Sheet List Table	
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C-1	EXISTING CONDITIONS PLAN
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C-4	CIVIL DETAILS SHEET
M-1	EQUIPMENT LAYOUT PLAN
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M-3	MECHANICAL DETAIL SHEET
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E-1	ELECTRICAL PLAN

STATE OF RHODE ISLAND

DEPARTMENT OF TRANSPORTATION

PLAN, PROFILE AND SECTIONS OF PROPOSED

STATE HIGHWAY

I-95 RHODE ISLAND WELCOME CENTER & PUMP STATION

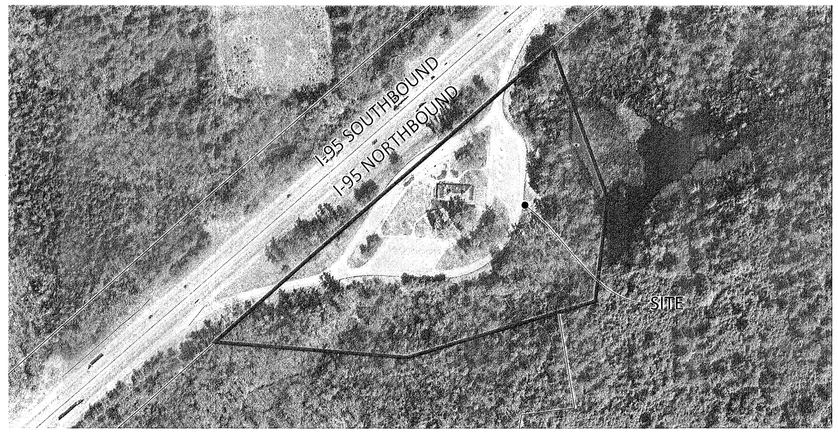
RICHMOND, RHODE ISLAND

VOLUME 2

PUMP HOUSE IMPROVEMENTS AND PUBLIC WATER SYSTEM UPGRADES

PWS ID RI2980178

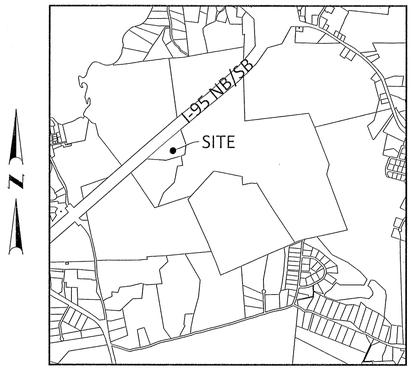
R.I. CONTRACT NO. 2025-CF-002 F.A. PROJECT NO. RICAP(131)



LAYOUT-PLAN-SCALE

SCALE 1" = 200'

RI CONTRACT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
2025-CF-002	2025	G-1	14



LOCATION MAP

1"=2,000'

R.I. STANDARD SPECIFICATIONS AND STANDARD DETAILS

SPECIFICATIONS TO GOVERN THIS PROJECT ARE THE R.I. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AUGUST 2024, WITH ALL REVISIONS AND THE STATE AND FEDERAL SPECIAL PROVISIONS INCLUDED IN THE CONTRACT DOCUMENTS.

STANDARD DETAILS FOR THIS PROJECT ARE R.I. STANDARD DETAILS, 1998 EDITION, WITH ALL REVISIONS.

SCALE OF DRAWINGS

SHOWN ON SHEETS

BASE OF LEVELS
NAD 83 RHODE ISLAND
STATE PLANE US FOOT

VERTICAL NAVD 88

ROBERT F. FERRARI
11/15/24
No. 4658
REGISTERED PROFESSIONAL ENGINEER

R.I. DEPARTMENT OF TRANSPORTATION

APPROVED
DIRECTOR, DIVISION OF PROJECT MANAGEMENT — DATE 2/12/25

APPROVED
CHIEF ENGINEER OF INFRASTRUCTURE — DATE 2/12/25

APPROVED
DIRECTOR — DATE 2-13-25

DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR — DATE

Contract Number 2025-CF-002

Number of Sheet 14

Total Sheets 14

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 DAY 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_2CO_3	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

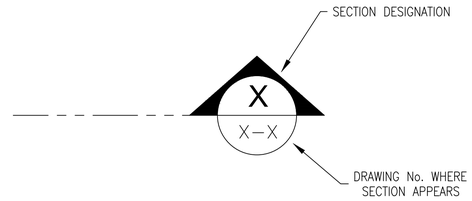
PROCESS SYMBOLS LEGEND

- 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 (XXX / XXX)
- LOCAL PANEL MOUNTED DEVICE (XXX / XXX)
- LEVEL ALARM LOW (LAL / XXX)
- LEVEL ALARM HIGH (LAH / XXX)
- PROGRAMMABLE LOGIC CONTROLLER (ANALOG) (XXX / XXX)
- PROGRAMMABLE LOGIC CONTROLLER (DISCRETE) (XXX / XXX)
- CONTROL INTERLOCK SIGNAL (I–)

AAH	ANALOG ALARM HIGH
AAL	ANALOG ALARM LOW
AE	ANALOG ELEMENT
AI	ANALOG INDICATOR
AIT	ANALOG INDICATOR/TRANSMITTER
AIR	ANALOG RECORDER
CIAH	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
NJL	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



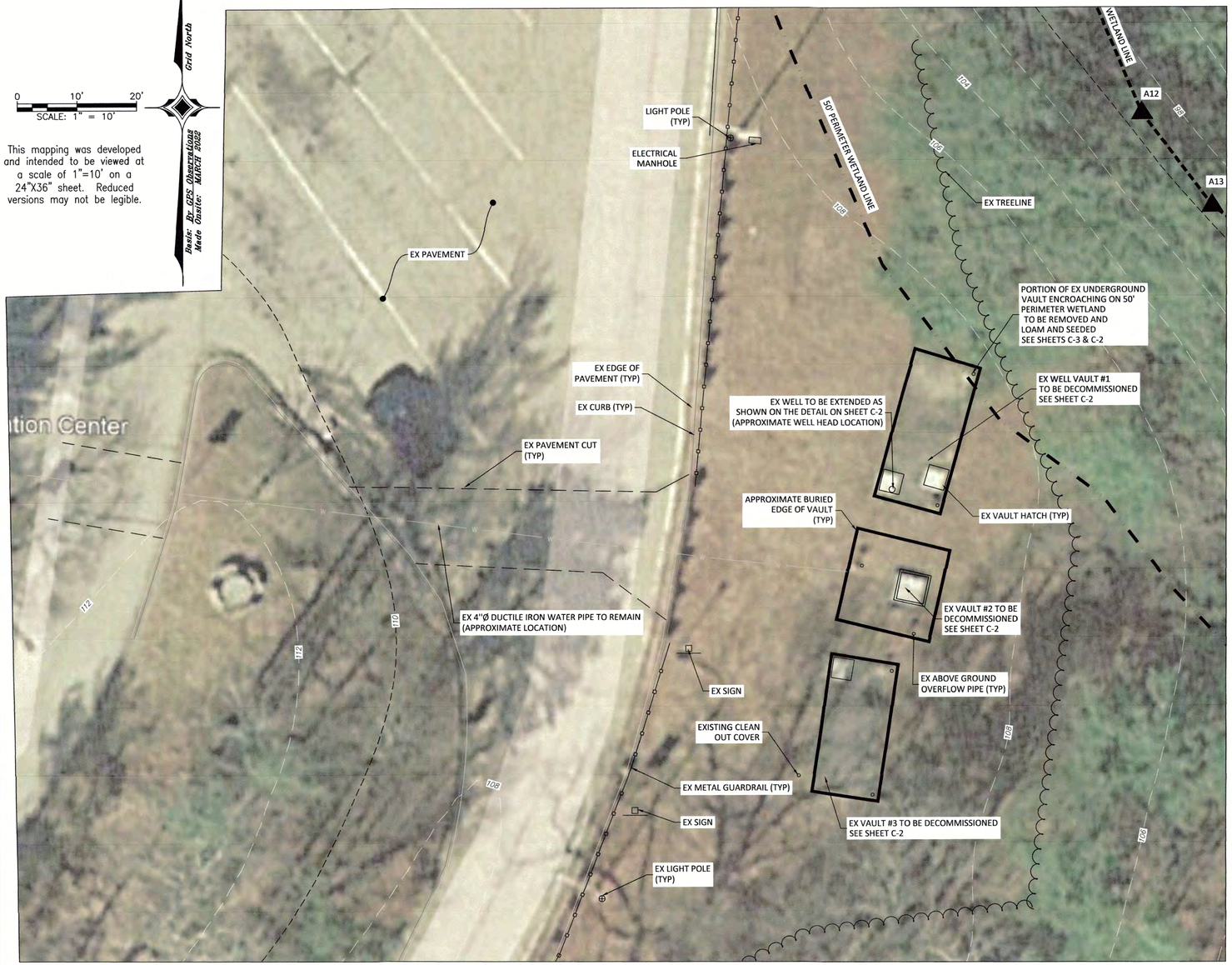
SECTION CUT SYMBOL

REVISION	DATE	DESCRIPTION	BY	APP
6	11/15/24	RIDOT COMMENTS-BIDDING ONLY-NOT FOR CONSTRUCTION	SEK	RFF
5	9/8/23	RE-ISSUED FOR BIDDING	SEK	RFF
4	5/11/23	ISSUED FOR BIDDING	SEK	RFF
3	10/11/22	RIDOH COMMENTS INCORPORATED	SEK	RFF
2	9/29/22	RIDOH COMMENTS INCORPORATED	SEK	RFF
1	4/19/22	RIDEM COMMENTS INCORPORATED	SEK	RFF

ROBERT F. FERRARI
11/15/24
No. 4658
REGISTERED PROFESSIONAL ENGINEER

NORTHEAST Water Solutions INC.
567 SOUTH COUNTY TRAIL, SUITE 116 EXETER, RI 02822

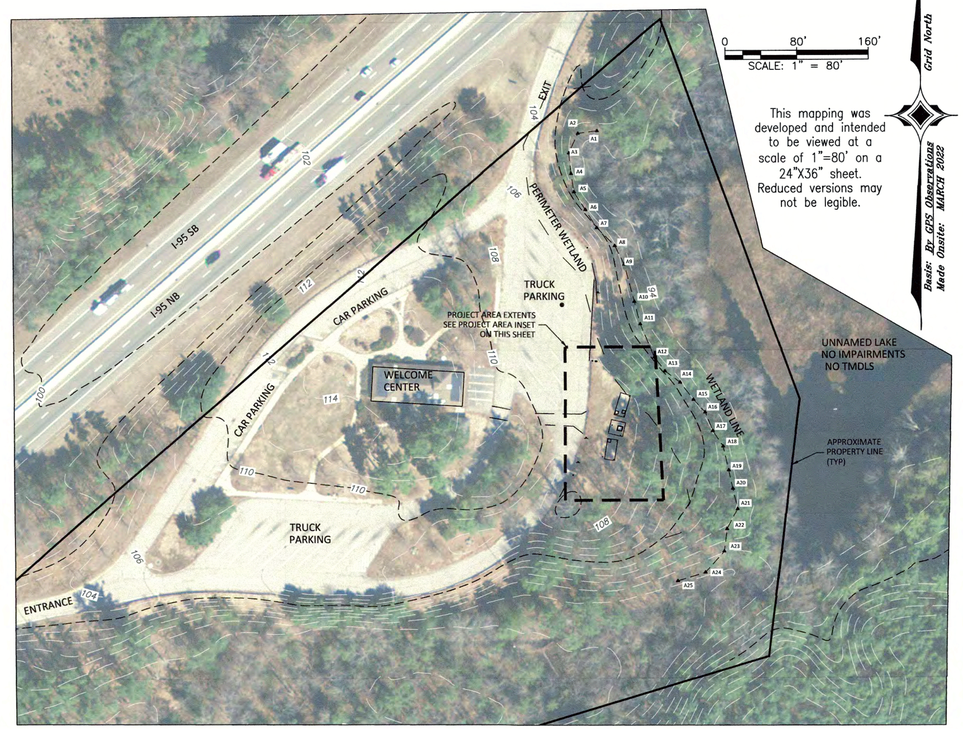
SHEET: LEGEND, SYMBOLS, & ABBREVIATIONS
DATE: 3/11/22
DRAWN BY: SEK
CLIENT: RI DEPT.OF TRANSPORTATION, 2 CAPITOL HILL, PROVIDENCE, RI 02903
DESIGNED: SEK
CHECKED: RFF
PROJECT: RHODE ISLAND WELCOME CENTER PUMP HOUSE IMPROVEMENTS AND PUBLIC WATER SYSTEM UPGRADES
APPROVED: RFF
SHEET: G-2



PROJECT AREA INSET

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 AUTHORITATIVE 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.



OVERALL PROPERTY AREA

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.awdrls.com Email: al@awdrls.com

LEGEND:

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

RIGL 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

ALFRED W. DIORIO No. 1752 PROFESSIONAL LAND SURVEYOR

REVISION	DATE	DESCRIPTION	BY	APP

NWSI NORTHEAST Water Solutions INC.

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

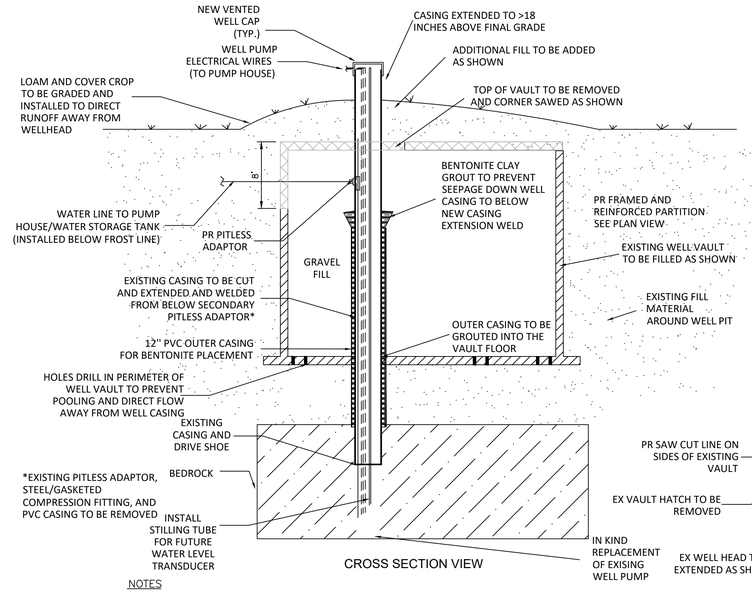
DATE	3/15/22
DRAWN BY	SEK
DESIGNED	SEK
CHECKED	RFF
APPROVED	RFF
SHEET	C-1

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 WORK. ONCE APPROVED 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

NOT TO SCALE



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. ONCE APPROVED CONTRACTOR 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.

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. ONCE APPROVED CONTRACTOR 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.

REVISION	DATE	DESCRIPTION	BY	APP
6	11/15/24	RIDOT COMMENTS–BIDDING ONLY–NOT FOR CONSTRUCTION	SEK	RFF
5	9/8/23	RE-ISSUED FOR BIDDING	SEK	RFF
4	5/11/23	ISSUED FOR BIDDING	SEK	RFF
3	10/11/22	RIDOH COMMENTS INCORPORATED	SEK	RFF
2	9/29/22	RIDOH COMMENTS INCORPORATED	SEK	RFF
1	4/19/22	RIDEM COMMENTS INCORPORATED	SEK	RFF

ROBERT F. FERRARI
11/15/24
No. 4658
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

567 SOUTH COUNTY TRAIL, SUITE 116 EXETER, RI 02822

NORTHEAST Water Solutions INC.

SHEET: DEMOLITION PLAN
DATE: 3/11/22
DRAWN BY: SEK
CLIENT: RI DEPT.OF TRANSPORTATION, 2 CAPITOL HILL, PROVIDENCE, RI 02903
DESIGNED: SEK
CHECKED: RFF
PROJECT: RHODE ISLAND WELCOME CENTER PUMP HOUSE IMPROVEMENTS AND PUBLIC WATER SYSTEM UPGRADES
APPROVED: RFF
SHEET: C-2

N

0 10' 20'

SCALE: 1" = 10'

THIS SHEET IS LAID OUT IN A MANNER TO SHOW OPTIONAL SCOPE ITEMS. DURING CONSTRUCTION THE EXISTING 4" MAIN WILL BE INSPECTED AND IF DETERMINED NECESSARY BY THE ENGINEER OF RECORD WILL BE REPLACED OR APPROPRIATELY FLUSHED. IF MAIN REPLACEMENT IS DETERMINED TO BE NECESSARY BY THE ENGINEER OF RECORD THE CONTRACTOR MUST MUST COMPLETE TRENCHING AND PATCHING WITHIN 2 WEEKS OF PAVEMENT CUTTING. FOR EVERY DAY THEREAFTER A FINE WILL BE ASSESS BY RIDOT. AFTER TRENCHING AND PAVEMENT PATCH IS INSTALLED THE CONTRACTOR MUST PERFORM STREET SWEEPING OPERATIONS. THE TRUCK PORTION OF THE TRUCK STOP MUST REMAIN OPEN AND THE CONTRACTOR MAY UTILIZE STEEL PLATES TO COVER EXPOSED TRENCH.

THIS PLAN UTILIZES LIDAR TOPOGRAPHY SHOWN AT 2-FT INTERVALS. ALL PROPOSED GRADES TO CONFIRMED IN FIELD INCLUDING FINISHED FLOOR ELEVATION OF PUMPHOUSE.

REPLACE RIDOT GUARDRAIL RI STD 34.1.0 & 34.1.2 UNTIL REACHING EXISTING GUARDRAIL TO THE NORTH

EXISTING TREELINE

A12

A13

DOWNSPOUT AND SPLASH BLOCK WITH ¾" CRUSHED STONE APRON AS SHOWN (TYP)

LIGHT POLE

50' PERIMETER WETLAND LINE

WETLAND LINE

PROPANE TANK TO BE PLUMBED TO GENERATOR (GAS LINE NOT SHOWN)

LIMIT OF DISTURBANCE SILT FENCE TYP RI STD 9.2.0

EXISTING PAVEMENT

GENERATOR AND CONCRETE PAD SHOWN AS 3'X5' PAD SIZE MUST MATCH SPECS OF GENERATOR SELECTED SEE ELECTRICAL PLANS

NO DISTURBANCE PROPOSED IN THIS AREA OF THE PERIMETER WETLAND. LOD EXTENDED PER RIDEM COMMENT TO ALLOW FOR 10' BUFFER AROUND PROPOSED PUMPHOUSE BUILDING ENVELOPE. CONTRACTOR TO RESTORE AREA WITH LOAM AND SEED AS NECESSARY.

PROPOSED RESTRIPING FOR WATER MAIN REPLACEMENT IF AUTHORIZED

4"NSF COMPLIANT PVC (BLUE BRUTE OR APPROVED EQUAL) TO DISTRIBUTION

CORNER OF VAULT WITHIN PERIMETER WETLAND TO BE REMOVED AND LOAM AND SEEDED SEE SHEET C-2 DISTURBANCE IN THE 50' PERIMETER WETLAND SHALL BE LIMITED TO THIS AREA

PROPOSED PRECAST CURBING FOR WATER MAIN REPLACEMENT IF AUTHORIZED

EXISTING PAVEMENT CUT (TYP)

PROPOSED CLEAN WASHED STONE DRIVEWAY

PROPOSED PUMP HOUSE TO BE LOCATED AND STAKED BY CONTRACTOR FFE 109.10 SEE SHEETS M-1-M-2

RI WELCOME CENTER STRUCTURE

THRUST BLOCK (TYP)

EXISTING GUARD RAIL TO BE REMOVED AND REPLACED AS SHOWN

PROPOSED GRADING TO BE SEEDED WITH WITH 4" LOAM AND ERNMX-104

PROPOSED SAW CUT LINE FOR WATER MAIN REPLACEMENT IF AUTHORIZED

PRECAST CONCRETE SLOPED FACE TRANSITION CURB RI STD 7.2.1 (TYP)

2" HDPE PIPE FROM WELL TO PUMP HOUSE

EXISTING WELL TO BE EXTENDED AS SHOWN ON THE DETAIL ON THIS SHEET AND C-2

EXISTING CONCRETE SIDEWALK

LIMIT OF DISTURBANCE SILT FENCE TYP RI STD 9.2.0

PROPOSED 4"Ø BLUE BRUTE PVC WATER MAIN TO BE INSTALLED DEPENDING ON CAMERA RESULTS SEE OPTIONAL SECTION OF BID FORM

PROPOSED REMOVABLE BOLLARD SEE SHEET C-4

EX VAULT HATCH (TYP)

VENDING MACHINE AND STORAGE STRUCTURE

EXISTING 4"Ø DUCTILE IRON WATER MAIN TO BE CAMERA INSPECTED BY ENGINEER DURING CONSTRUCTION AND DEPENDING ON THE CONDITION ABANDONED IN PLACE AND REPLACED BY CONTRACTOR SEE OPTIONAL SECTION OF BID FORM

PROPOSED RESTRIPING FOR WATER MAIN REPLACEMENT IF AUTHORIZED

EX VAULT #2 TO BE DECOMMISSIONED SEE DECOMMISSIONING NOTES ON C-2

CUT EXISTING DISTRIBUTION LINE AND CONNECT NEW 4" DUCTILE IRON PIPE FROM PR PUMPHOUSE

EXISTING 4" DUCTILE IRON PIPE FROM PUMP HOUSE TO EXISTING DISTRIBUTION PIPE

PROPOSED RESTRIPING FOR WATER MAIN REPLACEMENT IF AUTHORIZED

EXISTING NO PARKING SIGN TO REMAIN

APPROX. LOCATIONS OF ELECTRICAL CONDUIT

EXISTING VAULT #3 TO BE DECOMMISSIONED SEE DECOMMISSIONING NOTES ON C-2

2" BLOW OFF ASSEMBLY (SEE DETAIL) THIS IS NOT AN OPTIONAL SCOPE ELEMENT

IF WATER MAIN IS DETERMINED TO NEED REPLACEMENT BLOWOFF TO BE CONNECTED TO NEW MAIN

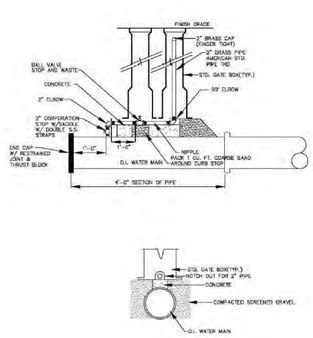
IF WATER MAIN IS DETERMINED TO REMAIN BLOW TO BE INSTALLED ON EXISTING MAIN

EXISTING METAL GUARDRAIL (TYP)

LIGHT POLE

REPLACE RIDOT GUARDRAIL RI STD 34.1.0 & 34.1.2 UNTIL EVEN WITH LIGHT POLE THEN EX GUARD RAIL TO CONTINUE SOUTH

MATERIAL/ EQUIPMENT STAGING AREA

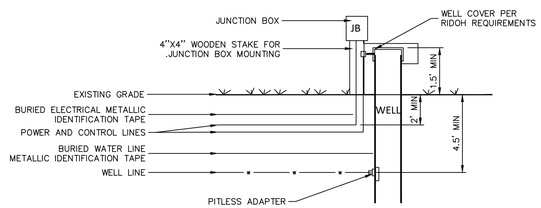


PERMANENT BLOWOFF ASSEMBLY

NOT TO SCALE

EROSION CONTROL NOTES:

1. THE SITE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING SUITABLE EROSION AND SEDIMENTATION CONTROL DEVICES ON SITE DURING CONSTRUCTION AS REQUIRED TO PREVENT SILT FROM LEAVING THE SITE. SILT WILL NOT BE ALLOWED BEYOND CONSTRUCTION LIMITS. ADDITIONAL PROTECTION: ON-SITE PROTECTION MUST BE PROVIDED THAT WILL NOT PERMIT SILT TO LEAVE THE PROJECT CONFINES DUE TO UNFORESEEN CONDITIONS OR ACCIDENTS.
2. EROSION CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLANS DOES NOT PROVIDE SUFFICIENT EROSION AND SEDIMENT CONTROL, ADDITIONAL CONTROL MEASURES SHALL BE IMPLEMENTED. CONTRACTOR IS RESPONSIBLE FOR REPAIRING OR REPLACING EROSION CONTROL DEVICES WHICH BECOME INEFFECTIVE.
3. CONTRACTOR MUST OBTAIN ALL NECESSARY PERMITS FOR ALL GRADING AND OTHER LAND DISTURBING ACTIVITIES PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE CLEANUP AND REMOVAL OF ANY BUILDUP OF SEDIMENT.
5. CONTRACTOR IS RESPONSIBLE FOR CLEANING SILT AND DEBRIS OUT OF ALL STORM DRAINAGE STRUCTURES UPON THE COMPLETION OF CONSTRUCTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ANY FINES LEVIED AGAINST THE SITE FOR VIOLATIONS OF EROSION CONTROL REGULATIONS.
7. IF WORK ON THIS PROJECT IS SUSPENDED FOR ANY REASON, THE CONTRACTOR SHALL MAINTAIN THE SOIL EROSION AND SEDIMENTATION CONTROL FACILITIES IN GOOD CONDITION DURING THE SUSPENSION OF WORK.
8. SPRINKLE OR APPLY DUST (WATER TRUCK) SUPPRESSERS TO MINIMIZE DUST AT THE CONSTRUCTION SITE. MAINTAIN DUST CONTROL MEASURES MAY BE UTILIZED UNTIL ALL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
9. THE CONTRACTOR MUST COMPLY TO ANY ORDER OF CONDITIONS THAT MAY BE ISSUED BY THE TOWN OF RICHMOND AND RIDEM.



WELL HEAD CONNECTION AND ABOVE GRADE DETAIL

NOT TO SCALE

ROBERT F. FERRARI
11/15/24
No. 4658
REGISTERED PROFESSIONAL ENGINEER

REVISION	DATE	DESCRIPTION	BY	APP
6	11/15/24	RIDOT COMMENTS-BIDDING ONLY-NOT FOR CONSTRUCTION	SEK	RFF
5	9/8/23	RE-ISSUED FOR BIDDING	SEK	RFF
4	5/11/23	ISSUED FOR BIDDING	SEK	RFF
3	10/11/22	RIDOH COMMENTS INCORPORATED	SEK	RFF
2	9/29/22	RIDOH COMMENTS INCORPORATED	SEK	RFF
1	4/19/22	RIDEM COMMENTS INCORPORATED	SEK	RFF

NORTHEAST Water Solutions INC.

567 SOUTH COUNTY TRAIL, SUITE 116 EXETER, RI 02822

SHEET: SITE LAYOUT AND GRADING PLAN

DATE: 3/11/22

DRAWN BY: SEK

CLIENT: RI DEPT.OF TRANSPORTATION
2 CAPITOL HILL
PROVIDENCE, RI 02903

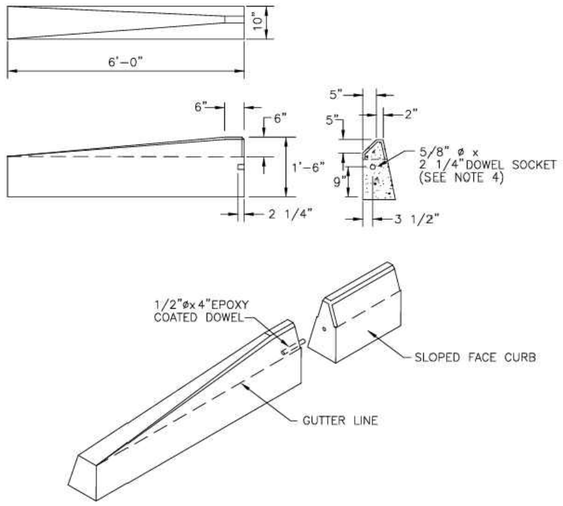
DESIGNED: SEK

CHECKED: RFF

PROJECT: RHODE ISLAND WELCOME CENTER PUMP HOUSE IMPROVEMENTS AND PUBLIC WATER SYSTEM UPGRADES

APPROVED: RFF

SHEET: C-3



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" ø x 4" EPOXY COATED DOWEL.

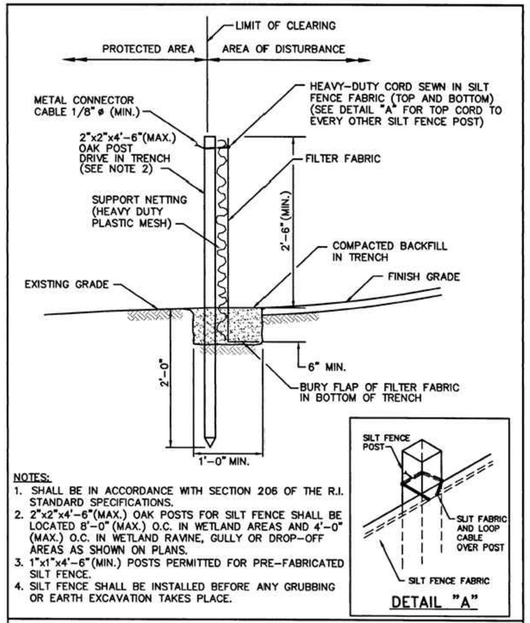
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS		
NO.	BY	DATE
1	MLP	Mar 05

PRECAST CONCRETE
SLOPED FACE TRANSITION CURB

JUNE 15, 1998
ISSUE DATE

R.I. STANDARD 7.2.1



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 206 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.

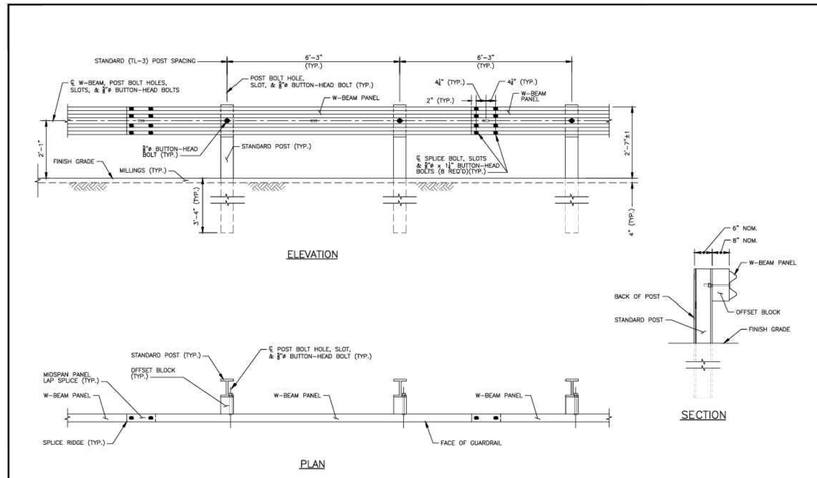
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS		
NO.	BY	DATE

SILT FENCE DETAIL

JUNE 15, 1998
ISSUE DATE

R.I. STANDARD 9.2.0



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE RI STANDARD SPECIFICATIONS.

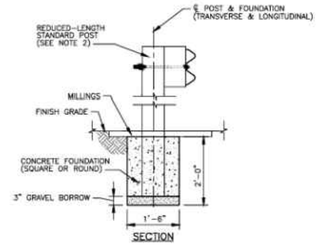
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

STEEL BEAM GUARDRAIL, TL-3

10/21/2022
ISSUE DATE

R.I. STANDARD 34.2.0

REVISIONS		
NO.	BY	DATE



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE RI STANDARD SPECIFICATIONS.
2. WHEN THE CONSTRUCTION OF GUARDRAIL AT THE REQUIRED POST SPACING RESULTS IN POST(S) CONFLICTING WITH UNDERGROUND UTILITIES OR OTHER UNDERGROUND OBSTRUCTIONS, AN ENCASED POST MAY BE USED WHERE A 2'-0" DEPTH WILL AVOID THE CONFLICT. INSTALL WHERE SHOWN IN THE PLANS AND/OR AS-NEEDED.
3. USE A STANDARD POST WITH REDUCED LENGTH SUCH THAT THE PANEL HEIGHT IS MAINTAINED WHILE THE POST BOTTOM TERMINATES AT THE BOTTOM OF THE CONCRETE FOUNDATION AT THE TOP OF THE 3" (MIN) GRAVEL BORROW.
4. CONCRETE FOUNDATION SHALL BE CLASS XX CEMENT CONCRETE. AFTER CASTING THE CONCRETE, ENSURE THE SURROUNDING SOIL MATERIAL IS COMPLETELY BACKFILLED AND TAMPED TO PROVIDE FULL PASSIVE RESISTANCE.
5. ENCASED POSTS ARE NOT PERMITTED FOR CONSECUTIVE POSTS. IF MORE THAN ONE CONSECUTIVE ENCASED POST IS REQUIRED, A LONG SPAN SYSTEM SHALL BE UTILIZED. WHERE MULTIPLE ENCASED POSTS ARE REQUIRED IN A SINGLE GUARDRAIL RUN, NO MORE THAN ONE ENCASED POST SHALL BE USED EVERY 200' (MIN.).

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

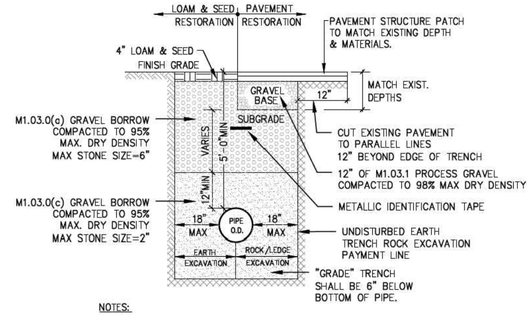
REVISIONS		
NO.	BY	DATE

STEEL BEAM GUARDRAIL
ENCASED POST FOR SHALLOW INSTALLATION

Robert Pocchia
CHIEF ENGINEER
TRANSPORTATION

10/21/2022
ISSUE DATE

R.I. STANDARD 34.1.2



NOTES:
1. SEE UTILITY TRENCH DETAIL FOR BACKFILLING OVER NEWLY INSTALLED MAINS OR SERVICES WITHIN EXISTING ROADWAYS.
2. METALLIC 3" WIDE DETECTABLE IDENTIFICATION TAPE SHALL BE INSTALLED OVER WATER LINES 12" BELOW FINISH GRADE.
3. MINIMUM PIPE COVER FOR ALL WATER PIPE SHALL BE FIVE FEET (5'-0"). MAXIMUM PIPE COVER FOR ALL WATER PIPE SHALL BE SIX FEET SIX INCHES (6'-6"). IN NO CASE SHALL THE COVER OVER THE PIPE EXCEED SIX FEET SIX INCHES (6'-6") WITHOUT PRIOR WRITTEN APPROVAL FROM THE DIRECTOR. URECON PRE-INSULATED PIPE OR EQUAL SHALL BE USED WHERE FIVE FEET (5'-0") OF COVER OVER WATER PIPE CANNOT BE ACHIEVED.

WATER TRENCH AND PATCHING DETAIL
NOT TO SCALE

REVISION	DATE	DESCRIPTION	BY	APP
6	11/15/24	RIDOT COMMENTS-BIDDING ONLY-NOT FOR CONSTRUCTION	SEK	RFF
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2	9/29/22	RIDOH COMMENTS INCORPORATED	SEK	RFF
1	4/19/22	RIDEM COMMENTS INCORPORATED	SEK	RFF

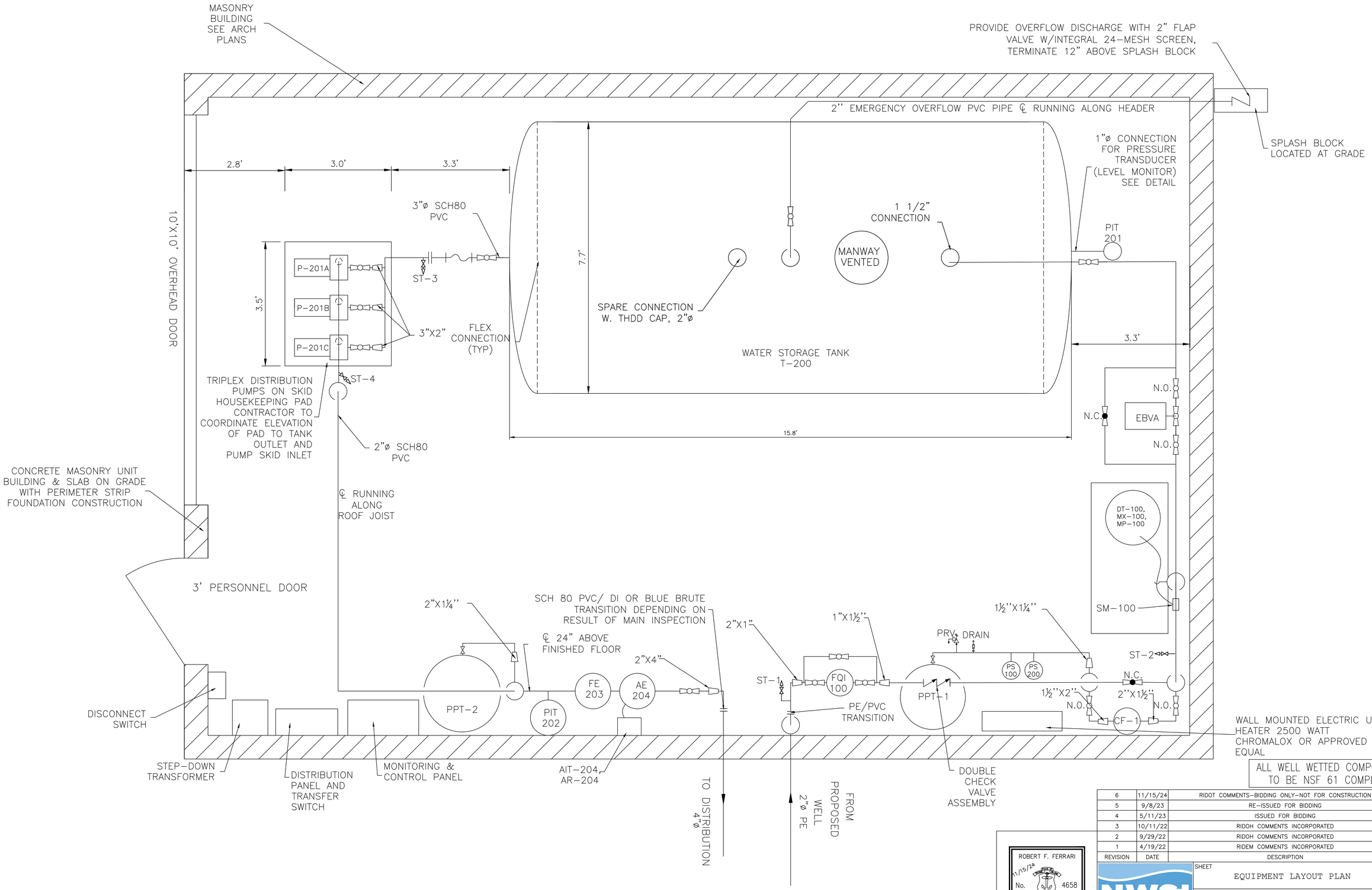
ROBERT F. FERRARI
11/15/24
No. 4658
REGISTERED PROFESSIONAL ENGINEER

547 SOUTH COUNTY TRAIL, SUITE 116 EXETER, RI 02822

NORTHEAST Water Solutions INC.

SHEET: CIVIL DETAILS SHEET
CLIENT: RI DEPT.OF TRANSPORTATION, 2 CAPITOL HILL, PROVIDENCE, RI 02903
PROJECT: RHODE ISLAND WELCOME CENTER PUMP HOUSE IMPROVEMENTS AND PUBLIC WATER SYSTEM UPGRADES

DATE	3/11/22
DRAWN BY	SEK
DESIGNED	SEK
CHECKED	RFF
APPROVED	RFF
SHEET	C-4



ALL WELL WETTED COMPONENTS TO BE NSF 61 COMPLIANT

REVISION	DATE	DESCRIPTION	BY	APP
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ROBERT F. FERRARI
11/15/24
No. 4658
REGISTERED PROFESSIONAL ENGINEER

567 SOUTH COUNTY TRAIL, SUITE 116 EXETER, RI 02822

NORTHEAST Water Solutions INC.

SHEET: EQUIPMENT LAYOUT PLAN
CLIENT: RI DEPT.OF TRANSPORTATION, 2 CAPITOL HILL, PROVIDENCE, RI 02903
PROJECT: RHODE ISLAND WELCOME CENTER PUMP HOUSE IMPROVEMENTS AND PUBLIC WATER SYSTEM UPGRADES

DATE	3/11/22
DRAWN BY	SEK
DESIGNED	SEK
CHECKED	RFF
APPROVED	RFF
SHEET	M-1

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.

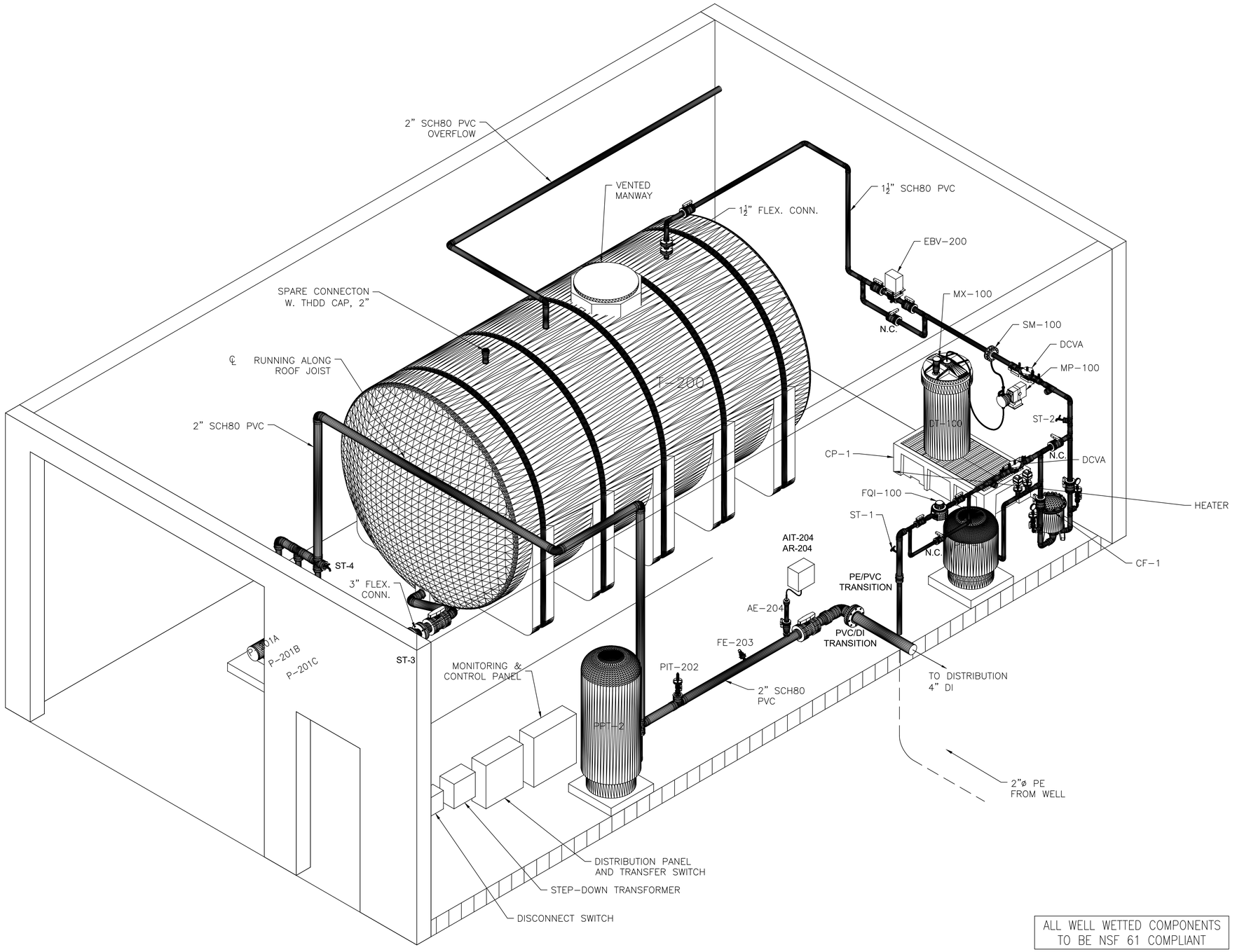
5. Valves:
   a. Valves shall be installed with the stems positioned in the horizontal or above the centerline of the pipe. All valves shall be accessible for operation, maintenance or removal.
   b. All packing, gaskets, discs, seats, diaphragms, lubricants, etc., shall conform to recommendations of 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.



ALL WELL WETTED COMPONENTS TO BE NSF 61 COMPLIANT

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 fo construction including pipe, fittings, valves, specials, pumps, tanks, filters, lubricants, etc., shall be ANSI/NSF 60/61 compliant as applicable.

REVISION	DATE	DESCRIPTION	BY	APP
6	11/15/24	RIDOT COMMENTS-BIDDING ONLY-NOT FOR CONSTRUCTION	SEK	RFF
5	9/8/23	RE-ISSUED FOR BIDDING	SEK	RFF
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3	10/11/22	RIDOH COMMENTS INCORPORATED	SEK	RFF
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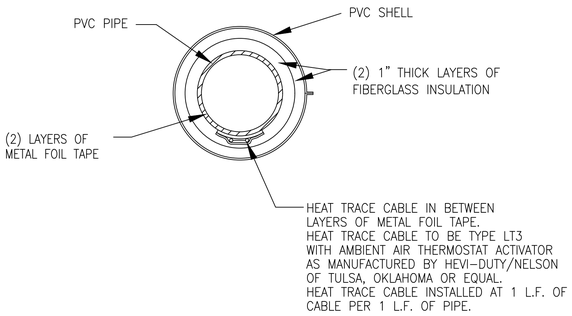
1	4/19/22	RIDEM COMMENTS INCORPORATED	SEK	RFF

ROBERT F. FERRARI
11/15/24
No. 4658
REGISTERED PROFESSIONAL ENGINEER

567 SOUTH COUNTY TRAIL, SUITE 116 EXETER, RI 02822

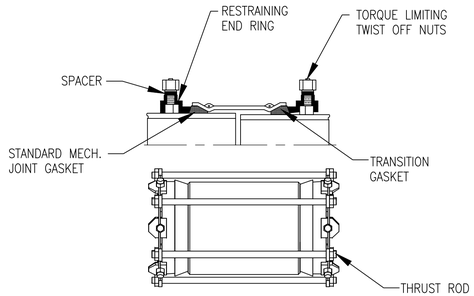
NORTHEAST Water Solutions INC.

SHEET: ISOMETRIC EQUIPMENT LAYOUT PLAN
DATE: 3/11/22
DRAWN BY: SEK
CLIENT: RI DEPT.OF TRANSPORTATION, 2 CAPITOL HILL, PROVIDENCE, RI 02903
DESIGNED: SEK
CHECKED: RFF
PROJECT: RHODE ISLAND WELCOME CENTER PUMP HOUSE IMPROVEMENTS AND PUBLIC WATER SYSTEM UPGRADES
APPROVED: RFF
SHEET: M-2



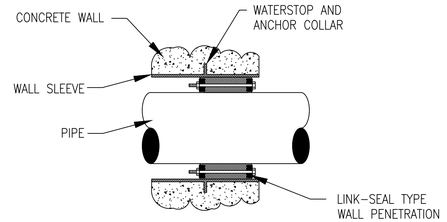
EXTERIOR PIPING INSULATION AND HEAT TRACING DETAIL

NOT TO SCALE



TYPICAL RESTRAINT COUPLING DETAIL

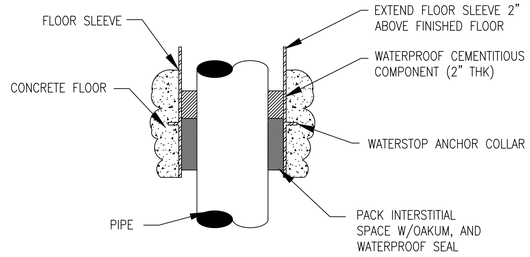
NOT TO SCALE



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

TYPICAL WALL SLEEVE DETAIL

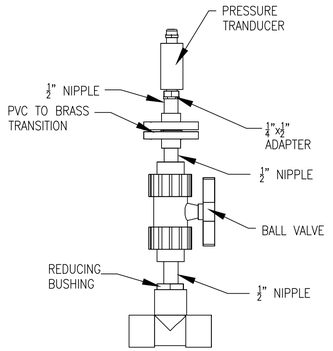
NOT TO SCALE



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

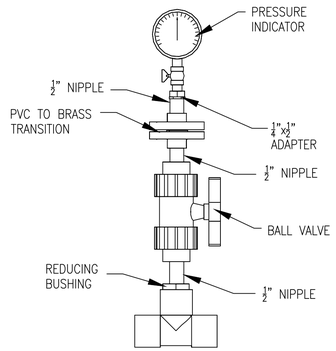
TYPICAL FLOOR SLEEVE DETAIL

NOT TO SCALE



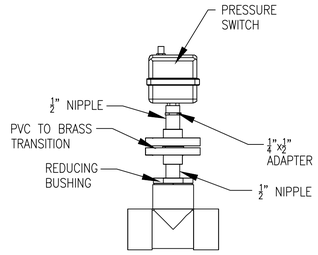
TYPICAL PRESSURE TRANSDUCER INSTALLATION

NOT TO SCALE



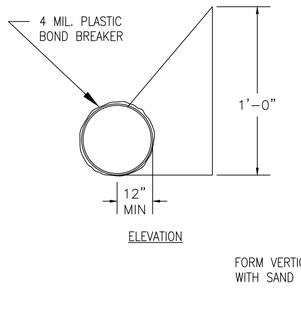
TYPICAL PRESSURE INDICATOR INSTALLATION

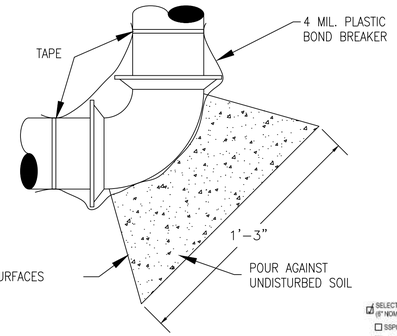
NOT TO SCALE



TYPICAL PRESSURE SWITCH INSTALLATION

NOT TO SCALE

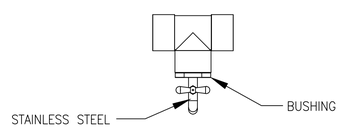




NOTE:
WRAP 4 MIL. PLASTIC AROUND PIPE & FITTINGS AT ALL LOCATIONS WHERE THEY WILL COME INTO CONTACT WITH CONCRETE.

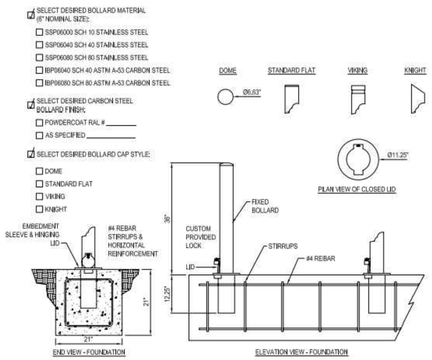
TYPICAL REACTION BLOCK DETAIL

NOT TO SCALE



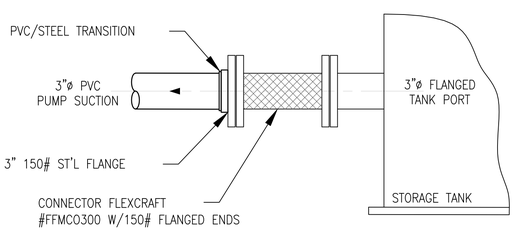
TYPICAL SMOOTHBORE SAMPLE TAP INSTALLATION

NOT TO SCALE



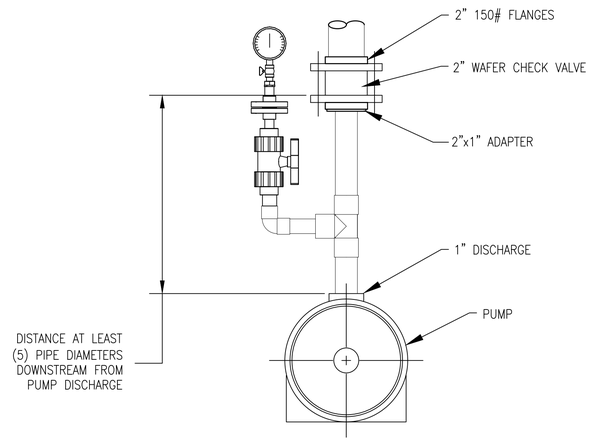
TYPICAL REMOVEABLE BOLLARD DETAIL

NOT TO SCALE



TYPICAL FLEXIBLE CONNECTION INSTALLATION

NOT TO SCALE



WAFER CHECK VALVE INSTALLATION

NOT TO SCALE

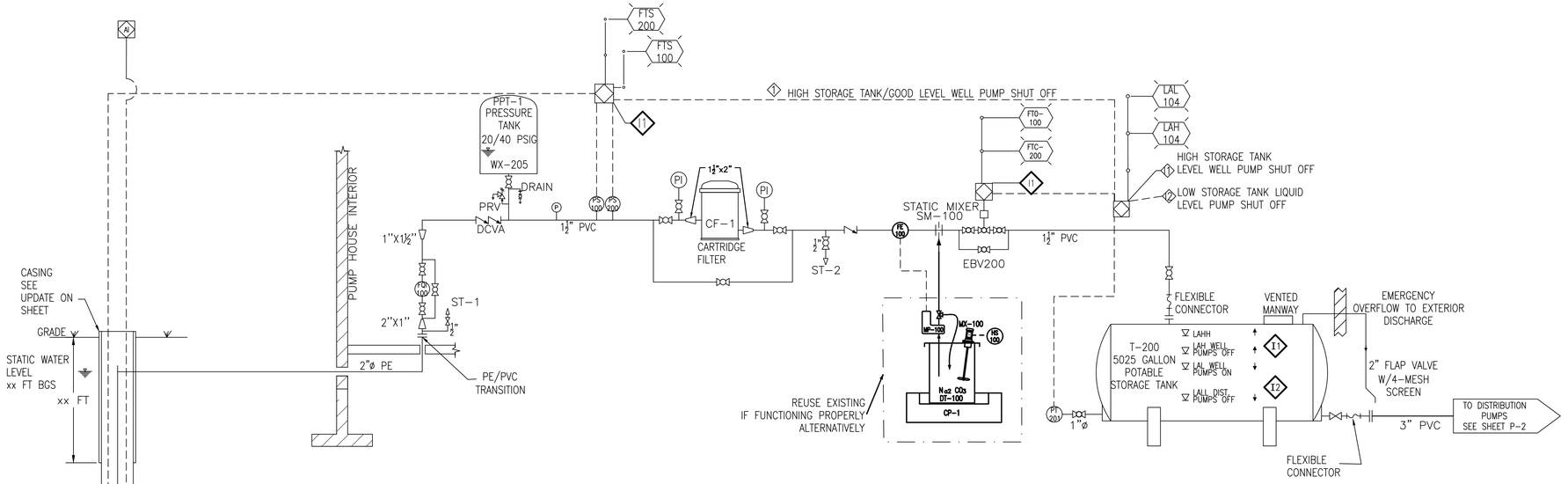
REVISION	DATE	DESCRIPTION	BY	APP
6	11/15/24	RIDOT COMMENTS-BIDDING ONLY-NOT FOR CONSTRUCTION	SEK	RFF
5	9/8/23	RE-ISSUED FOR BIDDING	SEK	RFF
4	5/11/23	ISSUED FOR BIDDING	SEK	RFF
3	10/11/22	RIDOH COMMENTS INCORPORATED	SEK	RFF
2	9/29/22	RIDOH COMMENTS INCORPORATED	SEK	RFF
1	4/19/22	RIDEM COMMENTS INCORPORATED	SEK	RFF

ROBERT F. FERRARI
11/15/24
No. 4658
REGISTERED PROFESSIONAL ENGINEER

567 SOUTH COUNTY TRAIL, SUITE 116 EXETER, RI 02822

NORTHEAST Water Solutions INC.

SHEET: MECHANICAL DETAIL SHEET
DATE: 3/11/22
DRAWN BY: SEK
CLIENT: RI DEPT.OF TRANSPORTATION, 2 CAPITOL HILL, PROVIDENCE, RI 02903
DESIGNED: SEK
CHECKED: RFF
PROJECT: RHODE ISLAND WELCOME CENTER PUMP HOUSE IMPROVEMENTS AND PUBLIC WATER SYSTEM UPGRADES
APPROVED: RFF
SHEET: M-3



ALL WELL WETTED COMPONENTS TO BE NSF 61 COMPLIANT

EXISTING WELL PUMP (TO BE REPLACED)

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

WATER LEVEL TRANSDUCER (LT-100)

MFGR:	ENDRESS + HAUSER
QUANTITY:	ONE (1)
MODEL:	WATER PILOT FMX21
RANGE:	0-300 FT (0-130 PSIG)
OUTPUT:	4-20 mA
CABLE LENGTH:	300 FT

MECHANICAL FLOWMETER (FQI-100)

MFGR:	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)

MFGR:	WATTS
QTY:	ONE (1)
MODEL:	LF007M2-QT-S 1 1/2
INLETø:	1 ½"
OUTLET ø:	1 ½"

WELL PUMP PRESSURE TANK (PPT-1)

MFGR:	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)

MFGR:	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:	¼" NPT

CARTRIDGE FILTER (CF-1)

MFGR:	HARMSCO
MODEL:	WB-40SC-2
DIMENSIONS:	13"ø x 19¼"L
CONNECTIONS:	2"ø
MICRON RATING:	25u

SPILL CONTAINMENT PALLET (CP-1)

MFRG:	INTERSTATE PRODUCTS
MODEL:	1620
VOLUME:	66 GALLONS
MATERIAL:	PE
LOAD CAPACITY:	2,000 LBS

CHEMICAL METERING PUMP (MP-100)

MFRG:	MILTON ROY/LMI
MODEL:	C121-368-S1
CAPACITY:	4 GPH @ 110 PSI
CHEMICAL:	8-10% NaCO3
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)

MFRG:	MILTON ROY/LMI
MODEL:	10590
MOTOR:	1/20 HP 115VAC 1PH
SHAFT:	34" LG
WETTED MATL:	303 SS

STATIC MIXER (SM-100)

MFRG:	WESTFALL
MODEL:	2800
SIZE:	1-1/2" DIA
MOUNTING RING:	PVC
GASKETS:	⅛" EPDM
INJECTION QUILL:	ONE (X1) ½" PVC WITH INTEGRAL CHECK VALVE

PROPORTIONAL FLOWMETER (FE-100)

MFGR:	SEAMETRICS
MODEL:	MJNR-075-4P
CAPACITY:	0.22 TO 22 GPM
MAX PRESSURE:	150 PSIG
CONNECTIONS:	1.5" DIA
PULSE RATE:	4 PULSES/GAL

EXISTING EQUIPMENT TO BE SALVAGED FOR REUSE IN NEW SYSTEM

WATER STORAGE TANK FILL VALVE (EBV-200)

MFGR:	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)

MFGR:	NORWESCO
MODEL:	5025 GAL ELLIPTICAL LEG TANK
VOLUME:	5025 GAL
DIAMETER:	92"
LENGTH:	190"
PUMP CONNECTION:	3"

WATER STORAGE TANK PRESSURE TRANSDUCER (PT-201)

MFGR:	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

REVISION	DATE	DESCRIPTION	BY	APP
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ROBERT F. FERRARI
11/15/24
No. 4658
REGISTERED PROFESSIONAL ENGINEER

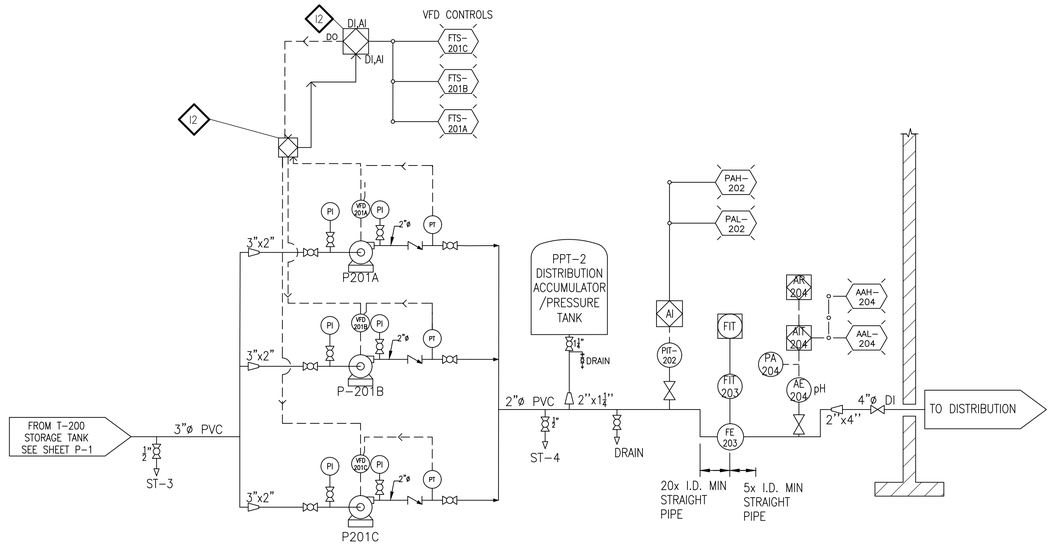
567 SOUTH COUNTY TRAIL, SUITE 116 EXETER, RI 02822

NORTHEAST Water Solutions INC.

SHEET: PROCESS & INSTRUMENTATION DIAGRAM-1
DATE: 3/11/22
DRAWN BY: SEK
DESIGNED: SEK
CHECKED: RFF
APPROVED: RFF
SHEET: P-1

CLIENT: RI DEPT.OF TRANSPORTATION
2 CAPITOL HILL
PROVIDENCE, RI 02903

PROJECT: RHODE ISLAND WELCOME CENTER
PUMP HOUSE IMPROVEMENTS AND PUBLIC WATER SYSTEM UPGRADES



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

MFGR:	GOULDS
MODEL:	NPE 1ST
SIZE:	2X2"
INLET:	2"
OUTLET:	2"
PUMP CAPACITY:	10 GPM @ 127' TDH 20 GPM @ 119' TDH 40 GPM @ 92' TDH
IMPELLER:	5¾"ø
SPEED:	3500 RPM
MOTOR HP:	2HP, TEFC, CLOSE-COUPLED
POWER:	208VAC, SINGLE PHASE, 2HP, 60HZ VARIABLE FREQUENCY

BOOSTER PUMP PRESSURE TANK (PPT-2)

MFGR:	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)

MFGR:	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:	¼" NPT

FLOW SENSOR (FE 203)

MFGR:	SIGNET
MODEL:	2536 LOW FLOW PADDLE WHEEL SENSOR
PART NO.:	3-2536-P0
SIZE:	0.4 to 4"
POWER:	SELF-POWERED

FLOW TRANSMITTER (FIT 203)

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

FLOW SENSOR INSERTION FITTING

MFGR:	SIGNET
MODEL:	PV8S030
SIZE:	3"ø
MATERIAL:	PVC

PH ANALYZER (AIT-204)

MFGR:	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 (PA-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
SENSOR MOUNT TYPE:	SUBMERSION
MAX TEMPERATURE:	100°C
MEASURING RANGE:	0 TO 14 S.U.

pH SENSOR INSERTION FITTING

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

ALL WELL WETTED COMPONENTS TO BE NSF 61 COMPLIANT

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ROBERT F. FERRARI
11/15/24
No. 4658
REGISTERED PROFESSIONAL ENGINEER

567 SOUTH COUNTY TRAIL, SUITE 116 EXETER, RI 02822

NORTHEAST Water Solutions INC.

SHEET: PROCESS & INSTRUMENTATION DIAGRAM-2
CLIENT: RI DEPT.OF TRANSPORTATION, 2 CAPITOL HILL, PROVIDENCE, RI 02903
PROJECT: RHODE ISLAND WELCOME CENTER PUMP HOUSE IMPROVEMENTS AND PUBLIC WATER SYSTEM UPGRADES

DATE 3/11/22
DRAWN BY SEK
DESIGNED SEK
CHECKED RFF
APPROVED RFF
SHEET P-2

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 BYLAWS WHICH MAY TAKE PRECEDENCE.
-AT THIS DATE, CURRENT CODE REFERENCED IS THE INTERNATIONALCOMMERCIAL 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'-0"
-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 Fb 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% "S-DRY".
-STUDS AND BLOCKING– HEM FIR #2 OR HEMLOCK #2 Fb = 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, Fb = 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" LAYERS; COMPACTED TO 95% MAX. DRY DENSITY.
-WALL FOUNDATIONS, COLUMN FOOTINGS AND SLAB-ON-GRADE ARE DESIGNED FOR A BEARING VALUE OF 2000 PSF ON ON WELL-GRADED GRANULAR FILL OR UNDISTURBED EXISTING GRANULAR SOIL OF SUITABLE QUALITY TO SUPPORT THE REQUIRED LOADS.
-(OWNER/G.C.) SHALL USE A REGISTERED SOILS ENGINEER TO CONFIRM THE ASSUMED BEARING CAPACITY, SUBMIT A STAMPED REPORT OF FINDINGS AND RECOMMENDATIONS.
-UNSUITABLE 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 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 FROM ICE AND SNOW, ROOTS AND OTHER DELETEREOUS MATERIAL AND SHALL CONFORM TO THE FOLLOWING GRADATIONS:

SIEVE 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 DELETEREOUS MATERIAL AND SHALL CONFORM TO THE FOLLOWING GRADATIONS:

SIEVE SIZE	PERCENT PASSING
1"	100
3/4"	90–100
1/2	10–50
3/8"	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, LESSEN OR RESTRICT IN ANY MANNER THE RESONSIBILITY OF THE CONTRACTOR FOR ALL CONSTRUCTION METHODS AND FOR PROVIDING CONCRETE IN THE COMPLETED STRUCTURE THAT FULLY MEETS THE STRENGTH, APPEARANCE AND ALL AND OTHER REQUIREMENTSOF THE PROJECT DRAWINGS.
-A TESTING AGENCY SHALL BE RETAINED BY THE OWNER TO VERIFY THE ACCEPTABILITY OF MATERIALS, DESIGN OF THE CONCRETE MIXES, AND TO PERFORM SLUMP AND COMPRESSION TESTS.

CONCRETE REQUIREMENTS

1. WALLS AND FOOTINGS
   A. 28-DAY COMPRESSIVE STRESGTH F'C =3000 PSI.
   B. CEMENT: ASTM C150, TYPE 1 OR 2.
   C. AGGREGATE: ASTM C33, MAX. DIA=1 1/2".
   D. WATER: POTABLE.
   E. SLUMP: 2–4 INCHES
   F. AIR-ENTERTAINMENT: 5–7%
2. SLAB ON GRADE
   A. 28-DAY COMPRESSIVE STRENGTH F'C = 3000 PSI
   B. CEMENT: ASTM C150, TYPE 1 OR 2
   C. AGGREGATE: ASTM C33, MAX. DIA.= 3/4 "
   D. WATER: POTABLE
   E. SLUMP: 2–4 INCHES.
   F. AIR-ENTERTAINMENT: 5–7 %
   G. THICKNESS 5 INCHES.

-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. TIE HOLES ON BOTH FACES 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 BEGUN 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. AFTER FREED WATER DISAPPEARS, THE JOINT SHALL BE GIVEN A COATING 1/8" THICK OF NEAT CEMENT GROUT. NEW CONCRETE SHALL BE DEPOSITED BEFORE NEAT CEMENT GROUT DRIES.
-ALL FOUNDATION WALLS SHALL HAVE AT LEAST 2 – #5 BARS CONTINUOUS AT TOP AND BOTTOM, WITH CORNER BARS AT WALL INTERSECTIONS.
-AT OPENINGS IN FOUNDATION WALLS GREATER THAN 18 INCHES SQUARE, PROVIDE TWO #5 BARS AT EACH EDGE OF OPENING.
-HAVE ON SITE, READY FOR USE, SUFFICIENT AND ADEQUATEEQUIPMENT FOR PROTECTING CONCRETE FROM ANY AND ALL FORMS OF DAMAGE FROM THE ELEMENTS.
-FORMED SURFACES SHALL BE CURED BY AUXILIARY WETTING OR BY LEAVNG FORMS IN PLACE.
-UNFORMED SURFACES SHALL BE CURED AS A MINIMUM OF 50 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 CONCERET 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.
MINIMUMLAP 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 TWO CROSSWIRES 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:
   A. SIDES AND BOTTOMS OF FOOTINGS: 3"
   B. CONCRETE EXPOSED TO WEATHER OR EARTH:
      #4 AND #5 WELDED WIRE FABRIC : 1–1/2"
      BARS LARGER THAN #5: 2"
   C. CONCRETE NOT EXPOSED TO WEATHER OR EARTH:
      SLABS AND WALLS: 3/4"
-REINFORCEMENT ACCESSORIES, INCLUDING SPACERS, CHAIRS, TIES, TIE WIRE AND CLIPS SHALL BE OF A TYPE MANUFACTURED FOR THE SPECIFIC PURPOSE THEY ARE USED FOR. WOOD BLOCKS, STONE, BRICK CHIPS, ETC. WILLNOT BE PERMITTED. MINIMUM REQUIREMENTS SHALL BE: HIGH CHAIRS 4'–0" O.C. WITH CONTINUOUS #5 SUPPORT BAR, 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 RINFORCING 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 WIRED TOGETHER AND PROTECTED AGAINST DISPLACEMENT BEFORE AND DURING PLACEMENT OF CONCRETE.
-REINFORCING SHOWN IN SECTION IS TYPICAL WHEREVER THE SECTION APPLIES. DOWELS 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" (NCMA), LATEST EDITIONS.
-MATERIAL STRENGTHS SHALL BE AS FOLLOWS:
   A. CONCRETE MASONRY UNITS (CMU) SHALL BE ASTM C-90, GRADE N, Fm = 1500 PSI. BLOCKS TO BE BY WESTBROOK BLOCK, OMNI BLOCK INSULATED, COLOR TO BE APPROVED BY ARCHITECT.
   B. MORTAR SHALL BE ASTM C270, TYPE S (LIME) , Fc = 1800 PSI. MORTAR TO MATCH BLOCK. COLOR TO BE APPROVED BY ARCHITECT.
   C. GROUT SHALL BE ASTM C478, TYPE PL, FINE OR COARSE, Fc = 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 CORES, UNLESS SHOWN OTHERWISE.
-AN ADDITIONAL #5 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 FILING 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 CAULKED. 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" L5 X 3–1/2" X 5/16" SPANS 7'–0" TO 9'–0" REFER TO DRAWING DETAILS

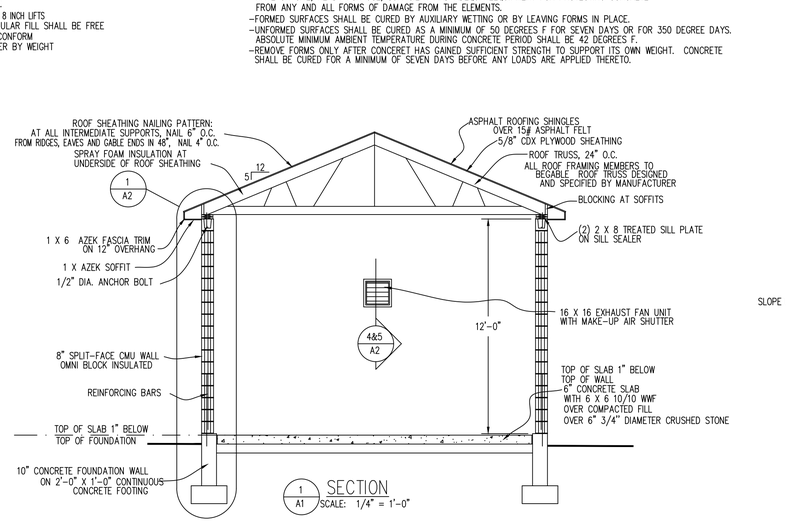
ROOFING

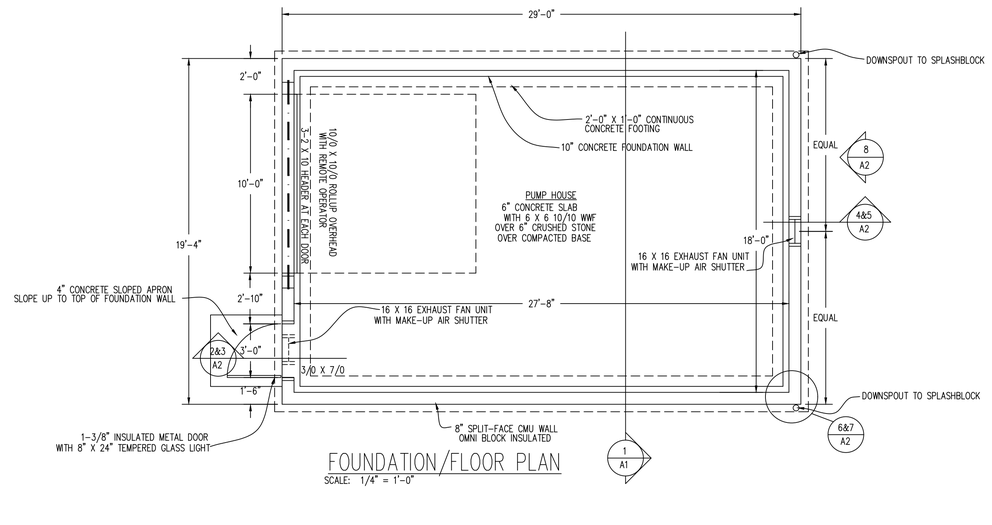
-ALL ROOFING SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
-ROOFING MATERIAL SHALL BE 30 YEAR ASPHALT BASED FIBERGLASS ARCHITECTURAL SHINGLES WITH CLASS A UL LISTING FOR FIRE AND WIND RESISTANCE INSTALLED OVER 15# ASPHALT PAPER.
-ROOFING TO BE BY CERTAINTEED OR GAF TIMBERLINE ARCHITECTURAL SHINGLES.

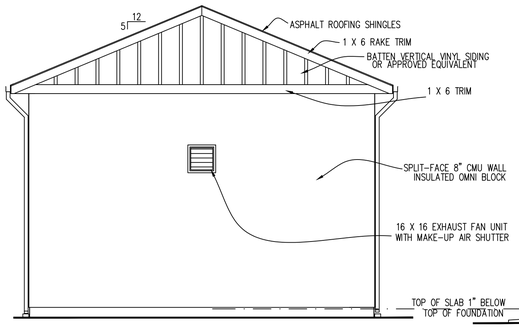
DOORS/OPENINGS

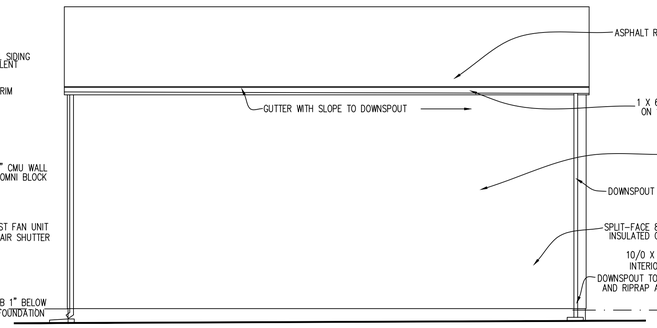
PROVIDE AND INSTALL ONE SERVICE DOOR – 3'–0" X 7'–0" X 1–1/2" METAL INSULATED DOOR WITH 8 X 12 TEMPERED GLASS WINDOW AND WITH KD METAL FRAME.
DOOR HARDWARE TO BE MORTISED LEVER HANDLE WITH DEADBOLT.

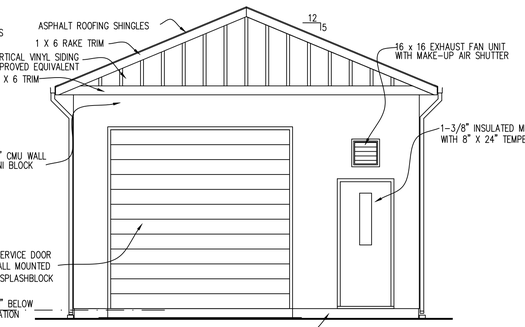
-EXTERIOR TRIM AS SPECIFIED IN DRAWINGS SHALL BE AZEK PRIMED AND FINISHED W/TWO COATS PAINT.
– PROVIDE AND INSTALL HEAVY DUTY EXHAUST SHUTTER – TPI INDUSTRIAL CES–16 – 16" X 16" WITH OUTSIDE FRAME 19" X 19" AND SHUTTER MOUNTED DIRECT DRIVE EXHAUST FAN TPI INDUSTRIAL CE 16–DS WITH THERMOSTAT AND CONTROL ET9 SERIES – LINE VOLTAGE ET9SRTS.
-PROVIDE AND INSTALL ONE ROLLING SERVICE DOOR BY OVERHEAD DOOR COMPANY MODEL #627 FACE OF WALL MOUNTED AT INTERIOR WITH METAL FRAME AT OPENING. DOOR TO BE ELECTRIC OPERATED, 10'–0" X 10'–0".











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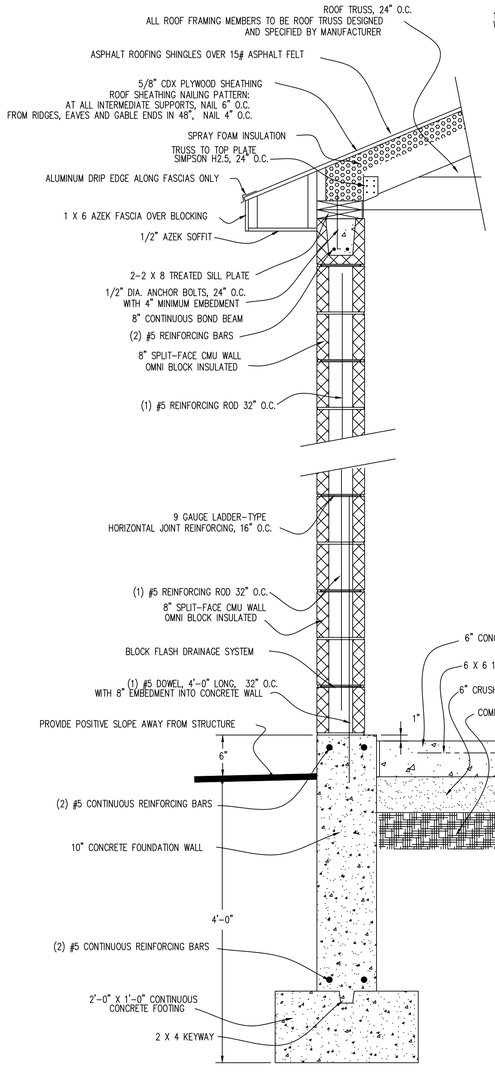
REVISION	DATE	DESCRIPTION	BY	APP
6	11/15/24	RIDOT COMMENTS–BIDDING ONLY–NOT FOR CONSTRUCTION	LK	RFF
5	9/8/23	RE–ISSUED FOR BIDDING	LK	RFF
4	5/11/23	ISSUED FOR BIDDING	LK	RFF
3	10/11/22	RIDOH COMMENTS INCORPORATED	LK	RFF
2	9/29/22	RIDOH COMMENTS INCORPORATED	LK	RFF
1	4/19/22	RIDEM COMMENTS INCORPORATED	LK	RFF

ROBERT F. FERRARI
11/15/24
No. 4658
REGISTERED PROFESSIONAL ENGINEER

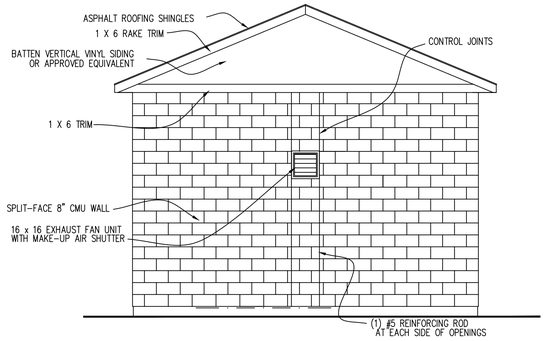
NORTHEAST Water Solutions INC.

SHEET: SPECIFICATIONS, PLANS, SECTION, & ELEVATIONS
CLIENT: RI DEPT.OF TRANSPORTATION, 2 CAPITOL HILL, PROVIDENCE, RI 02903
PROJECT: RHODE ISLAND WELCOME CENTER PUMP HOUSE IMPROVEMENTS AND PUBLIC WATER SYSTEM UPGRADES

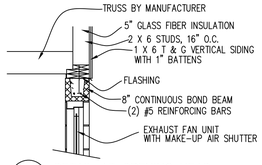
DATE	3/11/22
DRAWN BY	LAD
DESIGNED	LAD
CHECKED	RFF
APPROVED	RFF
SHEET	A-1



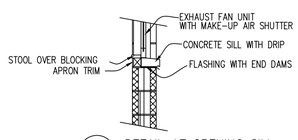
1 / A2 WALL SECTION
SCALE: 1" = 1'-0"



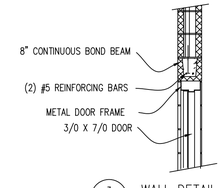
8 / A2 REINFORCING AT OPENINGS
SCALE: 1/4" = 1'-0"



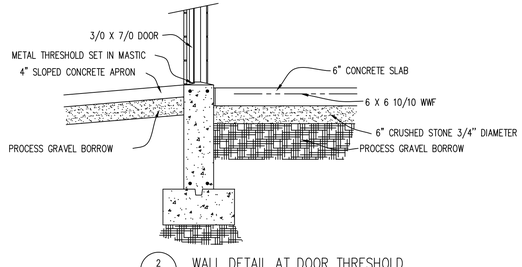
5 / A2 DETAIL AT OPENING HEAD
SCALE: 1/2" = 1'-0"



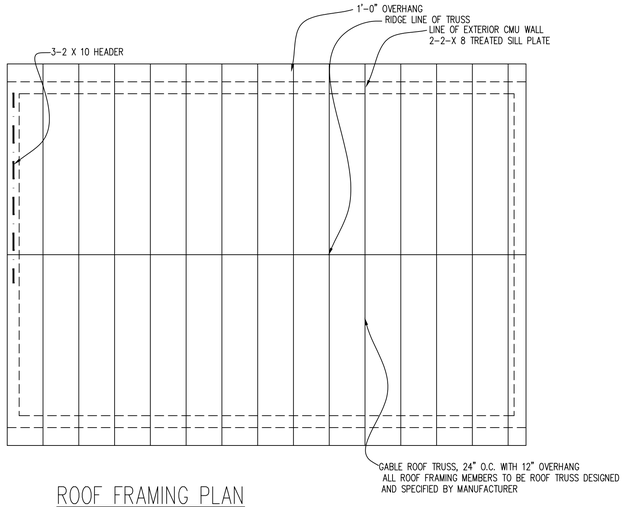
4 / A2 DETAIL AT OPENING SILL
SCALE: 1/2" = 1'-0"



3 / A2 WALL DETAIL AT DOOR HEAD
SCALE: 1/2" = 1'-0"

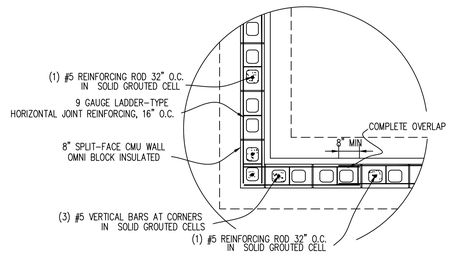


2 / A2 WALL DETAIL AT DOOR THRESHOLD
SCALE: 1/2" = 1'-0"

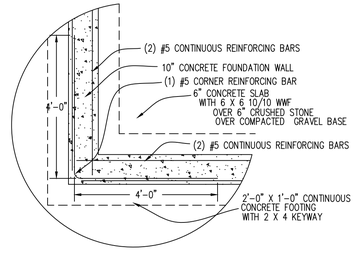


ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"

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



6 / A2 TYPICAL MASONRY WALL CORNER
SCALE: 1/2" = 1'-0"



7 / A2 TYPICAL FOUNDATION WALL CORNER
SCALE: 1/2" = 1'-0"

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ROBERT F. FERRARI
11/15/24
No. 4658
REGISTERED PROFESSIONAL ENGINEER

567 SOUTH COUNTY TRAIL, SUITE 116 EXETER, RI 02822

NORTHEAST Water Solutions INC.

SHEET: DETAILS & FRAMING PLAN
CLIENT: RI DEPT.OF TRANSPORTATION, 2 CAPITOL HILL, PROVIDENCE, RI 02903
PROJECT: RHODE ISLAND WELCOME CENTER PUMP HOUSE IMPROVEMENTS AND PUBLIC WATER SYSTEM UPGRADES

DATE	3/11/22
DRAWN BY	LAD
DESIGNED	LAD
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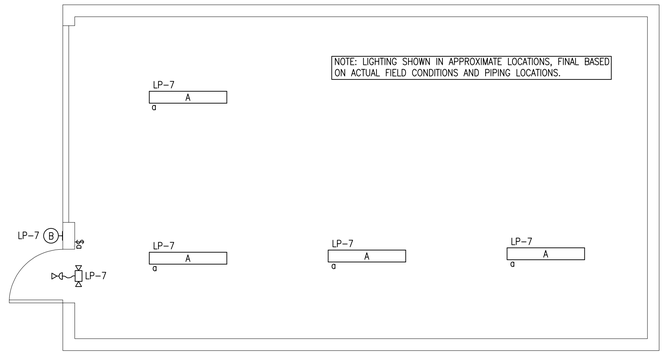
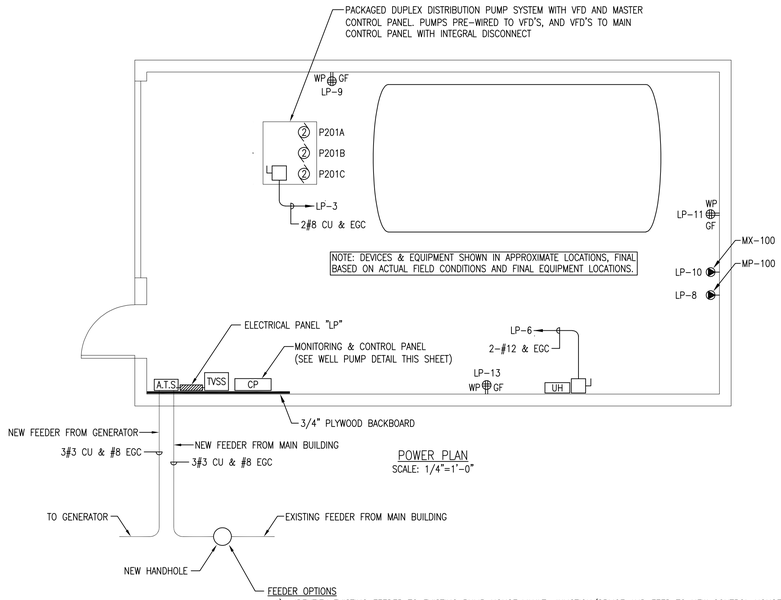
APPROVED	RFF
SHEET	A-2



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	LVT440S	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
	120-277V	LED	INCON LIGHTING	LTEL SERIES	LED EMERGENCY LIGHT WITH REMOTE CAPABILITY AND SELF-DIAGNOSTICS
	120-277V	LED	INCON LIGHTING	ODCR SERIES	LED OUTDOOR DUAL REMOTE HEAD



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

FEEDER OPTIONS

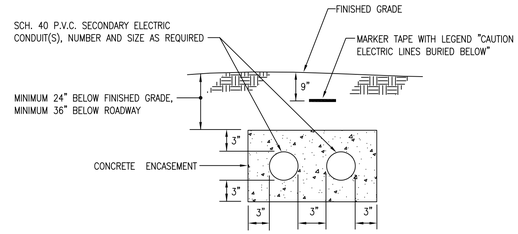
1) IDENTIFY EXISTING FEEDER TO EXISTING PUMP HOUSE VAULT, JUNCTION/SPLICE AND FEED TO NEW CONTROL HOUSE PANEL.
2) IDENTIFY EXISTING FEEDER TO EXISTING PUMP HOUSE VAULT, REMOVE EXISTING CONDUCTORS AND RE-USE CONDUIT SYSTEM UNDER ROADWAY TO MAIN ELECTRIC ROOM, PROVIDE NEW CONDUCTORS BACK TO SWITCH/FUSE IN EXISTING MAIN ELECTRIC ROOM.
3) FOR BIDDING PURPOSED CARRY TRENCHING FROM NEW PUMP HOUSE ACROSS ROADWAY AND INTO EXISTING ELECTRIC ROOM TO PROVIDE NEW FEEDER TO NEW PUMP HOUSE PANEL. OTHER OPTIONS TO BE DETERMINED NOT VIABLE PRIOR TO USING THIS OPTION.

GENERATOR

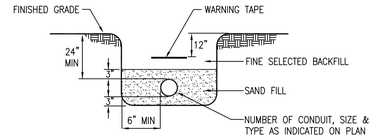
1. NEW GENERATOR SHALL BE A PROPANE POWERED ENGINE-GENERATOR SET OF THE LATEST COMMERCIAL TYPE AND DESIGN, RATED FOR STANDBY ELECTRICAL SERVICE OF 25kW/25kVA, 120/240 VOLT, 3-WIRE, SINGLE-PHASE, 60 HZ, 1800 RPM, WATER COOLED, WITH 100A CIRCUIT BREAKER, OUTDOOR ENCLOSURE, AS MANUFACTURED BY SUPERIOR GENERATOR OR APPROVED EQUAL.
2. PROVIDE QUALIFIED TECHNICIAN LABOR TO TEST THE GENERATOR WITH RESISTIVE LOAD BANK UPON COMPLETION OF INSTALLATION AND COMMISSIONING.
3. PROVIDE OPERATION AND MAINTENANCE TRAINING FOR THE STATE FACILITY PERSONNEL.
4. SERVICE AGREEMENTS FOR THE ROUTINE MAINTENANCE SHALL BE INCLUDED FOR A ONE YEAR PERIOD.
5. THE GENERATOR SHALL BE WARRANTED AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR COVERAGE TO INCLUDE 100% PARTS & LABOR. A RENTAL GENERATOR SHALL BE PROVIDED FOR REPAIRS THAT TAKE LONGER THAN THREE DAYS.
6. THE GENERATOR DISTRIBUTOR SHALL MAINTAIN LOCAL PARTS AND SERVICE FACILITY WITHIN 100 MILES OF THIS INSTALLATION. SUPPLIER SHALL HAVE A EMERGENCY ORDERS OF >90% OF ALL PARTS WITHIN TWO BUSINESS DAYS. MANUFACTURER MUST GUARANTEE AVAILABILITY OF SPARES FOR A PERIOD OF NO LESS THAN 10 YEARS AFTER FINAL PRODUCTION MODEL PROVIDED.
7. SEE PROJECT SPECIFICATIONS FOR COMPLETE GENERATOR SPECIFICATIONS.

AUTOMATIC TRANSFER SWITCH (ATS)

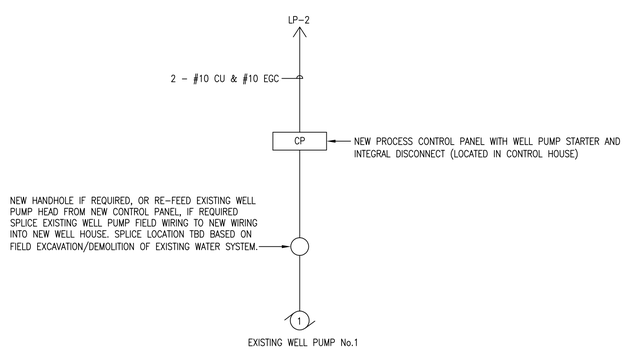
1. ASCO 300 SERIES ENTRANCE RATED WITH 100A MAIN CIRCUIT BREAKER.



SECONDARY ELECTRIC DUCT BANK
NOT TO SCALE



SECONDARY ELECTRIC CONDUIT
NOT TO SCALE



WELL PUMP DETAIL TYPICAL
NOT TO SCALE

NOTES

1. 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 ORDNANCES OF THE TOWN OF RICHMOND.
2. 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.
3. INTERIOR CONDUIT SHALL BE SCHEDULE 40 PVC 9WHERE NOT EXPOSED TO MECHANICAL DAMAGE), 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.
4. ALL WIRE SHALL BE COPPER TYPE THHN/THHW WHERE RUN IN CONDUIT AND COPPER TYPE XHHW IN EXTERIOR RACEWAY.
5. 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.
6. REVIEW CIVIL/SITE/MECHANICAL DRAWINGS FOR LOCATIONS OF NEW PUMP HOUSE, EXISTING WELLS, ETC, AND EQUIPMENT DIMENSIONS.
7. 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.
8. TVSS INSTALLED IN BREAKER POSITION CLOSEST TO MAIN SWITCH. FOLLOW MANUFACTURERS DIRECTIONS

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.
	SINGLE 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.
TVSS	TVSS, TOTAL PROTECTION SOLUTIONS MODEL TK-TT2-100-1S240-FL
SS	NONE FUSED NEMA 4 ENCLOSED LOCAKABLE SAFTEY SWITCH.
	NONE FUSED LOCAKABLE SAFTEY SWITCH PROVIDED WITH AND INTEGRAL TO EQUIPMENT.
5	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.
$a	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. "a" INDCIATES LIGHTING FIXTURE BEING CONTROLLED BY SWITCH.
A.T.S.	AUTOMATIC TRANSFER SWITCH

PANELBOARD SCHEDULE

CKT. NO.	DESCRIPTION	BREAKER POLE	BREAKER AMP	LOAD KVA A	LOAD KVA B	BREAKER POLE	BREAKER AMP	DESCRIPTION	CKT. NO.
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 SIEMENS TYPE "P" / SQUARE D TYPE "NQ"									
1	TVSS	2	30		2			CONTROL PANEL	
						2	2	30	EXISTING WELL PUMP No.1	2
3	PACKAGED PUMP SYSTEM PUMPS P-201A, P-201B, P-201C	2	40	2.7	2.7		2	30	SPARE	4
5	SPARE	2	20		1	1	2	20	HEATER	6
7	LIGHTING	1	20	0.668	0.2		1	20	MP-100	8
9	RECPETACLES	1	20		0.18	0.2	1	20	MX-100	10
11	RECPETACLES	1	20	0.18	0.72		1	20	GENERATOR BATTERY CHRGR	12
13	RECPETACLES	1	20		0.18		1			14
15		1					1			16
17		1					1			18
19		1					1			20
21		1					1			22
23		1					1			24
25		1					1			26
27		1					1			28
31		1					1			30
33		1					1			32
35		1					1			34
37		1					1			36
	TOTAL PER PHASE			7.468	6.26				
	TOTAL PANEL				13.73				
	TOTAL AMPS				57.2				
	AMPS *1.25				71.5				

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

ALAN M. SALK
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ELECTRICAL

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REVISION	DATE	DESCRIPTION	BY	APP
1	11/14/24	ADDED GENERATOR	AMS	

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SHEET: ELECTRICAL PLAN NEW PUMP HOUSE
CLIENT: RHODE ISLAND VISITORS CENTER, ROUTE 95 NORTH, RICHMOND, RI
PROJECT: WATER SYSTEM IMPROVEMENTS

DATE	03/24/22
DRAWN BY	AMS
DESIGNED	AMS
CHECKED	AMS
APPROVED	AMS
SHEET	E-1