABLE DIFFERENTIAL: 15 TO 30 PSIG  
 CONNECTION: 1/4" NPT

**CARTRIDGE FILTER (CF-1)**  
 MFR: HARMSCO  
 MODEL: WB-40SC-2  
 DIMENSIONS: 13"Ø x 19 1/4"L  
 CONNECTIONS: 2"Ø  
 MICRON RATING: 25µ

**SPILL CONTAINMENT PALLET (CP-1)**  
 MFR: INTERSTATE PRODUCTS  
 MODEL: 1620  
 VOLUME: 66 GALLONS  
 MATERIAL: PE  
 LOAD CAPACITY: 2,000 LBS

**CHEMICAL METERING PUMP (MP-100)**  
 MFR: MILTON ROY/LMI  
 MODEL: C121-368-S1  
 CAPACITY: 4 GPH @ 110 PSI  
 CHEMICAL: 8-10% NaOCl  
 CONNECTIONS: 0.375" O.D.

**DT-100 CHEMICAL DAY TANK (DT-100)**  
 MFR: MILTON ROY/LMI  
 MODEL: 26350  
 CAPACITY: 50 GAL  
 MATL: MOLDED PE

**MECHANICAL AGITATOR (MX-100)**  
 MFR: MILTON ROY/LMI  
 MODEL: 10590  
 MOTOR: 1/20 HP 115VAC 1PH  
 SHAFT: 34" LG  
 WETTED MATL: 303 SS

**STATIC MIXER (SM-100)**  
 MFR: WESTFALL  
 MODEL: 2800  
 SIZE: 1 1/2" DIA  
 MOUNTING RING: PVC  
 CONNECTIONS: 1 1/2" DIA  
 GASKETS: 1/2" EPDM  
 INJECTION QUILL: ONE (X1) 1/2" PVC WITH INTEGRAL CHECK VALVE

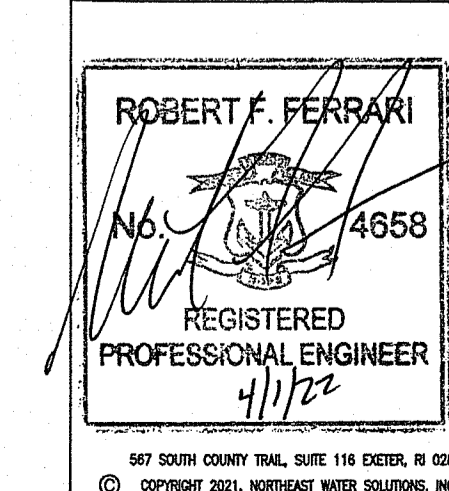
**WATER STORAGE TANK FILL VALVE (EBV-200)**  
 MFR: PLAST-O-MATIC  
 MODEL: EBVA-1-1-150-EP-S-PV  
 SIZE: 1 1/2"Ø  
 CONNECTION STYLE: SOCKET  
 BODY MATERIAL: PVC  
 SEAT MATERIAL: EPDM  
 VALVE TYPE: 2-WAY, 85-240 VAC

**POTABLE WATER STORAGE TANK (T-200)**  
 MFR: NORWESCO  
 MODEL: 6025 GAL ELLIPTICAL LEG TANK  
 VOLUME: 6025 GAL  
 DIAMETER: 99"  
 LENGTH: 193"  
 PUMP CONNECTION: 3"

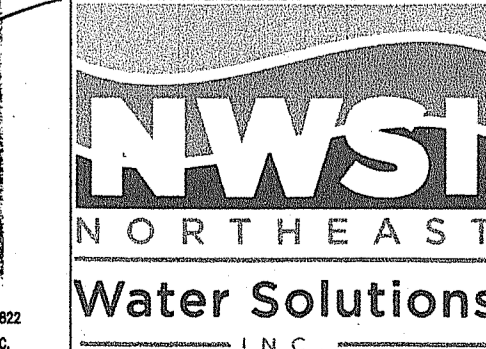
**WATER STORAGE TANK PRESSURE TRANSDUCER (PT-201)**  
 MFR: MEASUREMENT SPECIALTIES  
 MODEL: KPSI 30S1474B(010.000-000.000) A30075A  
 RANGE: 0-10 PSIG  
 OUTPUT: 4-20 mA  
 CABLE LENGTH: 75 FT  
 LIGHTNING PROTECTION: YES

EXISTING EQUIPMENT TO BE SALVAGED FOR REUSE IN NEW SYSTEM

Environmental Management  
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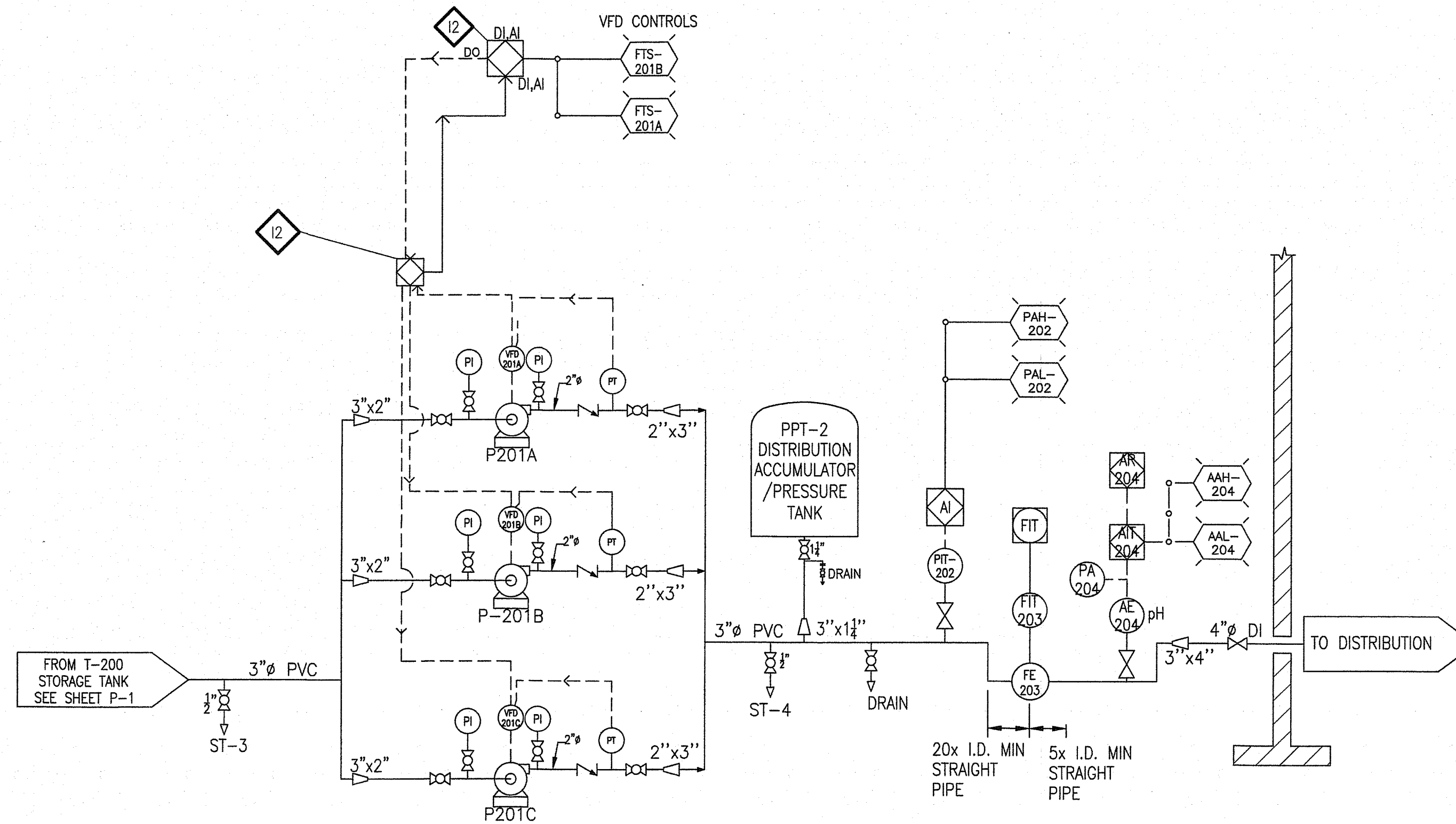


REVISION	DATE	DESCRIPTION	BY	APP
SHEET PROCESS & INSTRUMENTATION DIAGRAM-1 DATE 3/11/22				
DRAWN BY SEK				
CLIENT RI DEPT. OF TRANSPORTATION 2 CAPITOL HILL PROVIDENCE, RI 02903 DESIGNED SEK				
PROJECT RHODE ISLAND WELCOME CENTER CHECKED RFF				
APPROVED RFF				
SHEET P-1				



RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
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*Robert A. Ferrara*



**POTABLE WATER DISTRIBUTION PUMPS SYSTEM  
 (P-201A, P-201B, P-201C)**

MFRG: GOULDS  
 MODEL: NPE 1ST  
 SIZE: 1X1 1/4" - 6  
 INLET: 1 1/2"  
 OUTLET: 1"  
 PUMP CAPACITY: 10 GPM @ 127' TDH  
 20 GPM @ 119' TDH  
 40 GPM @ 92' TDH  
 IMPELLER: 5 3/4"  
 SPEED: 3500 RPM  
 MOTOR HP: 2HP, TEFC, CLOSE-COUPLED  
 POWER: 208VAC, SINGLE PHASE, 2HP, 60HZ VARIABLE FREQUENCY

**BOOSTER PUMP PRESSURE TANK (PPT-2)**

MFRG: AMTROL  
 MODEL: WX-350  
 QTY: ONE (1)  
 TOTAL VOL/TANK: 119 GAL  
 ACCEPTANCE VOL/TANK: 28.1 GAL  
 CONNECTIONS: 1.25" NPT  
 CUT-IN PRESSURE: PER VFD CONTROL SETPOINTS  
 CUT-OUT PRESSURE: PER VFD CONTROL SETPOINTS

**PRESSURE TRANSDUCER (PIT-202)**

MFRG: OMEGA  
 MODEL: PX319-100GI  
 TYPE: IN-LINE PRESSURE TRANSMITTER (GAUGE PRESSURE)  
 RANGE: 0 TO 100 PSIG  
 ELECTRICAL: DIN 43650 PLUG CONNECTOR  
 4-20 mA OUTPUT: 2 WIRE  
 CONNECTION: 1/2" NPT

**FLOW SENSOR (FE-203)**

MFRG: SIGNET  
 MODEL: 2536 LOW FLOW PADDLE WHEEL SENSOR (3-2536-PO)  
 PART NO.: 0.4 to 4"  
 SIZE: SELF-POWERED  
 POWER:

**FLOW TRANSMITTER (FIT-203)**

MFRG: SIGNET  
 MODEL: 9900 TRANSMITTER PANEL MOUNT  
 PART NO.: 3-9900-1P

**FLOW SENSOR INSERTION FITTING**

MFRG: SIGNET  
 MODEL: PV8S030  
 SIZE: 3"  
 MATERIAL: PVC

**pH ANALYZER (AIT-204)**

MFRG: WALCHEM  
 MODEL: W100W SERIES  
 RANGE: -2 TO 16 S.U.  
 RELAYS: THREE (3) DRY CONTACT  
 OUTPUT: ONE (1) 4-20 mA  
 PART NO.: WPHPW-100HANN

**pH PREAMPLIFIER (PAH-204)**

MFRG: WALCHEM, OR EQUAL  
 MODEL: 191949  
 POWER RATING: ±5 VDC, 5 mA MAXIMUM  
 INPUT IMPEDANCE: ±5 VDC, 5 mA MAXIMUM  
 ELECTRICAL CONNS: BNC CONNECTOR & SCREW TERMINALS  
 ENCLOSURE: EPOXY COATED NEMA 4X

**pH SENSOR (AE-204)**

MFRG: SENSOREX, OR EQUAL  
 MODEL: S656CD  
 SENSOR TYPE: pH, FLAT FACE, TEMPERATURE COMPENSATION SUBMERSION  
 MAX TEMPERATURE: 100°C  
 MEASURING RANGE: 0 TO 14 S.U.

**pH SENSOR INSERTION FITTING ISOLATION BALL VALVE**

MFRG: SENSOREX, OR EQUAL  
 MODEL: S675TC-P1K-25'BNC/TL  
 MATERIAL: CPVC  
 INSERTION DEPTH: 12" MAX  
 INSERTION DIA/CONN: 1" NPT  
 SENSOR CONN: BNC

**pH SENSOR INSERTION FITTING ISOLATION BALL VALVE**

MFRG: SENSOREX, OR EQUAL  
 MODEL: BV-1  
 TYPE: FULL PORT 1" DIA BALL VALVE

**pH DATA LOGGER (AR-204)**

MFRG: OMEGA ENGINEERING  
 MODEL: CP-OM-PROCESS101A  
 INPUT RANGE: 20 mA  
 MEASUREMENT RANGE: -2 TO 30 mA  
 READING RATE: 4 Hz TO 1 READING EVERY 24 HRS  
 MEMORY: 1,000,000 READINGS  
 DATA LOGGER ENCLOSURE: CP-OM-WATERBOX101A  
 DATA LOGGER SOFTWARE: CP-OM-IFC-200

Environmental  
 APR 25 2022  
 Office of Water Resources

ROBERT F. FERRARI  
 No. 4656  
 REGISTERED PROFESSIONAL ENGINEER  
 4/19/22

1	4/19/22	RIDEM COMMENTS INCORPORATED	SEK	RFF
REVISION	DATE	DESCRIPTION	BY	APP
		SHEET	DATE	3/11/22
		PROCESS & INSTRUMENTATION DIAGRAM-2	DRAWN BY	SEK
		CLIENT	DESIGNED	SEK
		RI DEPT. OF TRANSPORTATION 2 CAPITOL HILL PROVIDENCE, RI 02903	CHECKED	RFF
		PROJECT	APPROVED	RFF
		RHODE ISLAND WELCOME CENTER	SHEET	P-2

NWST  
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 Water Solutions  
 INC.

667 SOUTH COUNTY TRAIL, SUITE 110 WESTER, RI 02822  
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# OUTLINE SPECIFICATIONS

## CODES AND STANDARDS

- ALL WORKMANSHIP IS TO BE OF A STANDARD EQUAL IN ALL RESPECTS TO GOOD BUILDING PRACTICE AND TO COMPLY WITH ALL APPLICABLE BUILDING CODES AND STANDARDS.
- IT IS THE RESPONSIBILITY OF THE OWNER/BUILDER TO INSURE THAT ANY CHANGES TO THE PLANS MEET THE CURRENT BUILDING CODE. ALL WORK SHALL CONFORM TO LOCAL BUILDING CODES AND EVIDENCE WHICH MAY TAKE PRECEDENCE.
- AT THIS DATE, CURRENT CODE REFERENCED IS THE INTERNATIONAL COMMERCIAL CODE 2011 WITH MA AMENDMENTS.
- PRIOR TO PROCEEDING WITH CONSTRUCTION, THE BUILDER MUST VERIFY ALL INFORMATION, DIMENSIONS AND SPECIFICATIONS OF THIS PLAN. WRITTEN DIMENSIONS ALWAYS TAKE PRECEDENCE OVER SCALED MEASUREMENTS.
- ANY VARIANCES TO THE DRAWINGS, SPECIFICATIONS AND/OR CONSTRUCTION SHALL BE REVIEWED AND APPROVED BY THE ENGINEER AND/OR ARCHITECT.

## DESIGN DATA

- ROOF LOADS: DEAD LOAD = 10 PSF  
LIVE LOAD(SNOW) = 55 PSF
- FLOOR LOADS: DEAD LOAD = 20 PSF  
LIVE LOAD = 30 PSF
- FROST DEPTH - ZONE 4
- WIND LOADS - 100 MPH WIND LOAD WITH 100 MPH 3 SECOND GUSTS.
- OVERHANGS GREATER THAN 24" REQUIRE ENGINEERING DESIGNED IN ACCORDANCE WITH ASCE 7-88.
- ALL SUPPORTS AT DOORS, WINDOWS, AND OTHER OPENINGS SHALL BE SIZED TO TRANSFER ALL SUPERIMPOSED LOAD TO VERTICAL MEMBERS.
- PRIOR TO COMMENCING WORK, CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND FIELD CONDITIONS.

## SCOPE OF PROJECT

- CONSTRUCT ACCESSORY STRUCTURE - PUMP HOUSE - INCLUDING INSTALLATION OF ALL EQUIPMENT.

## WOOD FRAMING

- FRAMING LUMBER TO HAVE A MINIMUM F<sub>b</sub> OF 1100PSI.
- STRUCTURAL GRADE FIR OR PINE E=1,000,000 PSI, 2" NOMINAL THICKNESS AND 4" (OR GREATER) IN WIDTH. MOISTURE CONTENT - MAXIMUM 19% 5-DAY.
- STUDS AND BLOCKING - HEM FIR #2 OR HEMLOCK #2 F<sub>b</sub> = 725 PSI, E = 1,000,000 PSI OR PINE, E = 1,000,000, 2" NOMINAL THICKNESS AND 4" (OR GREATER)
- JOISTS AND CONVENTIONAL WOOD BEAMS - HEM FIR #2 OR BETTER  
E = 1,000,000, F<sub>b</sub> = 1,200 PSI, ALLOWABLE SHEAR STRESS = 95 PSI.
- PLYWOOD SHEATHING - C-C EXTERIOR AAAPA - THICKNESS AS SHOWN ON DRAWINGS.
- ANY WOOD IN CONTACT WITH CONCRETE SHALL BE PRESERVATIVE TREATED WOOD.
- PLATES ARE TO BE ANCHORED TO CONCRETE WITH 1/2" DIA. ANCHOR BOLTS, MAXIMUM 2'-0" O.C., NOT MORE THAN 1'-0" FROM CORNERS, MIN. OF 7" DEEP.
- FLUSH FRAMED WOOD MEMBERS SHALL BE ANCHORED WITH 2000 LB. JOIST HANGERS UNLESS OTHERWISE SPECIFIED.

## FOUNDATIONS

- COMPACTED FILL UNDER BUILDING SHALL BE PLACED IN 8" LIFTS, COMPACTED TO 95% MAX. DRY DENSITY.
- WALL FOUNDATIONS, COLUMN FOOTINGS AND SLAB-ON-GRADE ARE DESIGNED FOR A BEARING VALUE OF 2000 PSF ON WELL-SORTED GRANULAR FILL OR UNDISTURBED EXISTING GRANULAR SOIL OF SATISFACTORY QUALITY TO SUPPORT THE REQUIRED LOADS.
- OWNER/G.C. SHALL USE A REGISTERED SOIL ENGINEER TO CONFIRM THE ASSUMED BEARING CAPACITY, SUBMIT A STAMPED REPORT OF FINDINGS AND RECOMMENDATIONS.
- UNSATISFACTORY BEARING MATERIALS, INCLUDING TOPSOIL, FILL AND ORGANIC SOILS, SHALL BE COMPLETELY EXCAVATED TO FIRM NATURAL GROUND IN AREAS OF NEW FOUNDATIONS AND NEW SLABS-ON-GRADE FOLLOWED BY PLACEMENT OF COMPACTED GRAVEL FILL AS SPECIFIED.
- WHERE ROCK IS ENCOUNTERED IT SHALL BE EXCAVATED TO 1'-0" BELOW BOTTOM OF FOOTINGS AND SLABS AND REPLACED WITH A 1'-0" LAYER OF COMPACTED GRAVEL. NO BLASTING OF ROCK SHALL OCCUR AFTER PLACING OF CONCRETE HAS BEGUN.
- PROVIDE SHORING, SHEETING AND/OR BRACING OF EXCAVATIONS AS REQUIRED TO ASSURE COMPLETE SAFETY AGAINST COLLAPSE OF EARTH AT SIDES OF EXCAVATION. LAY BACK EXCAVATIONS TO A STABLE SLOPE.
- INSTALL DRAINAGE SYSTEM AS INDICATED ON SITE OR FOUNDATION DRAWINGS. EXCAVATIONS FOR WALL AND COLUMN FOOTINGS SHALL HAVE THE LAST 6 INCHES FINISHED BY HAND.
- NO CONCRETE FOR FOUNDATIONS OR SLABS ON GRADE SHALL BE POURED IN WATER OR ON FROZEN SOIL.
- PLACE CONSTRUCTION JOINTS IN SLABS AND FOUNDATION WALLS IN ACCORDANCE WITH DETAILS AND AT LOCATIONS INDICATED ON DRAWINGS OR IN THESE NOTES.
- FILL WITHIN THE BUILDING AREA AND FOR BACKFILL SHALL BE GRANULAR FILL COMPACTED IN 8 INCH LIFTS TO 95% OF ITS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557. GRANULAR FILL SHALL BE FREE TO ICE AND SNOW, ROOTS AND OTHER DELETERIOUS MATERIAL AND SHALL CONFORM TO THE FOLLOWING GRADATIONS:

SIZE	PERCENT FINER BY WEIGHT
1/2" LIFT THICKNESS	100
NO. 10	30-95
NO. 40	10-70
NO. 200	0-15

## FOUNDATIONS (CONTINUED)

- MATERIAL FOR BUILDING SLAB BASE COURSE SHALL BE CRUSHED STONE, MINIMUM 6 INCHES DEEP, COMPACTED IN 6 INCH LIFTS TO 95% DRY DENSITY AS DETERMINED BY ASTM D1557. CRUSHED STONE SHALL BE FREE FROM ICE AND SNOW, ROOTS AND OTHER DELETERIOUS MATERIAL AND SHALL CONFORM TO THE FOLLOWING GRADATIONS:
- | SIZE  | PERCENT PASSING |
|-------|-----------------|
| 100   | 100             |
| 3/4"  | 90-100          |
| 3/8"  | 10-50           |
| 20    | 0-20            |
| NO. 4 | 0-5             |
- ALL FOOTINGS SHALL BE CENTERED UNDER SUPPORTED STRUCTURAL MEMBERS, UNLESS NOTED OTHERWISE ON DRAWINGS.
  - ALL EXTERIOR FOUNDATION WALLS AND FOOTINGS SHALL BE CARRIED DOWN BELOW FINISHED EXTERIOR GRADE TO A MINIMUM DEPTH OF 4'-0".

## CONCRETE

- CONCRETE WORK SHALL CONFORM TO LATEST EDITIONS OF "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318) AND SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301).
- THE CONTRACTOR ALONE SHALL BE FULLY RESPONSIBLE FOR THE DESIGN, STRENGTH, SAFETY AND ADEQUACY OF ALL FORMWORK, SHORING, BRACING AND ALL METHODS OF CONSTRUCTION AND FOR STRENGTH, SLUMP, CONSISTENCY, FINISH AND GENERAL QUALITY OF THE CONCRETE USED IN THE WORK. THE SPECIFYING HEREIN OF REQUIREMENTS FOR FORMWORK, CONSTRUCTION METHODS, WATER/CEMENT RATIOS AND SLUMP ARE ACCEPTABLE LIMITS, AND SHALL NOT ELIMINATE METHODS AND FOR PROVIDING CONCRETE IN THE COMPLETED STRUCTURE THAT FULLY MEETS THE STRENGTH, APPEARANCE AND ALL OTHER REQUIREMENTS OF THE PROJECT DRAWINGS.
- A TESTING AGENCY SHALL BE OBTAINED BY THE OWNER TO VERIFY THE ACCEPTABILITY OF MATERIALS, DESIGN OF THE CONCRETE MIXES, AND TO PERFORM SLUMP AND COMPRESSION TESTS.

## CONCRETE REQUIREMENTS

- WALLS AND FOOTINGS
  - 28-DAY COMPRESSIVE STRENGTH F<sub>c</sub> = 3000 PSI.
  - CEMENT: ASTM C150, TYPE 1 OR 2.
  - AGGREGATE: ASTM C33, MAX. DIA = 1/2".
  - WATER: POTABLE.
  - SLUMP: 2-4 INCHES
  - AIR-ENTRAIMENT: 5-7%
- SLAB ON GRADE
  - 28-DAY COMPRESSIVE STRENGTH F<sub>c</sub> = 3000 PSI
  - CEMENT: ASTM C150, TYPE 1 OR 2
  - AGGREGATE: ASTM C33, MAX. DIA = 3/4"
  - WATER: POTABLE
  - SLUMP: 2-4 INCHES
  - AIR-ENTRAIMENT: 5-7%
  - THICKNESS 5 INCHES.

## FORMWORK

- FORMWORK SHALL BE METAL FORMS OR EXTERIOR PLYWOOD.
- THROUGH-WALL TIES SHALL BE SNAP TIES. TIES MAY BE LEFT EXPOSED WHEN BOTH SIDES OF THE WALL ARE TO BE COVERED WITH EARTH. THE HOLES ON BOTH SIDES OF WALL SHALL BE PLUGGED WITH NON-SHRINK EPOXY GROUT WHERE ONLY ONE SIDE OF WALL IS TO BE COVERED WITH EARTH.
- CONCRETE WORK SHALL BE SCHEDULED SO THAT A SECTION BEGINS ON ANY ONE DAY SHALL BE COMPLETED IN DAYLIGHT ON THE SAME DAY.
- AT CONSTRUCTION JOINTS, THE SURFACES OF CONCRETE ALREADY PLACED SHALL BE CLEANED, ROUTED, AND CLEANED AGAIN. THE JOINT SHALL BE SATURATED WITH WATER.
- HAVE ON SITE, READY FOR USE, SUFFICIENT AND ADEQUATE EQUIPMENT FOR PROTECTING CONCRETE FROM ANY AND ALL FORMS OF DAMAGE FROM THE ELEMENTS.
- FORMED SURFACES SHALL BE CURED BY AUXILIARY WETTING OR BY LEAVING FORMS IN PLACE.
- UNFORMED SURFACES SHALL BE CURED AS A MINIMUM OF 60 DEGREES F FOR SEVEN DAYS OR FOR 350 DEGREE DAYS. ABSOLUTE MINIMUM AMBIENT TEMPERATURE DURING CONCRETE PERIOD SHALL BE 42 DEGREES F.
- REMOVE FORMS ONLY AFTER CONCRETE HAS GAINED SUFFICIENT STRENGTH TO SUPPORT ITS OWN WEIGHT. CONCRETE SHALL BE CURED FOR A MINIMUM OF SEVEN DAYS BEFORE ANY LOADS ARE APPLIED THERETO.

## CONCRETE REINFORCEMENT

- ALL REINFORCING STEEL SHALL BE ASTM A615 BILLET STEEL DEFORMED BARS, GRADE 60. MINIMUM LAP OF REINFORCING BARS SHALL BE 48 DIAMETERS, UNLESS SHOWN OTHERWISE.
- ALL WELDED WIRE FABRIC SHALL BE ASTM A185 LAP SPLICES SHALL BE 12 INCHES MINIMUM. EMBEDMENT SHALL BE 2" CROSSWIRE WITH THE CLOSER WIRE NOT LESS THAN 2 INCHES FROM THE CRITICAL SECTION.
- REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS.
- ALL REINFORCING SHALL HAVE THE FOLLOWING CONCRETE COVER:
  - SOLES AND BOTTOMS OF FOOTINGS: 3"
  - CONCRETE EXPOSED TO WEATHER OR EARTH: #4 AND #5 WELDED WIRE FABRIC: 1-1/2" BARS LARGER THAN #5: 2"
  - CONCRETE NOT EXPOSED TO WEATHER OR EARTH: SLABS AND WALLS: 3/4"
- REINFORCEMENT ACCESSORIES, INCLUDING SPACERS, CHAIRS, TIES, THE WIRE AND CLIPS SHALL BE OF A TYPE MANUFACTURED FOR THE SPECIFIC PURPOSE THEY ARE USED FOR. WOOD BLOCKS, STONE, BRICK CHIPS, ETC. WILL NOT BE PERMITTED. MINIMUM REQUIREMENTS SHALL BE: HIGH CHAIRS 4'-0" O.C. WITH CONTINUOUS #3 SUPPORT BARS, SLAB BOLSTERS CONTINUOUS 3'-0" O.C., & BEAM BOLSTERS, 5'-0" O.C.
- ALL REINFORCING BAR DETAILING SHALL CONFORM TO THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, ACI 315. SUBMIT REINFORCING SHOP DRAWINGS FOR ARCHITECTS REVIEW.
- REINFORCING SHOP DRAWINGS SHALL INCLUDE SETTING PLANS, WALL ELEVATIONS, CONSTRUCTION JOINT LOCATIONS, OPENINGS, SLEEVES, DEPRESSION, AND INSERTS. BARS WITH KINKS NOT SHOWN ON DRAWINGS WILL BE REJECTED. ONLY SPLICES APPROVED ON SHOP DRAWINGS WILL BE INSTALLED.
- ALL REINFORCING STEEL SHALL BE HELD RIGIDLY AND ACCURATELY IN PLACE. BARS TO BE SECURELY WROUGHT TOGETHER AND PROTECTED AGAINST DISPLACEMENT BEFORE AND DURING PLACEMENT OF CONCRETE.
- REINFORCING SHOWN IN SECTION IS TYPICAL WHEREVER THE SECTION APPLIES. DETAILS SHALL MATCH BAR SIZE AND SPACING.
- BARS SHALL BE BENT COLD AND SHALL NOT BE REHEATED FOR ANY REASON. BARS SHALL NOT BE BENT AFTER BEING PARTIALLY EMBEDDED IN HARDENED CONCRETE. REINFORCING BARS SHALL NOT BE WELDED.

## STRUCTURAL STEEL

- STRUCTURAL STEEL DESIGN IS BASED ON AND CONSTRUCTION SHALL CONFORM TO LATEST EDITION OF AISC SPECIFICATIONS FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS, CODE OF STANDARDS FOR BUILDINGS AND BRIDGES AND STRUCTURAL WELDING CODE OF THE AMERICAN WELDING SOCIETY.
- STRUCTURAL STEEL SHALL BE NEW STEEL CONFORMING TO THE FOLLOWING ASTM:
  - ROLLED SHAPES AND PLATES: ASTM A992 GRADE 50
  - STEEL PIPES: ASTM A53
  - SQUARE AND RECTANGULAR PIPE COLUMNS: ASTM A500 GRADE B
- ALL WELDING ELECTRODES SHALL BE E70XX.
- ALL FIELD CONNECTIONS SHALL BE EITHER BOLTED OR FILLET WELDS.
- BEAM BEARING PLATES SHALL BE LOCATED BY TEMPLATES AND SUPPORTED AND ALIGNED ON STEEL WEDGES AND SHIMS OR LEVELLING NUTS AFTER THE SUPPORTED MEMBERS HAVE BEEN PLUMBED AND PROPERLY POSITIONED AND ANCHOR NUTS TIGHTENED. THE ENTIRE BEARING AREA UNDER THE PLATE SHALL BE PACKED SOLIDLY WITH NON-SHRINK GROUT. WEDGES AND SHIMS SHALL BE CUT OFF FLUSH WITH THE EDGES OF PLATES AND SHALL BE LEFT IN PLACE. ALTERNATELY, COLUMNS MAY BE SET WITH 1/4" LEVELLING PLATES ON 3/4" NON-SHRINK GROUT. LEVELLING PLATES TO BE PROVIDED BY STEEL FABRICATOR.

## MASONRY WALLS

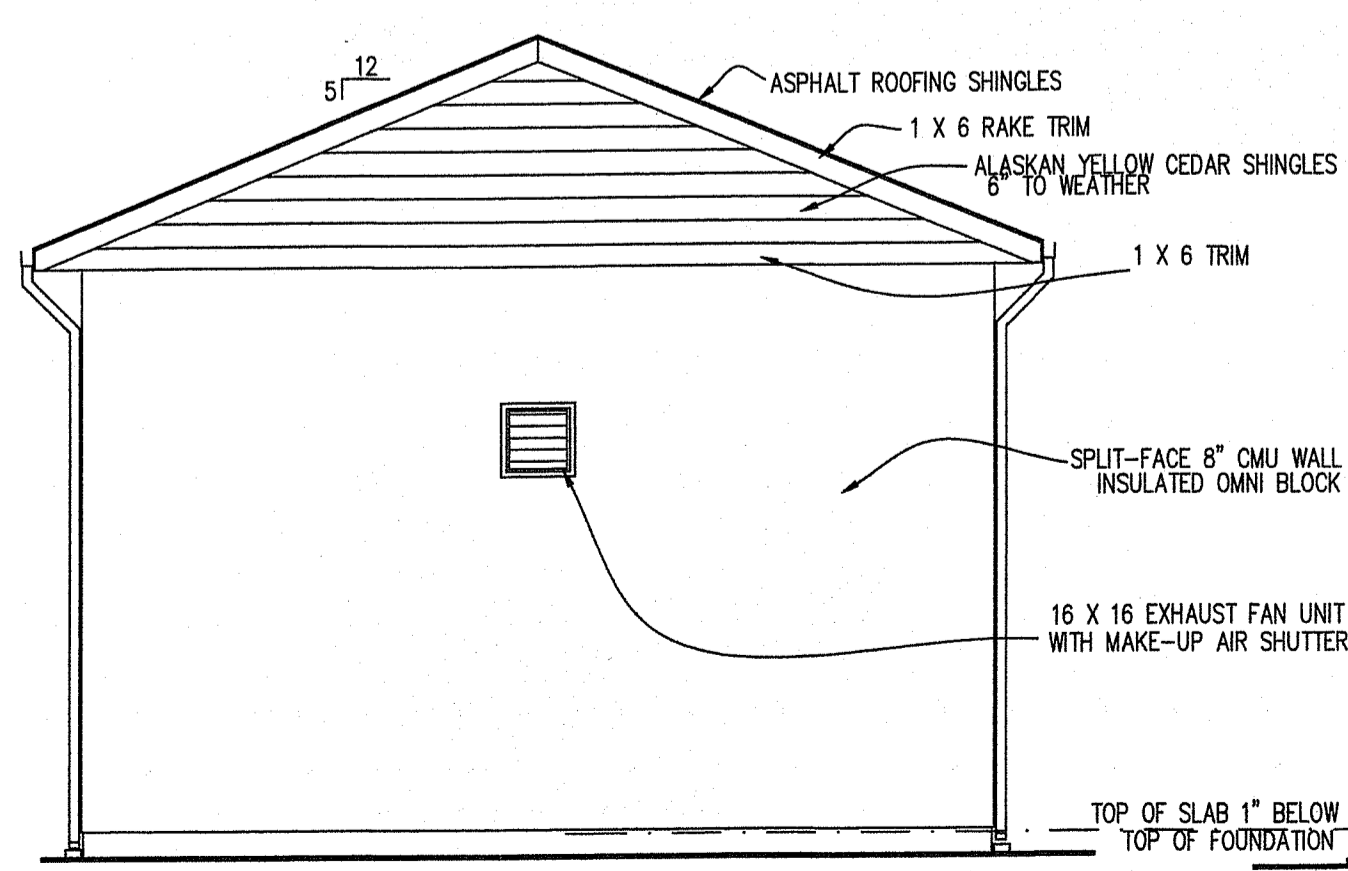
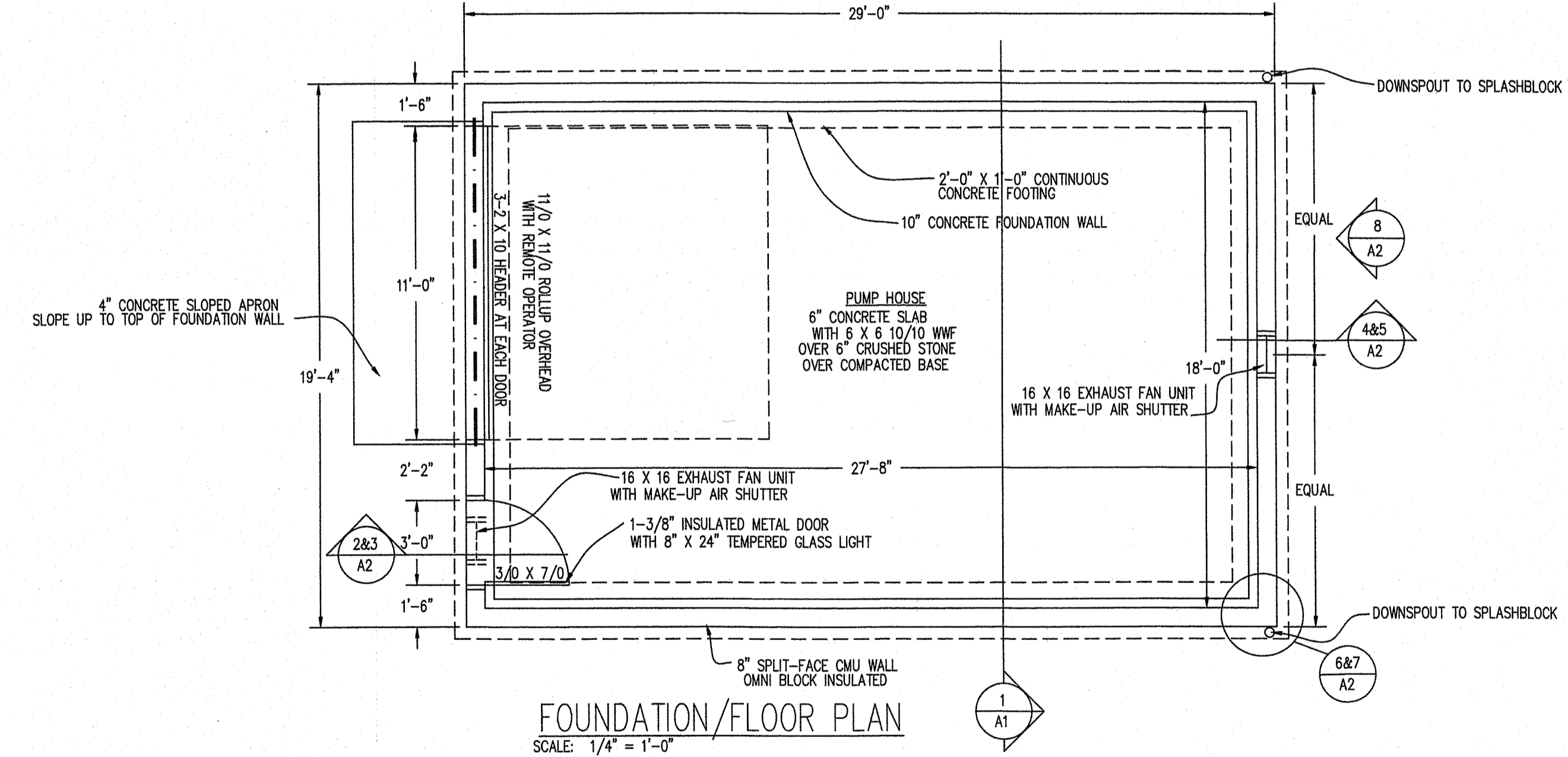
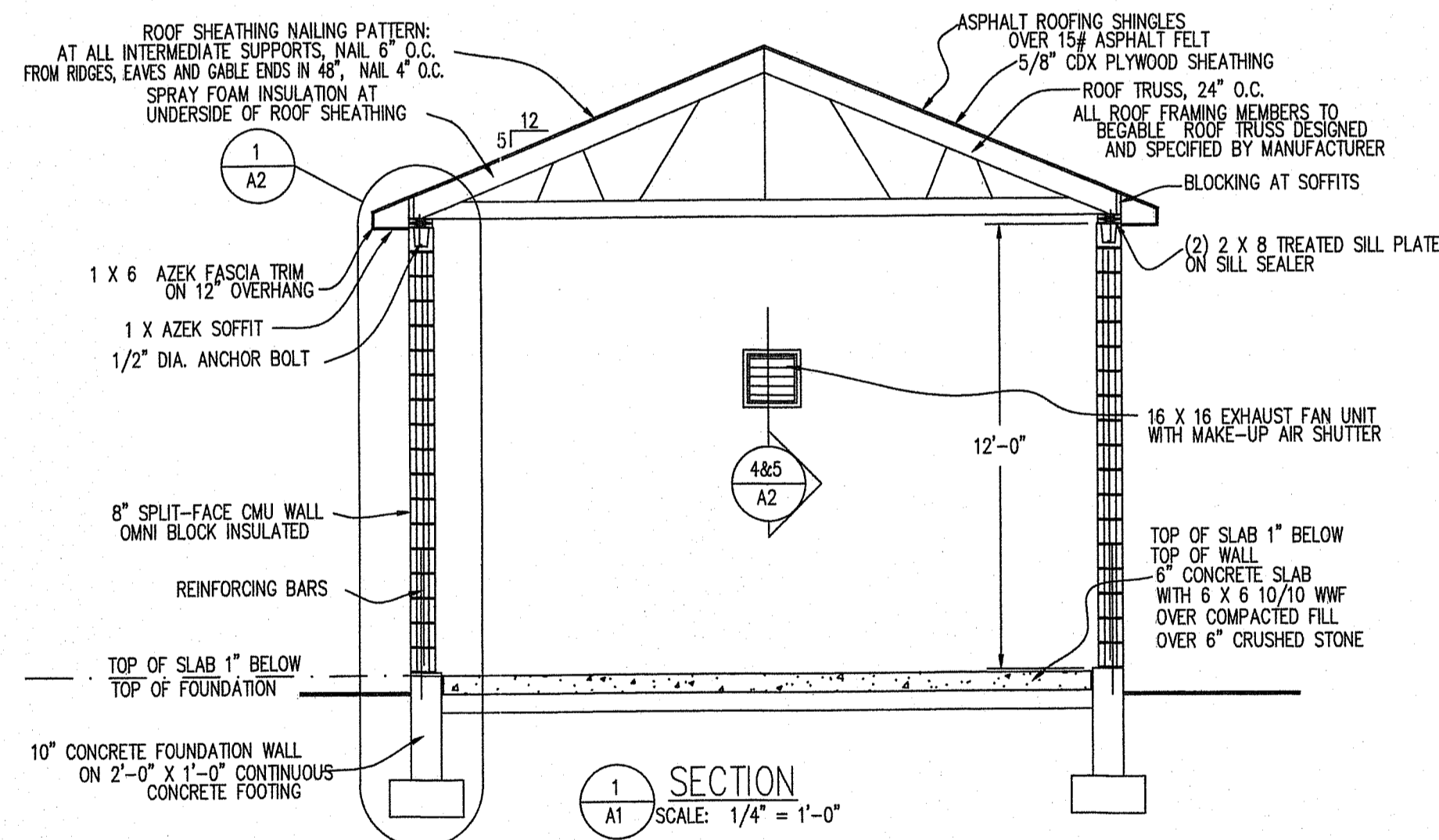
- CONCRETE MASONRY CONSTRUCTION SHALL CONFORM TO "SPECIFICATIONS FOR CONCRETE MASONRY CONSTRUCTION" (CA 531.1) AND "SPECIFICATIONS FOR DESIGN AND CONSTRUCTION OF LOAD-BEARING CONCRETE MASONRY" (MOMA), LATEST EDITIONS.
- MATERIAL STRENGTHS SHALL BE AS FOLLOWS:
  - CONCRETE MASONRY UNITS (CMU) SHALL BE ASTM C-90, GRADE N, F<sub>m</sub> = 1500 PSI. BLOCKS TO BE BY WESTBROOK WITH CMU BLOCK INSULATION. COLOR TO BE APPROVED BY ARCHITECT.
  - MORTAR SHALL BE ASTM C270, TYPE S (LIME), F<sub>c</sub> = 1800 PSI. MORTAR TO MATCH BLOCK. COLOR TO BE APPROVED BY ARCHITECT.
  - GROUT SHALL BE ASTM C478, TYPE PL FINE OR COARSE, F<sub>c</sub> = 2000 PSI.
- WALL UNITS SHALL BE LAID IN FACE SHELL HEAD AND BED JOINTS.
- STARTER COURSES OF ALL CMU WALLS SHALL BE GROUTED SOLID.
- MASONRY BLOCK CELLS CONTAINING VERTICAL REINFORCING, WALL ANCHORS, MASONRY LINTEL BLOCKS, AND BOND BEAMS CONTAINING REINFORCING STEEL SHALL BE GROUTED SOLID. FILLING CELLS WITH MORTAR IS NOT ACCEPTABLE.
- MINIMUM HORIZONTAL REINFORCING SHALL BE 9 GAUGE GALVANIZED TRUSS TYPE AT 16 INCHES O.C. SPACING (EVERY OTHER COURSE). VERTICAL REINFORCING SHALL BE CENTERED IN BLOCK COURSE, UNLESS SHOWN OTHERWISE.
- AN ADDITIONAL #3 SHALL BE ADDED AT EACH SIDE OF COLUMNS, WINDOWS AND DOORS, AND AT ALL CORNERS.
- MASONRY WALLS SHALL BE BRACED DURING CONSTRUCTION UNTIL PERMANENT RESTRAINTS HAVE BEEN INSTALLED.
- USE FINE GROUT FOR FILLING OPENINGS LESS THAN 4 INCHES IN LEAST DIMENSION, AND COARSE GROUT FOR LARGER OPENINGS.
- CONTROL JOINTS IN CMU WALLS SHALL INCLUDE PREFORMED RUBBER INSERTS INSTALLED IN SASH BLOCK GROOVES WITH BOTH FACES OF JOINTS CALKED. SPACING OF CONTROL JOINTS NOT TO EXCEED 40'-0".
- ALL CMU WALLS TO HAVE A CONTINUOUS BOND BEAM WITH TWO #5 RODS AT THE TOP.
- ALL CMU WALLS TO HAVE WEEP DRAINAGE SYSTEM ACROSS TOP OF STARTER COURSE.

## LINTELS

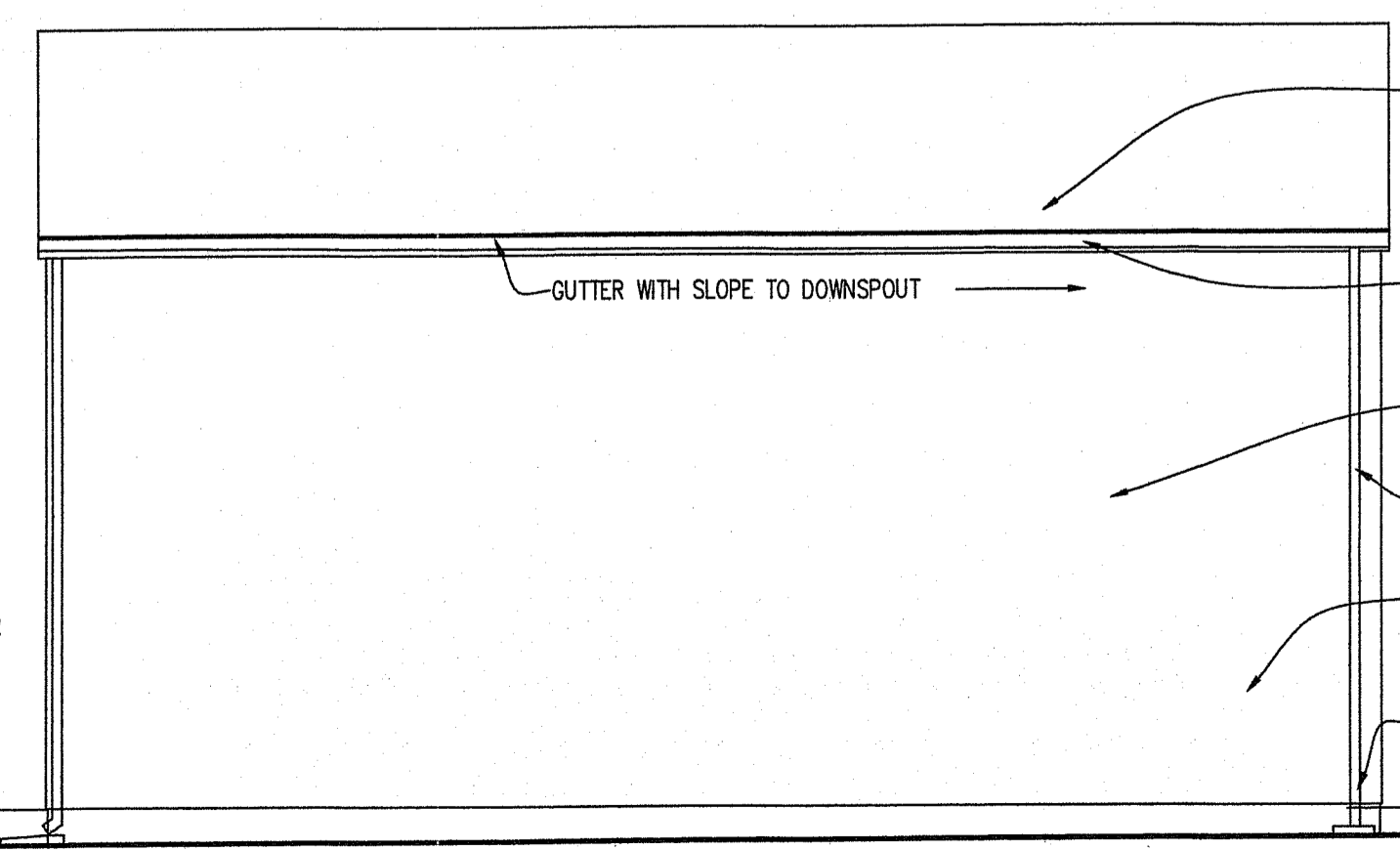
- PROVIDE LINTELS IN ALL MASONRY OPENINGS WIDER THAN 1'-6". LINTELS NOT DEFINED ON DRAWINGS MAY BE STEEL ANGLES OR GROUT FILLED CMU LINTEL BLOCKS IN ACCORDANCE WITH FOLLOWING TABLE:
- | STEEL ANGLE LINTEL   | PROVIDE ONE LINTEL ANGLE (LONG LEG VERTICAL) FOR EACH 4 INCHES OF WALL THICKNESS AS FOLLOWS: |
|----------------------|--|
| SPANS UP TO 7'-0"    | LS X 3-1/2" X 5/16"  |
| SPANS 7'-0" TO 9'-0" | REFER TO DRAWING DETAILS   |

## ROOFING

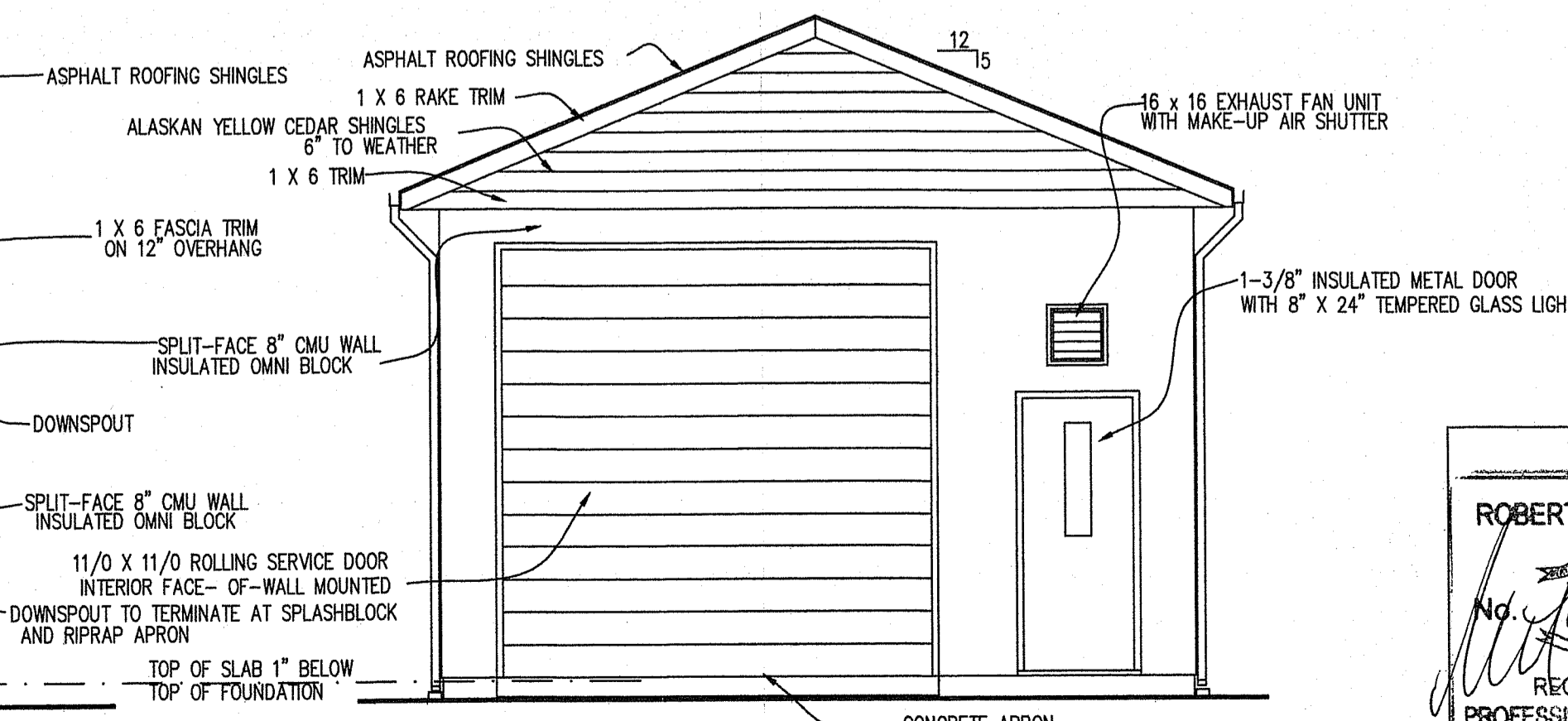
- ALL ROOFING SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
- ROOFING MATERIAL SHALL BE 30 YEAR ASPHALT BASED FIBERGLASS ARCHITECTURAL SHINGLES WITH CLASS A UL LISTING FOR FIRE AND WIND RESISTANCE INSTALLED OVER 1/2" ASPHALT PAPER.
- ROOFING TO BE BY CERTAINTED OR GAF TIMBERLINE ARCHITECTURAL SHINGLES.
- DOORS/OPENINGS: PROVIDE AND INSTALL ONE SERVICE DOOR - 3'-0" X 7'-0" X 1-1/2" METAL INSULATED DOOR WITH 8 X 12 TEMPERED GLASS WINDOW AND WITH KD METAL FRAME. DOOR HARDWARE TO BE MORTISED LEVER HANDLE WITH DEADBOLT.
- EXTERIOR TRIM AS SPECIFIED IN DRAWINGS SHALL BE AZEK PRIMED AND FINISHED W/ TWO COATS PAINT.
- PROVIDE AND INSTALL HEAVY DUTY EXHAUST SHUTTER - TPI INDUSTRIAL CES-16 - 16" X 16" WITH OUTSIDE FRAME 19" X 19" AND SHUTTER MOUNTED DIRECT DRIVE EXHAUST FAN TPI INDUSTRIAL CE 16-DS WITH THERMOSTAT AND CONTROL ET9 SERIES - LINE VOLTAGE ET9SR1S.
- PROVIDE AND INSTALL ONE ROLLING SERVICE DOOR BY OVERHEAD DOOR COMPANY MODEL #827.
- FACE OF WALL MOUNTED AT INTERIOR WITH METAL FRAME AT DOOR. DOOR TO BE ELECTRIC OPERATED, 11'-0" X 11'-0".



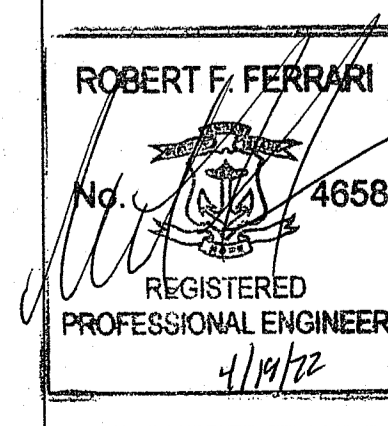
WEST ELEVATION  
SCALE: 1/4" = 1'-0"



EAST ELEVATION (WEST SIMILAR)  
SCALE: 1/4" = 1'-0"



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



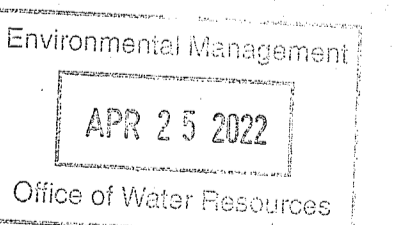
REVISION	DATE	DESCRIPTION	BY
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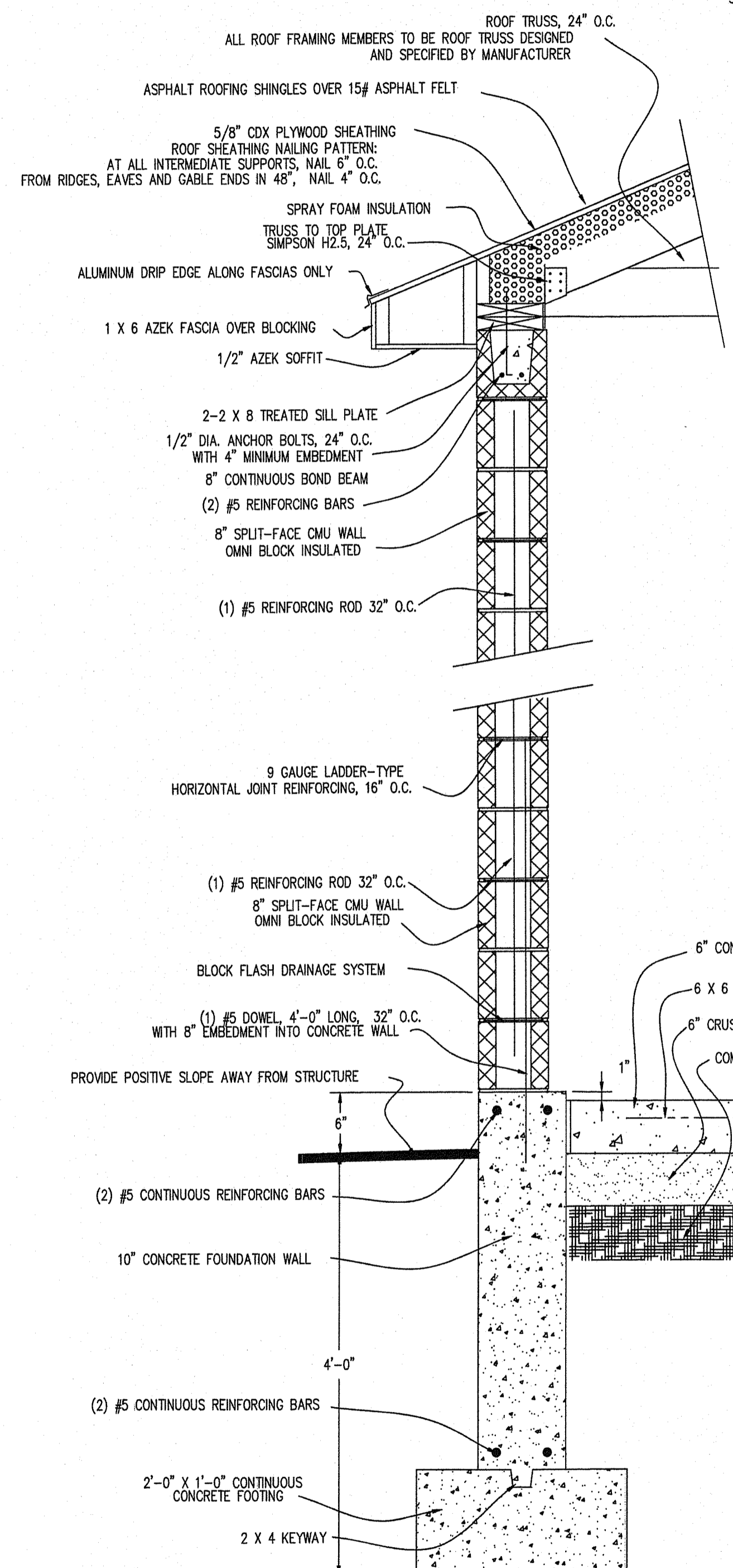
SHEET	3
DRAWN BY	LA
DESIGNED BY	LA
CHECKED BY	LA
APPROVED BY	LA
SHEET	

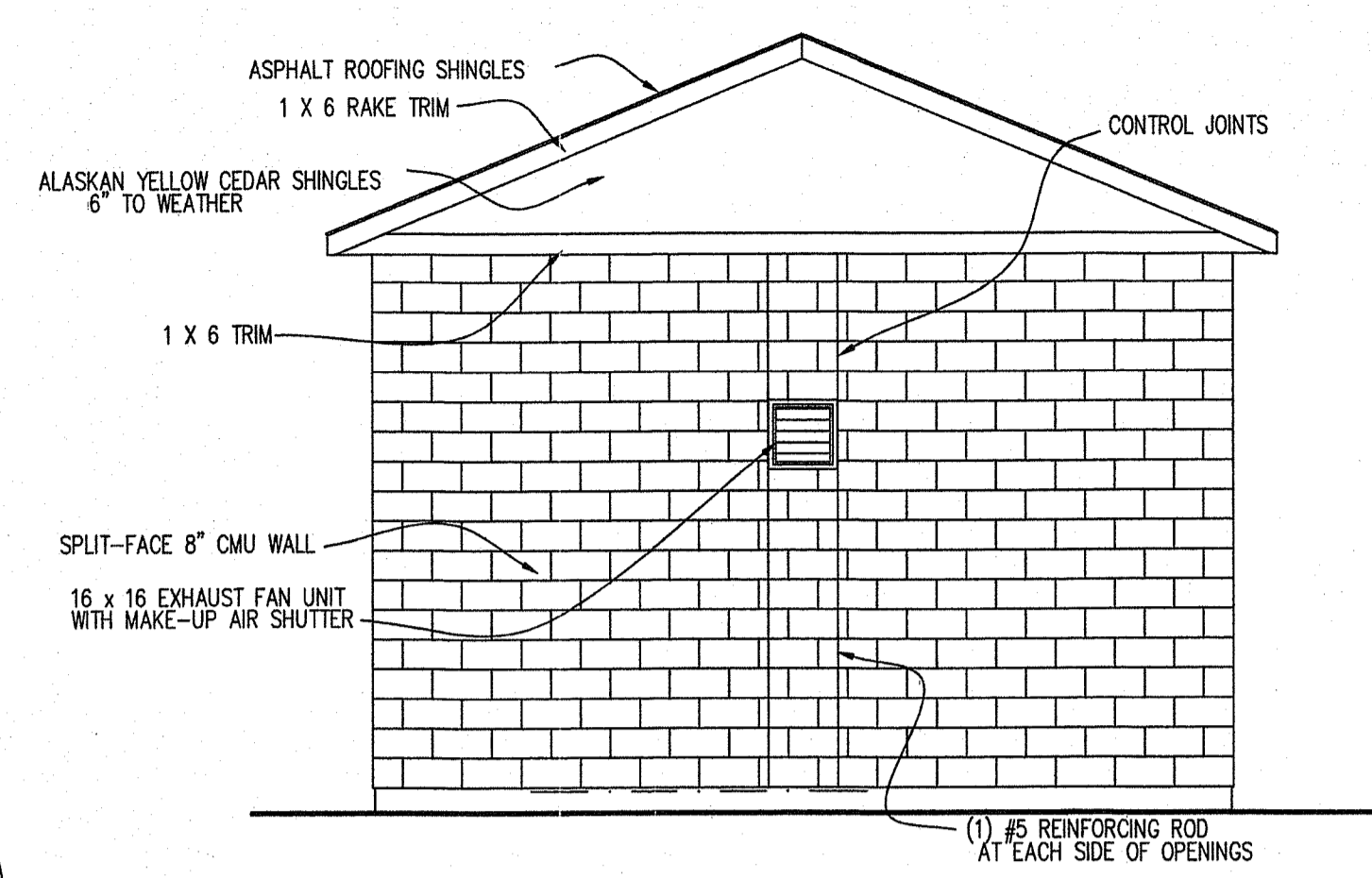
CLIENT	RI DEPT. OF TRANSPORTATION 2 CAPITOL HILL PROVIDENCE, RI 02903
PROJECT	RHODE ISLAND WELCOME CENTER



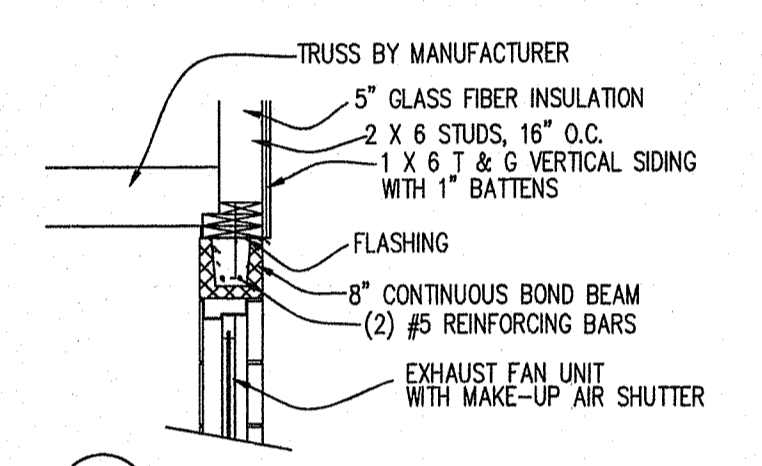
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ARCHITECT  
40 Main St  
Wakefield,  
RI 02891  
401 789-...  
Laura@kro...



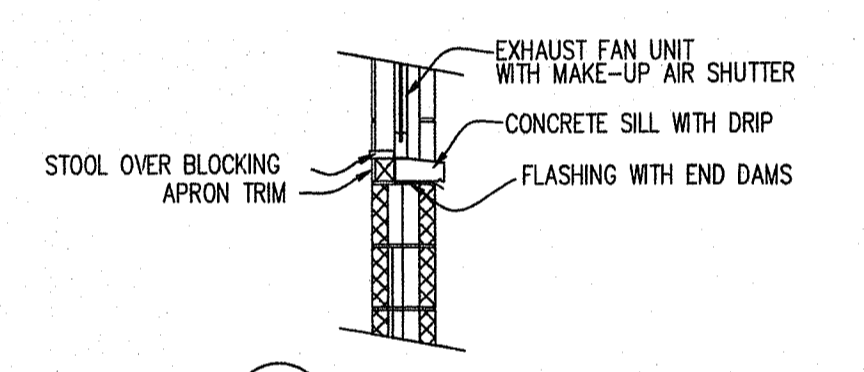
1 WALL SECTION  
SCALE: 1" = 1'-0"



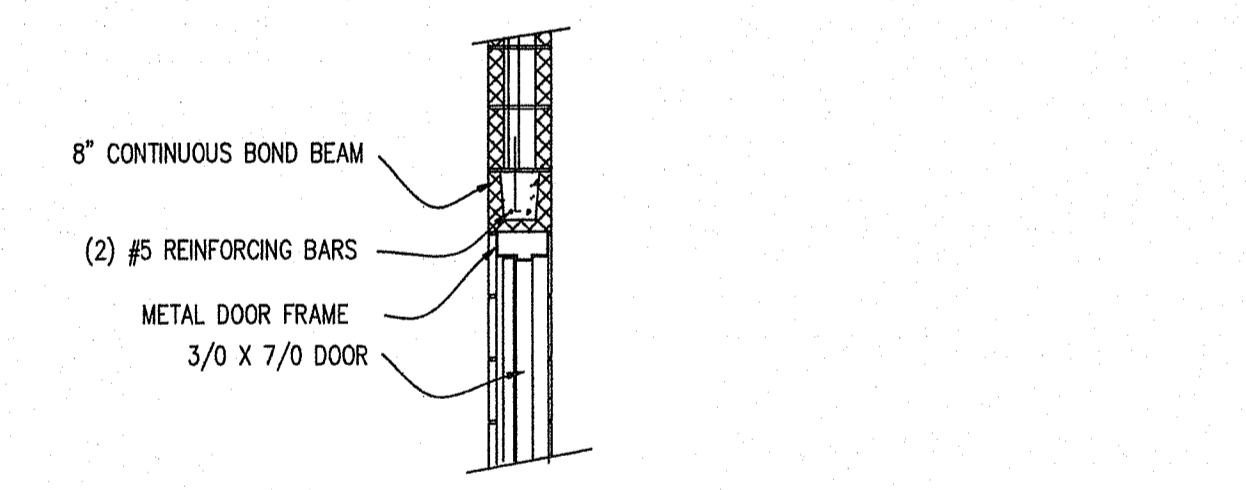
8 REINFORCING AT OPENINGS  
SCALE: 1/4" = 1'-0"



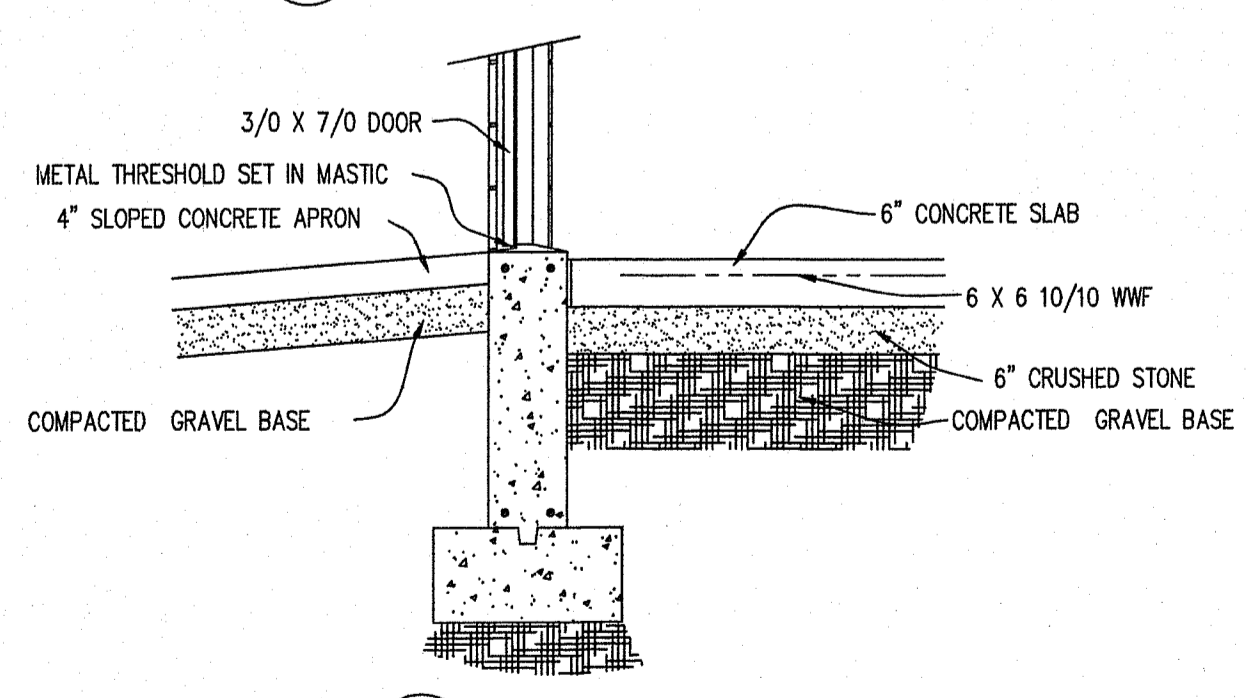
5 DETAIL AT OPENING HEAD  
SCALE: 1/2" = 1'-0"



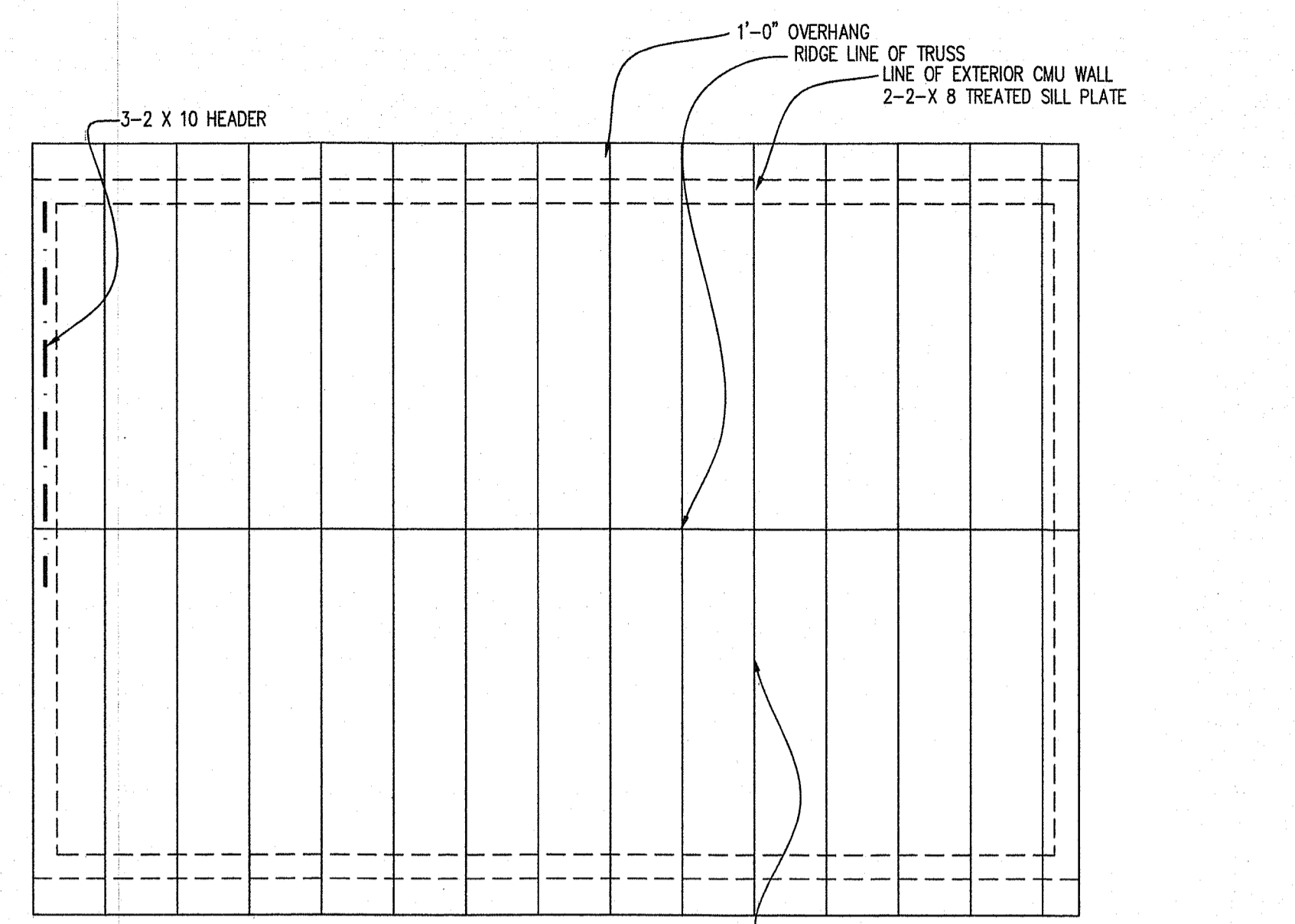
4 DETAIL AT OPENING SILL  
SCALE: 1/2" = 1'-0"



3 WALL DETAIL AT DOOR HEAD  
SCALE: 1/2" = 1'-0"



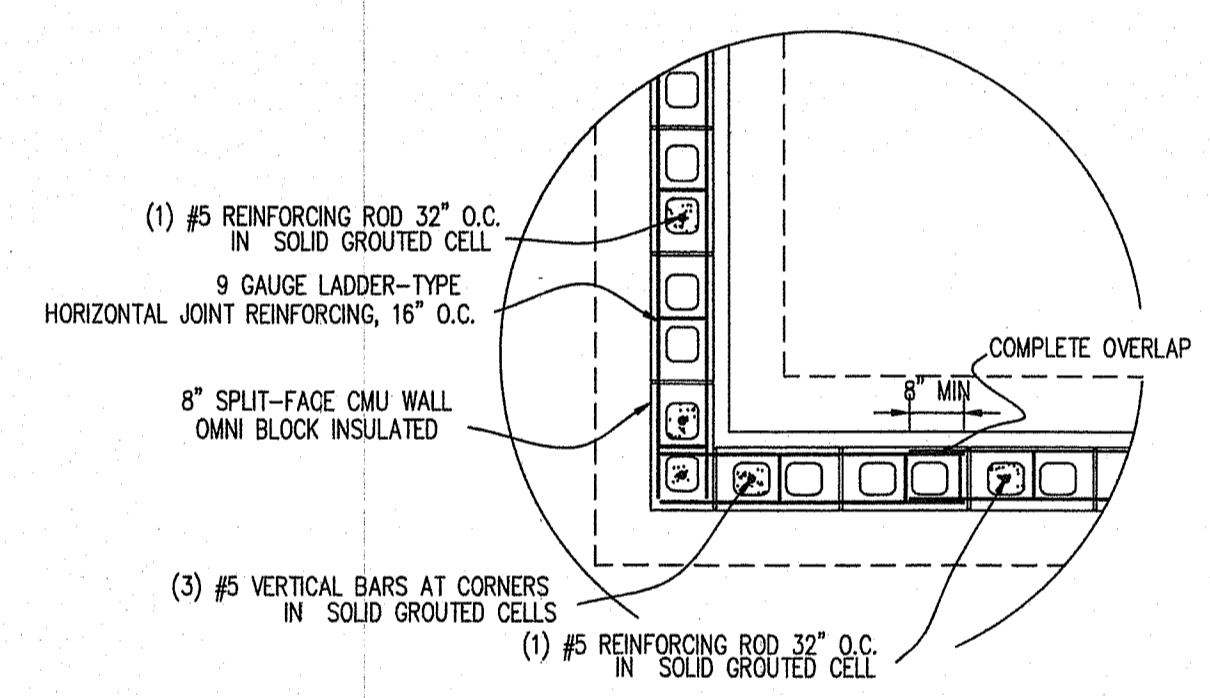
2 WALL DETAIL AT DOOR THRESHOLD  
SCALE: 1/2" = 1'-0"



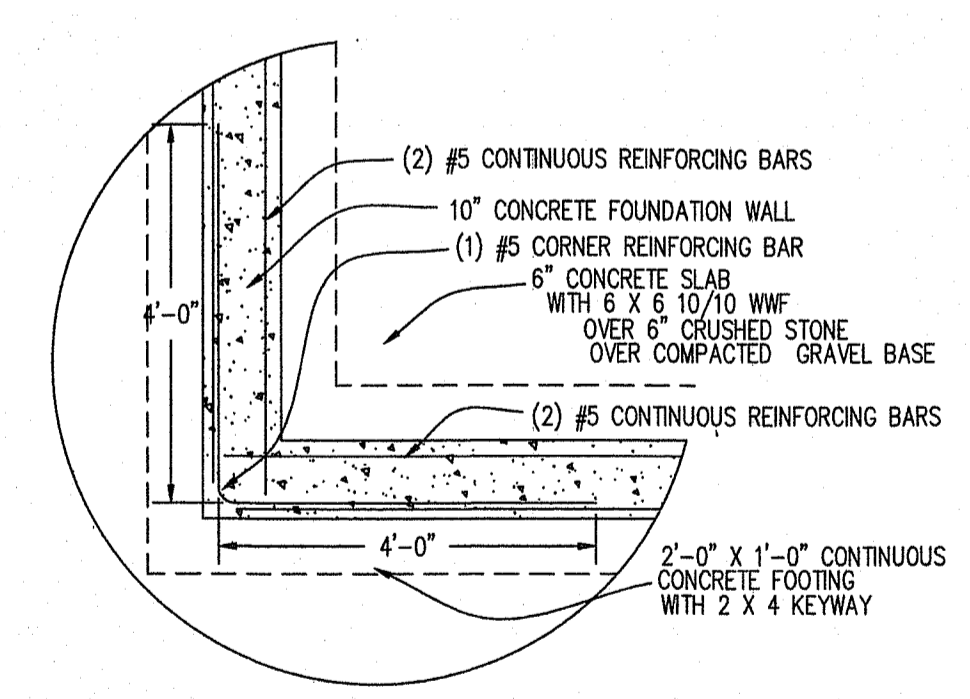
ROOF FRAMING PLAN  
SCALE: 1/4" = 1'-0"

ROOF SHEATHING NAILING PATTERN:  
AT ALL INTERMEDIATE SUPPORTS, NAIL 6" O.C.  
FROM RIDGES, EAVES AND GABLE ENDS IN 48", NAIL 4" O.C.

GABLE ROOF TRUSS, 24" O.C. WITH 12" OVERHANG  
ALL ROOF FRAMING MEMBERS TO BE ROOF TRUSS DESIGNED  
AND SPECIFIED BY MANUFACTURER



6 TYPICAL MASONRY WALL CORNER  
SCALE: 1/2" = 1'-0"



7 TYPICAL FOUNDATION WALL CORNER  
SCALE: 1/2" = 1'-0"

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS AS  
SPECIFIED IN THE LETTER OF APPROVAL  
DATED: ~~3/11/22~~ 3/11/22 FILE #: 22-010  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

*Robert D. Wenzel*

Environment  
APR 25 2022  
Office of Water Resources

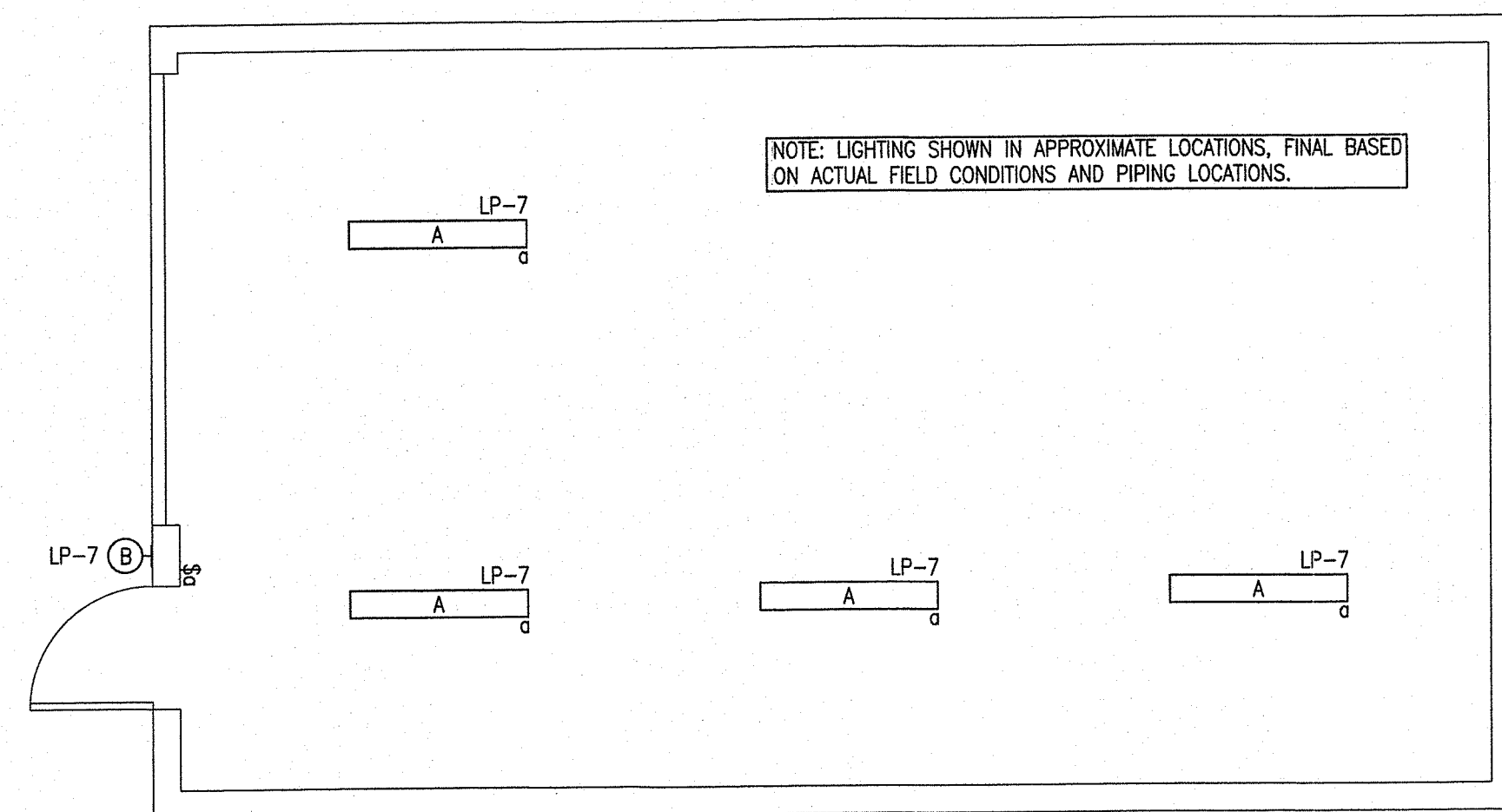
Drawn by  
LAURA D. KREKORIAN  
ARCHITECT  
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401 789 0039  
Laurakrekorian@cox.net

ROBERT F. FERRARI  
No. 4658  
REGISTERED  
PROFESSIONAL ENGINEER  
4/19/22

1	4/19/22	RIDEM COMMENTS INCORPORATED	SEK	RFF
REVISION	DATE	DESCRIPTION	BY	APP
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		DRAWN BY LAD/SEK		
		CLIENT	DESIGNED LAD/SEK	
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		PROJECT	APPROVED RFF	
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NWST  
NORTHEAST  
Water Solutions  
I N C.

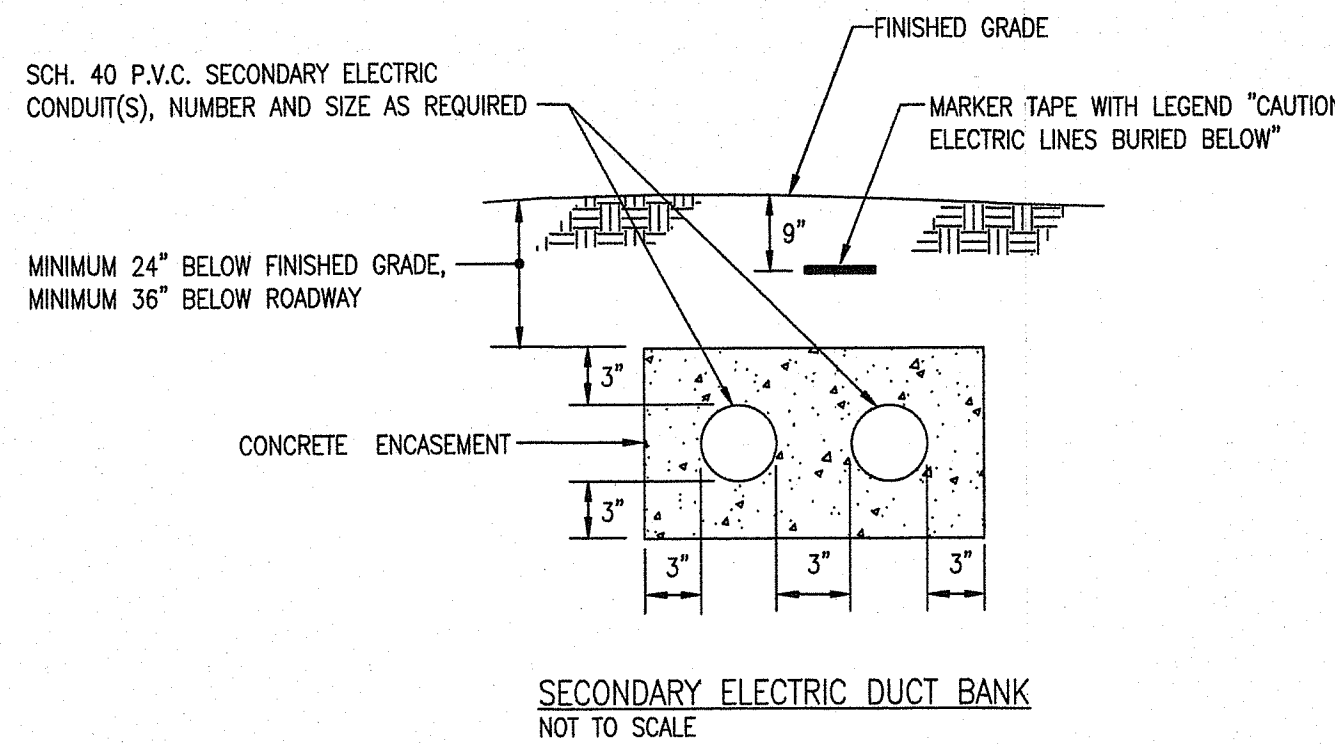
DETAILS & FRAMING PLAN  
RI DEPT. OF TRANSPORTATION  
2 CAPITOL HILL  
PROVIDENCE, RI 02903  
RHODE ISLAND WELCOME CENTER



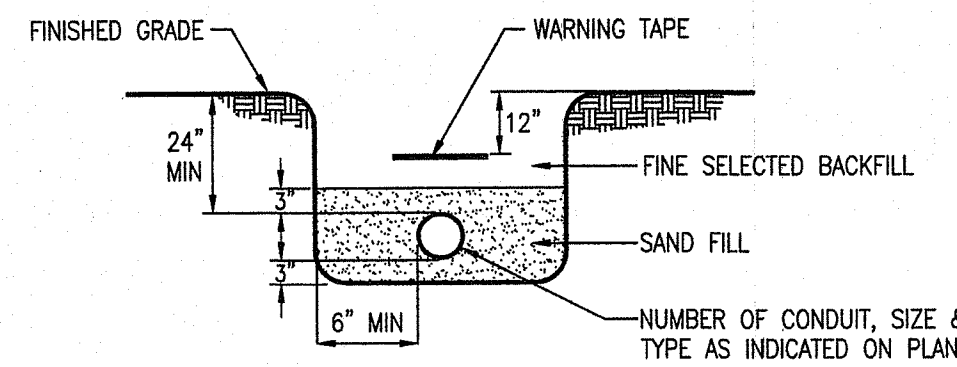
NOTE: LIGHTING SHOWN IN APPROXIMATE LOCATIONS, FINAL BASED ON ACTUAL FIELD CONDITIONS AND PIPING LOCATIONS.

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

FIXTURE SCHEDULE					
SYMBOL	VOLT	LAMPS (QTY)	MANUFACTURER	MODEL NUMBER	COMMENTS
A	120-277V	32W LED	ADVANTAGE ENVIRONMENTAL LIGHTING	LV1440S	1'x4" VAPOR TIGHT STRIP, PENDANT MOUNT
B	120-277V	54W LED	TECHLIGHT	LHSWP-C-5L-T3-1-BZ P1000PC	EXTERIOR WALL PACK W/PE



SECONDARY ELECTRIC DUCT BANK  
NOT TO SCALE



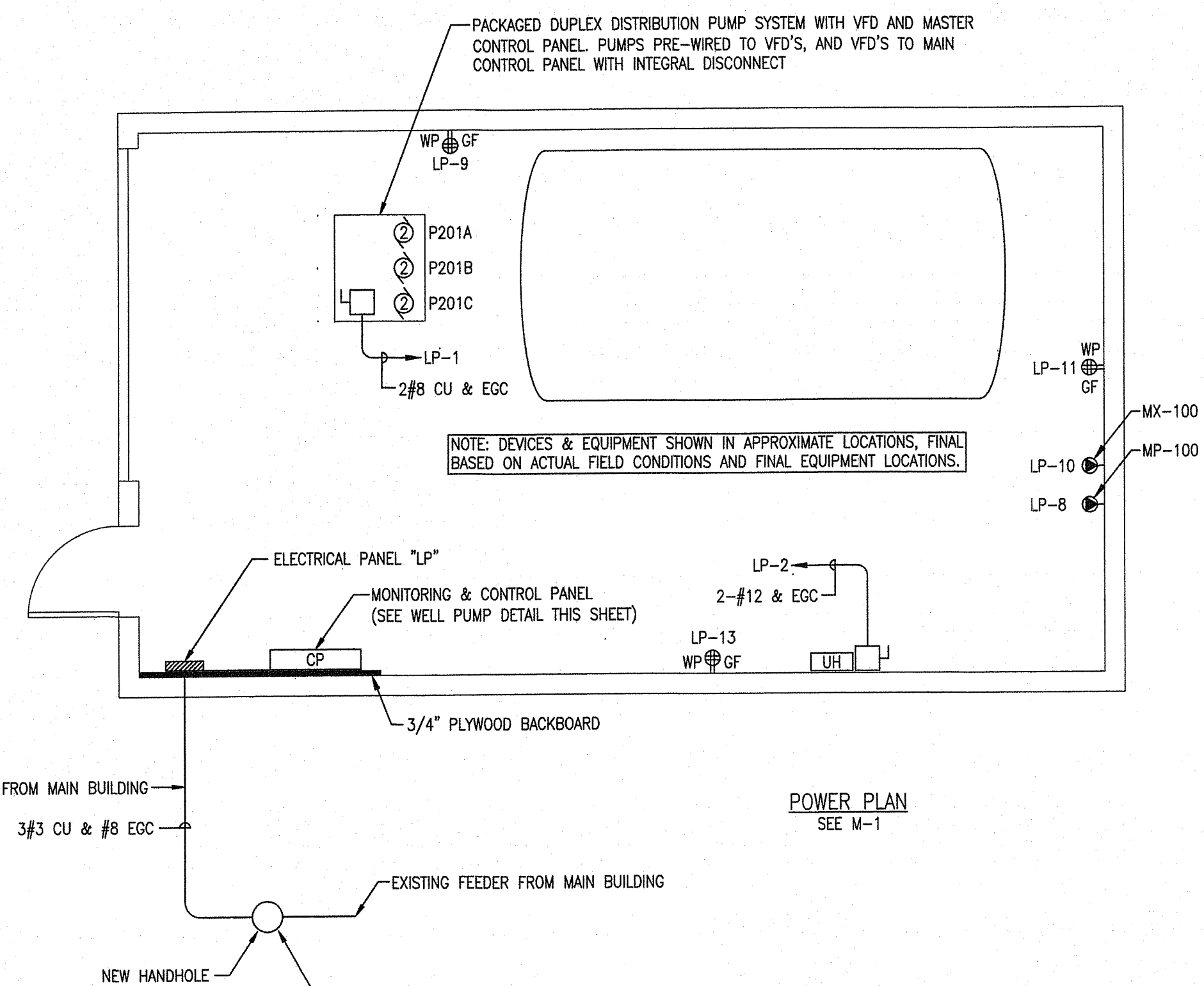
SECONDARY ELECTRIC CONDUIT  
NOT TO SCALE

NOTES

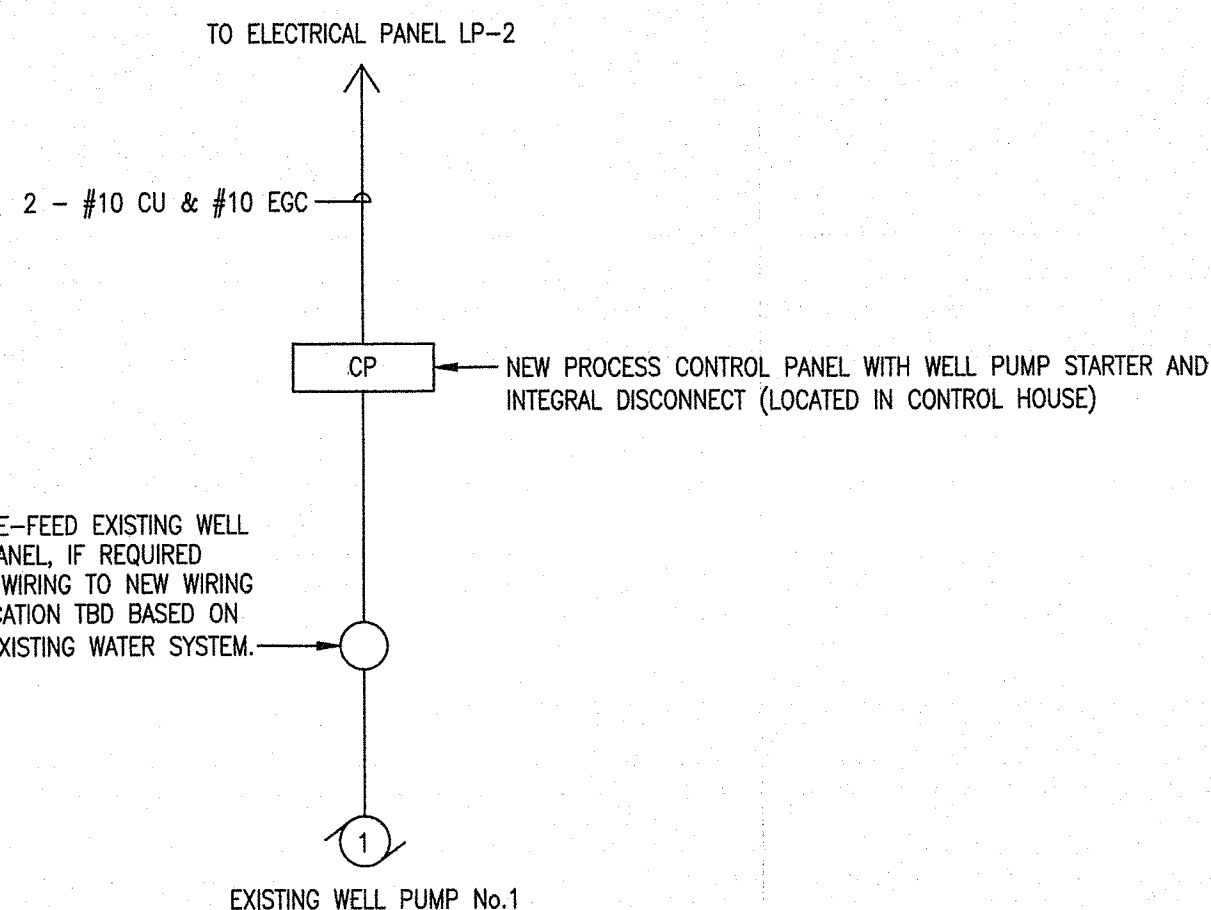
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST STATE OF RHODE ISLAND ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70), THE STATE OF RHODE ISLAND BUILDING CODE, AND ALL APPLICABLE CODES AND ORDINANCES OF THE TOWN OF RICHMOND.
- SEE EQUIPMENT PROCUREMENT SPECIFICATION FOR ADDITIONAL REQUIREMENTS AND INFORMATION FOR ELECTRICAL EQUIPMENT PROVIDED UNDER OTHER DIVISIONS. ALL ELECTRICAL EQUIPMENT SHALL BE UL LISTED FOR ITS INTENDED USE.
- INTERIOR CONDUIT SHALL BE SCHEDULE 40 PVC. WHIPS FOR FINAL CONNECTIONS SHALL BE LIQUID-TITE FLEXIBLE RACEWAY WITH APPROVED FITTINGS. EXTERIOR CONDUIT SHALL BE MINIMUM SCHEDULE 40 PVC AND ENCASED UNDER PAVED AREAS.
- ALL WIRE SHALL BE COPPER TYPE THHN/THW WHERE RUN IN CONDUIT AND COPPER TYPE XHHW IN EXTERIOR RACEWAY.
- APPROVED WATERTIGHT CONDUIT SLEEVES SHALL BE PROVIDED WHERE WALLS/FLOORS ARE PENETRATED LEAVING THE BUILDING FOR WELL PUMPS, ELECTRIC SERVICE, ETC. FINAL LOCATIONS OF CONDUIT AND ELECTRICAL EQUIPMENT WILL BE DETERMINED BY THIS CONTRACTOR BASED ON ACTUAL FIELD CONDITIONS.
- REVIEW CIVIL/SITE/MECHANICAL DRAWINGS FOR LOCATIONS OF NEW PUMP HOUSE, EXISTING WELLS, ETC. AND EQUIPMENT DIMENSIONS.
- ELECTRICAL CONTRACTOR SHALL BE AVAILABLE AS REQUESTED TO COORDINATE WITH GENERAL CONTRACTOR AS NEEDED DURING EXCAVATION OF EXISTING UNDERGROUND UTILITIES TO IDENTIFY BELOW GRADE CIRCUITS. CONTRACTOR RESPONSIBLE FOR ELECTRICAL REMOVALS IN EXISTING BELOW GRADE VAULTS TO MAKE SAFE PRIOR TO DEMOLITION AND OR BACKFILL.

LEGEND

- UH WALL MOUNTED ELECTRIC UNIT HEATER, NEW OR RE-USED EXISTING AS DIRECTED, 2500 WATT, 240 VOLT, SINGLE-PHASE, CHROMALOX OR EQUAL, PROVIDED BY ANOTHER DIVISION OF THIS WORK.
- WP GF DUPLEX RECEPTACLE WITH GROUND FAULT PROTECTION, NEMA 5-20R, 5-ma TRIP, 3 WIRE, EXTRA HEAVY DUTY SPECIFICATION GRADE, WP INDICATES WEATHERPROOF ENCLOSURE.
- WP GF DOUBLE DUPLEX RECEPTACLE WITH GROUND FAULT PROTECTION, NEMA 5-20R, 5-ma TRIP, 3 WIRE, EXTRA HEAVY DUTY SPECIFICATION GRADE, WP INDICATES WEATHERPROOF ENCLOSURE.
- RECEPTACLE WITH GROUND FAULT PROTECTION, NEMA 5-15/5-20, 5-ma TRIP, 3 WIRE, EXTRA HEAVY DUTY SPECIFICATION GRADE, IN WEATHERPROOF ENCLOSURE. FOR DEDICATED DEVICE, VERIFY PLUG CONFIGURATION WITH EQUIPMENT TO BE CONNECTED.
- 100A-120/240 VOLT, 1-PHASE, 3-WIRE, 100A MCB ELECTRICAL PANEL WITH TVSS.
- SS NONE FUSED NEMA 4 ENCLOSED LOCKABLE SAFETY SWITCH.
- NONE FUSED LOCKABLE SAFETY SWITCH PROVIDED WITH AND INTEGRAL TO EQUIPMENT.
- S MOTOR, SIZE AS INDICATED, PROVIDED AS PART OF PACKAGED SYSTEM.
- A LIGHTING FIXTURE, "A" INDICATES TYPE, SEE FIXTURE SCHEDULE THIS SHEET.
- B LIGHTING FIXTURE, "B" INDICATES TYPE, SEE FIXTURE SCHEDULE THIS SHEET.
- 20 AMP SINGLE POLE LIGHT SWITCH, EXTRA HARD USE SPECIFICATION GRADE, MOUNT 48" A.F. TO TOP OF OUTLET. LEVITON 1221-2 OR APPROVED EQUAL. "g" INDICATES LIGHTING FIXTURE BEING CONTROLLED BY SWITCH.



POWER PLAN  
SEE M-1



WELL PUMP DETAIL TYPICAL PUMPS No.2 & No.3  
NOT TO SCALE

PANELBOARD SCHEDULE

CKT. NO.	DESCRIPTION	BREAKER		LOAD KVA		BREAKER		DESCRIPTION	CKT. NO.
		POLE	AMP	A	B	POLE	AMP		
<b>PANEL LP: SURFACE MOUNTED 120/240V, 1 PHASE, 3 WIRE, 100 AMP. MAIN CIRCUIT BREAKER 125 AMP MAIN BUSES BOLTED MOLDED CASE CIRCUIT BREAKERS, DOOR-IN DOOR CONSTRUCTION WITH FACTORY INSTALLED TVSS</b>									
<b>PACKAGED PUMP SYSTEM</b>									
1	PUMPS P-201A, P-201B, P-201C	2	40	2.7	2	2	30	CONTROL PANEL EXISTING WELL PUMP No.1	2
3	SPARE	2	40			2	30	SPARE	4
5	SPARE	2	20			1	20	HEATER	6
7	LIGHTING	1	20	0.668	0.2	1	20	MP-100	8
9	RECEPTACLES	1	20	0.18	0.18	0.2	1	20	MX-100
11	RECEPTACLES	1	20						12
13	RECEPTACLES	1	20						14
16		1							16
17		1							18
19		1							20
21		1							22
23		1							24
26		1							26
27		1							28
31		1							30
33		1							32
35		1							34
37		1							36
TOTAL PER PHASE				6.748			6.26		
TOTAL PANEL							13.01		
TOTAL AMPS							542		
AMPS *1.25							67.75		

PANELBOARD MAIN CIRCUIT BREAKER SHALL BE FULLY RATED FOR 22,000 A.I.C. BRANCH CIRCUIT BREAKERS MAY BE SERIES RATED WITH THE MAIN CIRCUIT BREAKER. SURFACE BACKBOXES SHALL BE COMPLETELY PAINTED

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED: APR 15 2022 FILE #: 22-0124  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Environmental Management  
APR 25 2022  
Office of Water Resources

ROBERT F. FERRARI  
No. 4658  
REGISTERED PROFESSIONAL ENGINEER  
4/15/22

REVISION	DATE	DESCRIPTION	BY	APP
1	4/19/22	RIDEM COMMENTS INCORPORATED	SEK	RFF

SHEET PRELIMINARY ELECTRICAL PLAN DATE 3/11/22  
DRAWN BY SEK  
CLIENT RI DEPT. OF TRANSPORTATION DESIGNED SEK  
2 CAPITOL HILL CHECKED RFF  
PROVIDENCE, RI 02903 APPROVED RFF  
PROJECT RHODE ISLAND WELCOME CENTER SHEET E-1

507 SOUTH COUNTY TRAIL, SUITE 110 EXETER, RI 02822  
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