

ADDENDUM #2: November 8, 2019

FROM: Allied Engineering, Inc.
160 Veranda Street
Portland, Maine 04103
Telephone: (207) 221-2260

TO: Prospective Bidders, Suppliers, and Other Parties

RE: Addendum No. **Two (2)** to the Bidding Documents for:
NEW MECHANICS GARAGE LITCHFIELD MAINTENANCE FACILITY MILE
MARKER 92.7

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated October 15, 2019. Acknowledge receipt of this Addendum in the space provided on the Proposal Form. Failure to do so may subject Bidder to disqualification.

GENERAL: None

PROPOSAL:

1. **DELETE** Proposal Sheet P-1 thru P-8 (Revised 11/1/19) issued in Addendum 1 in their entirety. **ADD** in its Proposal Sheets P-1 thru P-8 (Revised 11/8/19). Added pay item 203.21.

PLANS

1. DRAWING C-101 SITE AND UTILITY PLAN: **DELETE** in its entirety and **ADD** in its place the revised sheets attached to this addendum. Drawing C-101 has been updated relocating the 6,000-gallon holding tank plan south of the initial location. The drawing also depicts a separate 1,000-gallon septic tank with a 4 ft diameter lift station. The force main to the septic system has been revised to 2" in diameter to match the specifications.
2. DRAWING C-401 DETAILS-1: **DELETE** in its entirety and **ADD** in its place the revised sheets attached to this addendum. Drawing C-401 has been updated removing the 1,000-gallon septic and lift station detail and replacing it with a 1,000-gallon septic tank detail
3. DRAWING C-402 DETAILS-2: **DELETE** in its entirety and **ADD** in its place the revised sheets attached to this addendum. Drawing C-402 has been updated removing the HDPE 5,000-gallon water tank and replacing with a 6,000-gallon concrete tank and well casing. A 4 ft lift station has been added that goes in line with the septic tank.
4. DRAWING PL-100 SANITARY PIPING PLAN: **DELETE** in its entirety and **ADD** in its place the revised sheet PL-00 attached to this addendum. Domestic Indoor Pump Schedule and Domestic Water Booster Pump Package have been revised and sheet Detail A6 has been revised.
5. DRAWING PP-100 DOMESTIC PIPING PLAN: **DELETE** in its entirety and **ADD** in its place the revised sketch SKP-04 attached to this addendum. Detail E1 has been revised.
6. DRAWING ES-100 ELECTRICAL SITE PLAN: **DELETE** in its entirety and **ADD** in its place the revised sheets attached to this addendum. Drawing ES-101 has been updated to incorporate changes made to site plan.

7. DRAWING EP-600 ELECTRICAL SCHEDULES: **DELETE** in its entirety and **ADD** in its place the revised sheets attached to this addendum. Drawing EP-600 has been updated to incorporate changes made to panel schedules.

SPECIFICATIONS

1. Section 221123.13: **DELETE** in its entirety and **ADD** in its place the revised Section 221123.13 “Domestic-Water Packaged Booster Pumps”.
2. Section 221429 Sump Pump: **DELETE** in its entirety.
3. Section 203.18 Method of Measurement: **DELETE** in its entirety and **ADD** in its place

Allowance No. 1 - \$7,500: Carry in the base bid excavation of 100 cubic yards of petroleum contaminated soil as specified in Specification Section 31 23 16 “Excavation”. During the execution of the contract, the Contract Amount shall be adjusted for actual yardage of contaminated soil removal authorized by the Owner in excess or below the quantities depicted above based upon the following:

1. *For quantities in excess of those presented above, the Contract Amount shall be adjusted by the addition of the excess quantity of contaminated soil removed based upon the unit price of \$75 per cubic yard.*
2. *For quantities which result in a total excavation below those presented above, the Contract Amount shall be adjusted by a credit to the Owner at the unit price of \$70 per cubic yard.*

203.18 Basis of Payment

The following paragraph is added:

Removal and Disposal of Contaminated Soils will be paid for at the Contract unit price per cubic yard which shall be full compensation for all materials, tools, equipment labor, and all incidentals necessary for the completion of the work to the satisfaction of the Owner.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
203.201	Removal and Disposal of Contaminated Soils	Cubic Yard

4. Section 604.02 Materials: **DELETE** in its entirety, **ADD** in its place

Frame and Cover for Manhole and Holding tank shall be Neenah R-1156A or equivalent;

The cost of furnishing and installing steps, installing reinforced steel concrete stubs and other appurtenances shall be considered as incidental to the structure and no separate payment will be made, therefore. The cost of furnishing and installing the high-water alarm system shall be incidental to the structure and no separate payment will be made, therefore.

<u>Pay Item</u>		<u>Pay Unit</u>
604.158	Utility Vault (6000 Gallon Holding Tank)	Each

5. Section 655 Electrical Concrete Encased Conduit: Delete Description in its entirety, Add in its place:

Description

This work shall consist of encasing all conduit within the limits of the proposed conduit raceway section below pavement. This work shall be completed in accordance with the Specifications, in reasonably close conformity with the lines and grades shown on the Plans or as approved by the Resident.

6. Section 822.06 Basis of Payment: **DELETE** in its entirety, **ADD** in its place

The accepted quantities of non-metallic pipe will be paid for at the contract unit price, complete and accepted in place, which payment shall be compensation for furnishing and installing all necessary fittings for connecting to existing systems, and for capping the ends of the pipe sleeve.

Excavation, backfill, bedding, compaction, sheeting and shoring, insulation, dewatering, restoration of existing service connections, curb stops, curb boxes, fittings, stainless steel inserts, insulation, pressure testing, disinfection, flushing, maintaining water service, connections to existing water mains and services, restoration of property, loam and seed, as-built drawings and any other work necessary or required for a complete operational water supply service shall be considered included in the work of the contract items.

Restoration of pavement trench, including replacement of gravels shall be incidental to Pay Item

Payment will be made under the following:

<u>Pay Item</u>	<u>Pay Unit</u>
822.3201 2" Water Service	Linear Foot

7. Section 825.01 Description: **DELETE** in its entirety, **ADD** in its place

This work shall consist of furnishing and installation of 6,000-gallon precast water tank, float leveler and pump controls for maintaining tank water levels from existing well pump system and new well pump system (installed by MTA). Coordinate the 6,000-gallon underground tank installation with the well pump(s) controls installation provided under separate owner contract. Well pump controls installation requires mounting level controls within the UG tank and wiring back to well pump central controller.

8. Section 825.02 Materials: **DELETE** in its entirety, **ADD** in its place

Tank shall contain a liquid capacity of 6,000 gallons by American Concrete or equivalent. Conform to the applicable requirements of ASTM C478. Concrete compressive strength shall be 5,000 psi at 28 days. Wire fabric for reinforcement shall conform to the requirements of ASTM A185 and steel reinforcement shall conform to the requirements of ASTM A615 with a minimum yield stress of 40,000 psi.

All joints shall be sealed with Tylox superseal rubber gasket or equivalent. Provide 4" PVC Schedule 80 vent to above ground location as shown on plans. Provide 6" PVC pipe for wiring and float system. Work associated with wiring and float system shall be under separate contract. Provide PVC boots for all connections to tank unless otherwise specified on the plans. The precast structures shall be designed for hydrostatic head equal to depth of the structure and shall be capable of withstanding an H- 20 truck load. The chamber shall be installed watertight.

Well casing shall be 6" in diameter and ductile iron material. Pumping system shall be by Division 22 & 26. Shop drawing for well casing and water facility system shall be provided to engineer prior to construction.

Contractor shall provide buoyancy calculations and shop drawings of the 6,000-gallon water tank system to engineer for review prior to ordering.

9. Section 825.05 Basis of Payment: **DELETE** in its entirety, **ADD** in its place

The accepted quantity of whole system installation will be paid for at the Contract unit price each. The bollards will be provided by MTA and installed by the Contractor at the Pay Item below. The well casing for the submersible pump shall be incidental to the Special Water Service Facility at the Pay Item below.

<u>Pay Item</u>	<u>Pay Unit</u>
825.343 Special Water Service Facility	Lump Sum

CONTRACTOR QUESTIONS/RESPONSES

1. See Attached Question & Response Table

ATTACHMENTS

A. Addendum Summary Document	(4 Pages)
B. Proposal Sheets	(8 Pages)
C. Plan Sheets and Sketches	(7 Pages)
D. Specifications	(11 Pages)
E. Questions/Response Table	(4 Pages)
Total Page Count	<u>34 Pages</u>

MAINE TURNPIKE AUTHORITY

PROPOSAL

CONTRACT 2019.12

NEW MECHANICS GARAGE
LITCHFIELD MAINTENANCE FACILITY

MILE MARKER 92.7

TO MAINE TURNPIKE AUTHORITY:

The work consists of the following:

1. Construction of an approximate 10,400 square foot pre-engineered building consisting of a 4-bay equipment maintenance garage, 1 drive-thru wash bay, and a 1,975 SF mezzanine.
2. All site work, grading, drainage, septic field, underground power, power utility services and site utilities.

The work includes all building structure, mechanical, electrical, fire protection and plumbing, as well as all site work, grading, pavement, lighting, utilities, and all other work incidental thereto in accordance with the Plans and Specifications.

This Work will be done under a Contract known as Contract 2019.12 according to the Plans and Specifications which are on file in the office of the Maine Turnpike Authority, 2360 Congress Street, Portland, Maine.

On the acceptance of this Proposal for said Work, the undersigned will give the required bond with good security conditioned for the faithful performance of said Work, according to said Plans and Specifications, and the doing of all other work required by said Specifications for the consideration herein named and with the further condition that the Maine Turnpike Authority shall be saved harmless from any and all damages that might accrue to any person, persons or property by reason of the carrying out of said Work, or any part thereof, or by reason of negligence of the undersigned, or any person or persons under his employment and engaged in said Work.

The undersigned hereby declares that he/she has carefully examined the Plans, Specifications and other Contract Documents, and that he/she will contract to carry out and complete the said Work as specified and delineated at the price per unit of measure for each scheduled item of Work stated in the Schedule of Prices as follows:

It is understood that the TOTAL AMOUNT stated by the undersigned in the following Schedule of Prices is based on approximate quantities and will be used solely for the comparison of bids, and that the quantities stated in the Schedule of Prices for the various items are estimates only and may be increased or decreased all as provided in the Specifications.

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
203.20	COMMON EXCAVATION	Cubic Yard	2,000				
203.21	REMOVAL AND DISPOSAL OF CONTAMINATED SOILS	Cubic yard	100				
203.24	COMMON BORROW	Cubic Yard	400				
203.25	GRANULAR BORROW	Cubic Yard	1,300				
304.10	AGGREGATE SUBBASE COURSE - GRAVEL	Cubic Yard	2,050				
304.105	STRUCTURAL FILL	Cubic Yard	400				
403.207	HOT MIX ASPHALT, 19 MM	Ton	375				
403.208	HOT MIX ASPHALT, 12.5 MM	Ton	300				
409.15	BITUMINOUS TACK COAT, APPLIED	Gallon	250				
419.05	SAWING BITUMINOUS PAVEMENT	Linear Foot	550				
603.04	6" PVC DRAIN SERVICE	Linear Foot	40				
603.05	6" PVC PIPE – ROOF DRAIN OUTLET	Linear Foot	40				
603.06	10 INCH CORRUGATED PLASTIC PIPE - OPT III	Linear Foot	10				

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers	Bid Amount in Numbers
BROUGHT FORWARD:					
603.132	8" CULVERT PIPE OPT III – ROOF DRAIN OUTLET	Linear Foot	40		
604.158	UTILITY VAULT (6,000 GALLON HOLDING TANK)	Each	1		
610.08	PLAIN RIPRAP	Cubic Yard	5		
613.319	EROSION CONTROL BLANKET	Square Yard	400		
615.07	LOAM	Cubic Yard	80		
618.14	SEEDING METHOD NUMBER 2	Unit	5		
619.1201	MULCH - PLAN QUANTITY	Unit	5		
633.03	PROPANE SERVICE TRENCH	Linear Foot	105		
655.102	500 KCMIL WIRE	Linear Foot	550		
655.104	#8 AWG WIRE	Linear Foot	900		
655.106	#6 AWG WIRE	Linear Foot	120		
655.11	#10 AWG WIRE	Linear Foot	200		
655.12	#12 AWG WIRE	Linear Foot	680		
655.16	FIBER OPTIC CABLE	Linear Feet	900		

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
BROUGHT FORWARD:							
655.2001	1 1/2" SCHEDULE 80 PVC CONDUIT	Linear Foot	120				
655.2002	1" SCHEDULE 80 PVC CONDUIT	Linear Foot	400				
655.2003	2" SCHEDULE 80 PVC CONDUIT	Linear Foot	50				
655.201	3" SCHEDULE 80 PVC CONDUIT	Linear Foot	1000				
655.202	4" SCHEDULE 80 PVC CONDUIT	Linear Foot	500				
655.209	4" GALVANIZED RIGID METAL CONDUIT	Linear Foot	1				
655.2100	1 " LIQUID TIGHT METALLIC FLEXIBLE CONDUIT	Linear Foot	30				
655.2101	1 1/2" LIQUID TIGHT METALLIC FLEXIBLE CONDUIT	Linear Foot	30				
655.2102	2" LIQUID TIGHT METALLIC FLEXIBLE CONDUIT	Linear Foot	30				
655.31	UNDERGROUND PULL BOX	Each	2				
655.40	12" X 12" X 6" NEMA 3R JUNCTION BOX	Each	20				
655.50	2" PVC CONDUIT CONDULETS	Each	5				

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
BROUGHT FORWARD:							
655.51	4" PVC CONDUIT CONDULETS	Each	12				
655.52	1" PVC CONDUIT CONDULETS	Each	20				
655.53	1½" PVC CONDUIT CONDULETS	Each	50				
655.55	3" PVC CONDUIT CONDULETS	Each	90				
655.75	CONCRETE ENCASED CONDUIT	Cubic Yard	500				
656.632	30" TEMPORARY SILT FENCE	Linear Foot	700				
659.10	MOBILIZATION	Lump Sum	1				
800.01	LITCHFIELD MAINTENANCE GARAGE	Lump Sum	1				
800.090	CONCRETE GENERATOR PAD	Lump Sum	1				
800.091	CONCRETE WASTE OIL TANK PAD	Lump Sum	1				
801.132	2" FORCE MAIN	Linear Foot	25				
801.16	6" PVC SANITARY SEWER (SDR-35)	Linear Foot	30				

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
BROUGHT FORWARD:							
802.23	SEWAGE DISPOSAL SYSTEM	LUMP SUM	1				
802.241	1000 GALLON SEPTIC TANK WITH LIFT STATION	Each	1				
822.3201	2" WATER SERVICE	Linear Foot	900				
825.343	SPECIAL WATER SERVICE FACILITY (5000 GALLON WATER TANK & WELL CASING)	Lump Sum	1				
832.41	TYPE A STEEL SITE BOLLARD	Each	4				
TOTAL:							

Acknowledgment is hereby made of the following Addenda received since issuance of the Plans and Specifications:

Accompanying this Proposal is an original bid bond, cashiers or certified check on _____
_____ Bank, for _____

, payable to the Maine Turnpike Authority. In case this Proposal shall be accepted by the Maine Turnpike Authority and the undersigned should fail to execute a Contract with, and furnish the security required by the Maine Turnpike Authority as set forth in the Specifications, within the time fixed therein, an amount of money equal to Five (5%) Percent of the Total Amount of the Proposal for the Contract awarded to the undersigned, but not less than \$500.00, obtained out of the original bid bond, cashier's or certified check, shall become the property of the Maine Turnpike Authority; otherwise the check will be returned to the undersigned.

The performance of said Work under this Contract will be completed during the time specified in Subsection 107.1.

It is agreed that time is of the essence of this Contract and that I (we) will, in the event of my (our) failure to complete the Work within the time limit named above, pay to Maine Turnpike Authority liquidated damages in the amount or amounts stated in the Specifications.

The undersigned is an Individual/Partnership/Corporation under the laws of the State of _____,
having principal office at _____,
thereunto duly authorized.

_____ (SEAL)

_____ (SEAL)

_____ (SEAL)

Affix Corporate Seal or Power of Attorney
Where Applicable

By: _____

Its: _____

Information below to be typed or printed where applicable:

INDIVIDUAL:

(Name)

(Address)

PARTNERSHIP - Name and Address of General Partners:

(Name)

(Address)

(Name)

(Address)

(Name)

(Address)

(Name)

(Address)

INCORPORATED COMPANY:

(President)

(Address)

(Vice-President)

(Address)

(Secretary)

(Address)

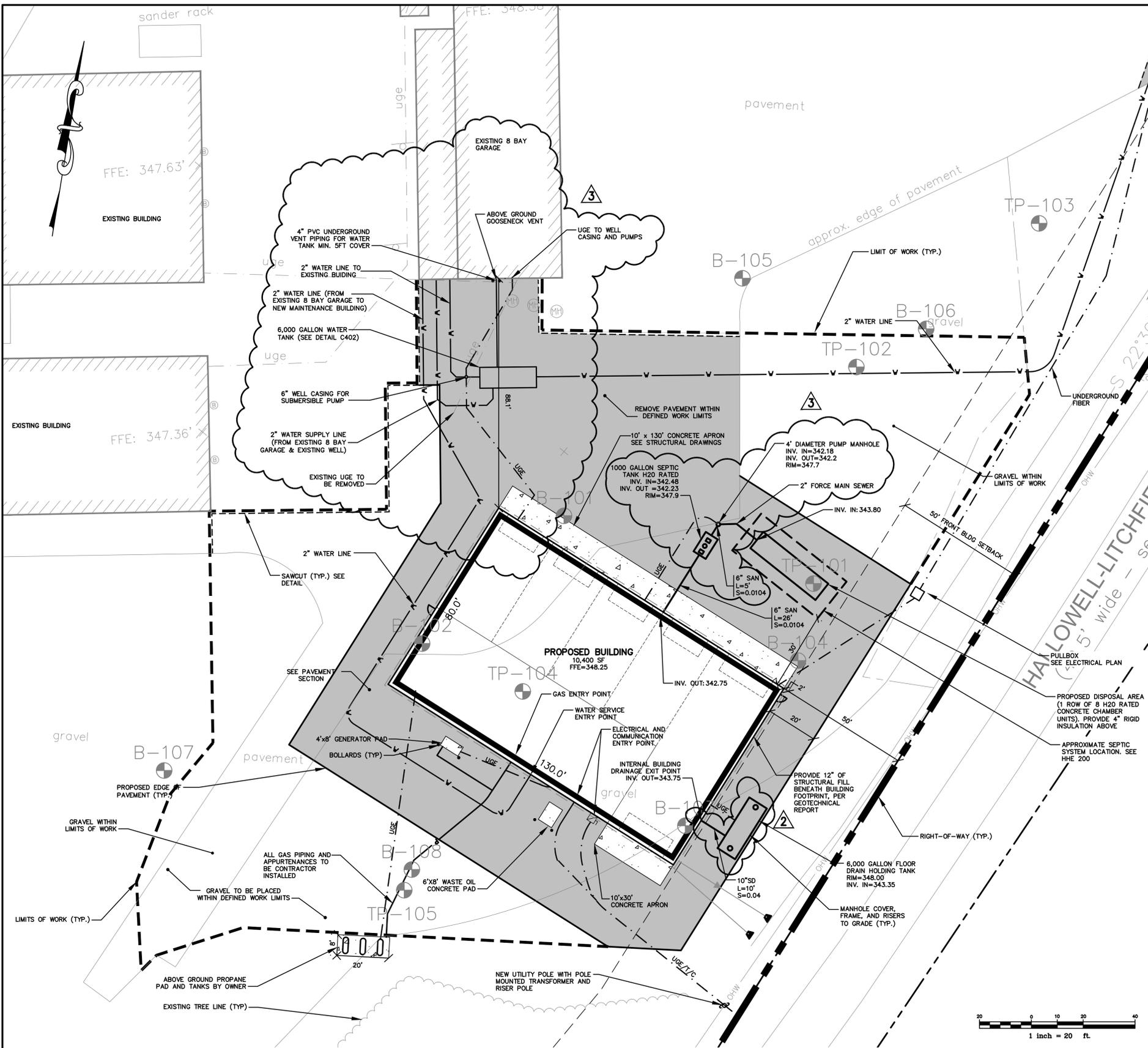
(Treasurer)

(Address)

NOTES:

1. SURVEY AND TOPOGRAPHY PROVIDED BY TITCOMB ASSOCIATES OF FALMOUTH, MAINE, DATED MARCH 1, 2019.
2. ALL DIVISION 2 SITE WORK SHALL BE DONE IN ACCORDANCE WITH THE MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, HIGHWAYS AND BRIDGES, (2014 EDITION) AND AS MODIFIED BY MAINE TURNPIKE 2016 SUPPLEMENTAL SPECIFICATIONS. SPECIAL PROVISIONS HAVE BEEN PREPARED FOR WORK ITEMS NOT ADDRESSED IN THE STANDARD SPECIFICATIONS, AND ARE ENCLOSED AS PART OF THIS CONTRACT. IN THE EVENT OF A CONFLICT BETWEEN THE STANDARD SPECIFICATIONS AND THE SUPPLEMENTAL SPECIFICATIONS, THE MORE STRINGENT STANDARD SHALL APPLY.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF ALL SPOIL/EXCESS MATERIAL FROM THE SITE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS.
4. ALL AREAS OUTSIDE THE LIMIT OF WORK DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO PRIOR CONDITIONS AT NO EXPENSE TO THE OWNER.
5. ALL DISTURBED AREAS INSIDE THE LIMIT OF WORK LINE NOT PROPOSED TO BE IMPROVED SHALL BE RESTORED TO THEIR PRIOR CONDITION, EITHER PAVEMENT, RECYCLED ASPHALT PAVEMENT, OR 4" LOAM AND SEED.
6. CONTRACTOR SHALL COORDINATE WITH SURVEYOR FOR BUILDING/COORDINATE LAYOUT PRIOR TO CONSTRUCTION.
7. ALL PAVEMENT SHALL BE SAWCUT PRIOR TO REMOVAL.
8. A TACK COAT OF EMULSIFIED ASPHALT, RS-1 OR HFMS-1 SHALL BE APPLIED TO ANY EXISTING PAVEMENT AT A RATE OF APPROXIMATELY 0.06 GALLONS/SY. A FOG COAT OF EMULSIFIED ASPHALT SHALL BE BETWEEN SHIM/INTERMEDIATE COURSE AND THE SURFACE COURSE AT A RATE NOT TO EXCEED 0.06 GALLONS/SY.
9. ALL ABOVE GROUND FEATURES AND BELOW GROUND OBSTRUCTIONS, (UTILITIES, FOUNDATIONS, ETC.) ENCOUNTERED DURING EXCAVATION SHALL BE REMOVED AND DISPOSED OF AS NECESSARY TO ENABLE WORK TO BE COMPLETED. UNDERGROUND UTILITIES LABELED "TO REMAIN" SHALL BE PROTECTED. SAVING OR REMOVAL OF UNDERGROUND OBSTRUCTIONS NOT SHOWN ON THE PLAN SHALL BE COORDINATED WITH THE PROJECT OWNER OR THEIR REPRESENTATIVE.
10. BORING AND SOIL PROBE LOCATIONS TAKEN FROM GEOTECHNICAL REPORT PREPARED BY S.W. COLE DATED FEBRUARY 2019.
11. UTILITY WORK OUTSIDE PAVEMENT DISTURBANCE LIMIT SHOWN ON PLAN WILL RESULT IN ADDITIONAL PAVEMENT RECONSTRUCTION IN ACCORDANCE WITH THE TRENCH DETAIL SHOWN ON SHEET C401.
12. WHERE FINISH PAVEMENT OR GRAVEL GRADE IS BELOW EXISTING GRADE (CUT CONDITION), CONTRACTOR TO PROVIDE FULL DEPTH GRAVEL CONSTRUCTION. WHERE FINISH PAVEMENT OR GRAVEL GRADE IS ABOVE EXISTING GRADE (FILL CONDITION), CONTRACTOR TO REMOVE PAVEMENT, COMPACT EXISTING GRAVEL BASE, AND PROVIDE GRAVEL TO BOTTOM OF PAVEMENT SECTION OR GRAVEL SURFACE.

PAVEMENT LEGEND	
	STANDARD DUTY BITUMINOUS CONCRETE
	REINFORCED CEMENT CONCRETE
	GRAVEL WITHIN LIMITS OF WORK



Scale: 1"=20'

No.	Revision	By	Date
1	ISSUED FOR BID	DER	10/15/19
2	ADDENDUM 1	DER	10/31/19
3	ADDENDUM 2	DER	11/8/19

Designed by:

 DOUGLAS E. REYNOLDS

By	Date	By	Date
Designed: DJG	10/15/2019	Checked: DER	10/15/2019
Drawn: CG	10/15/2019		

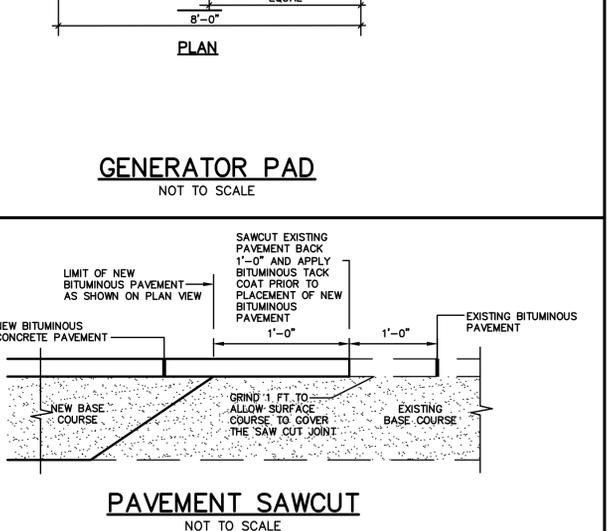
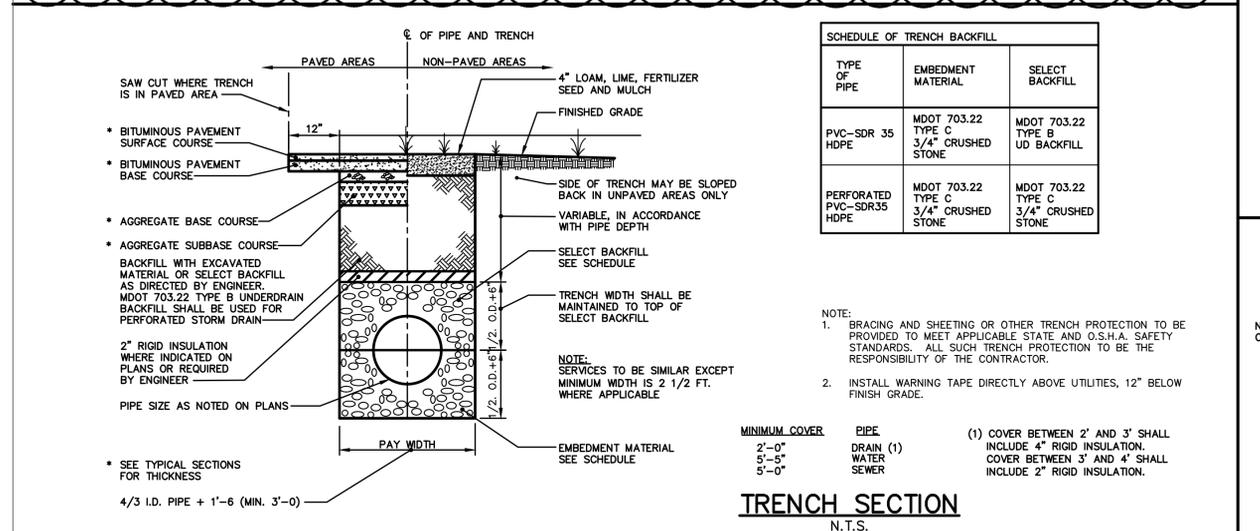
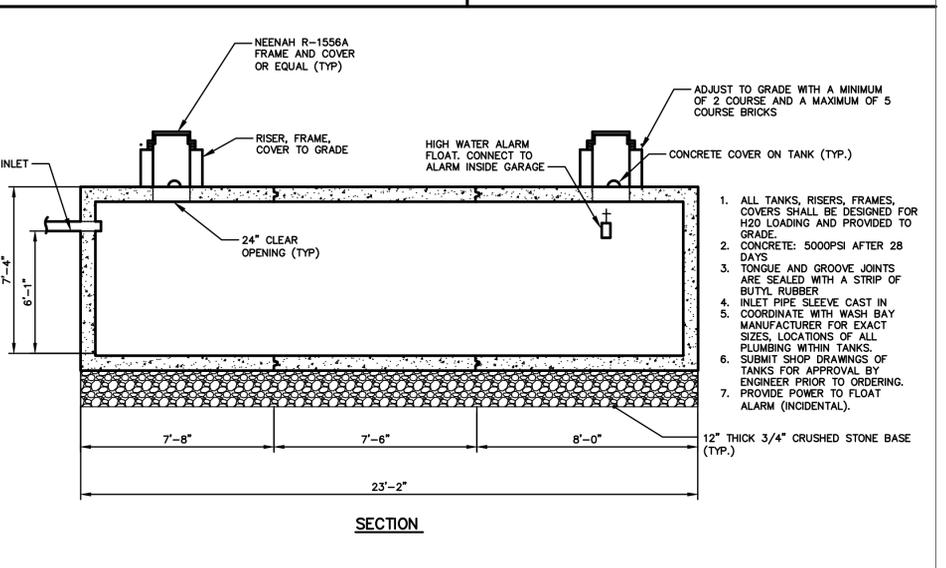
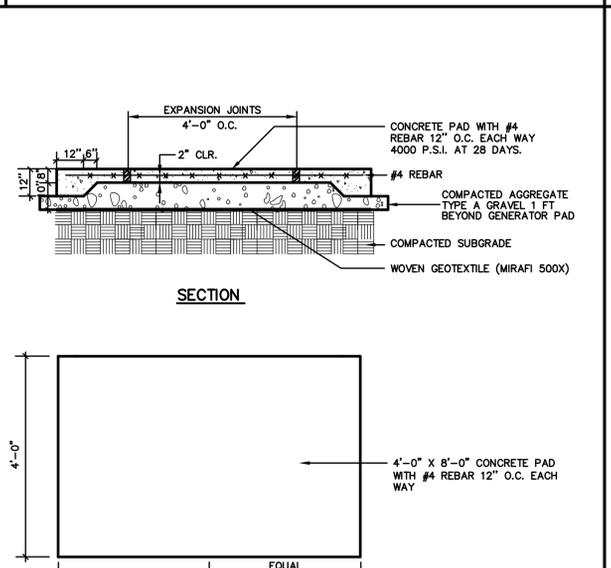
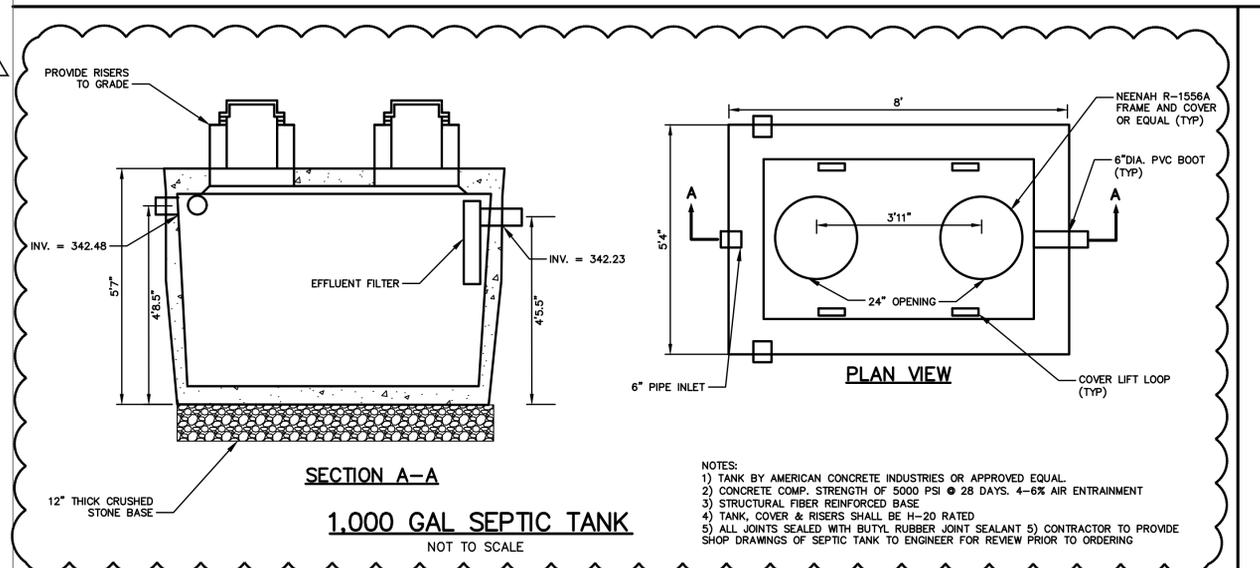
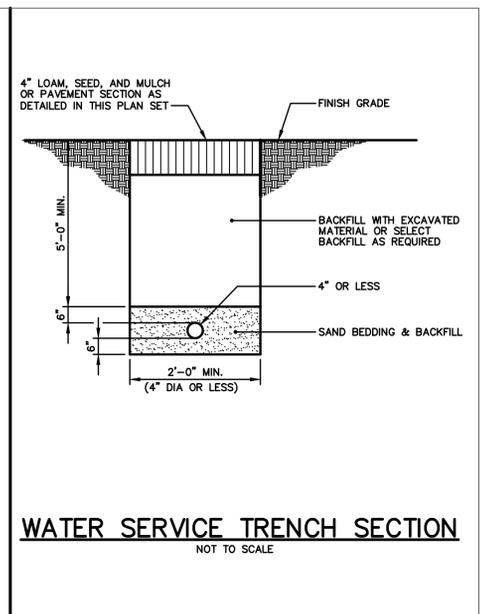
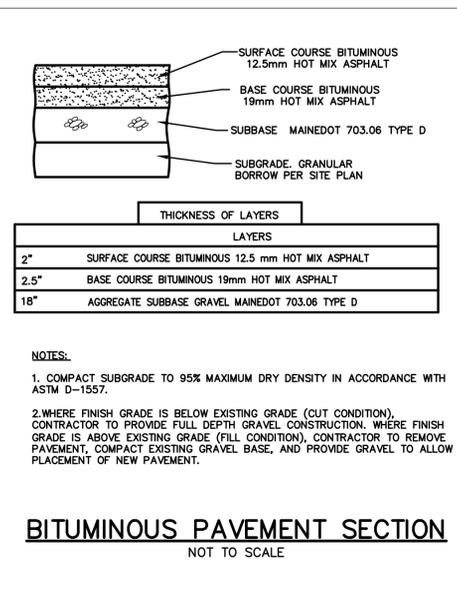
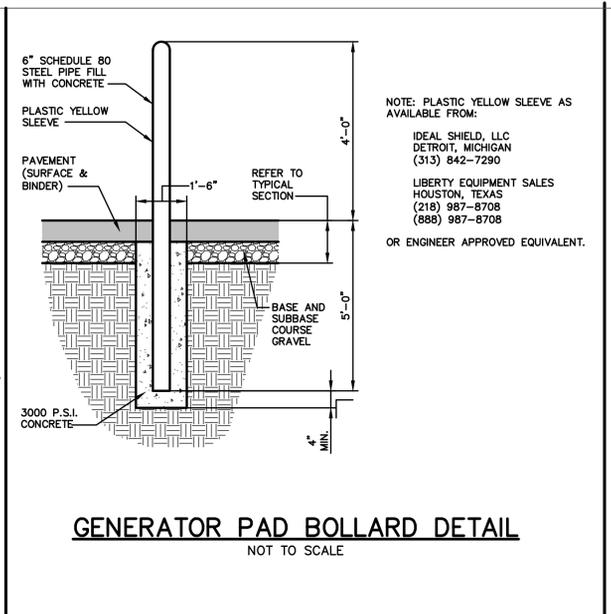
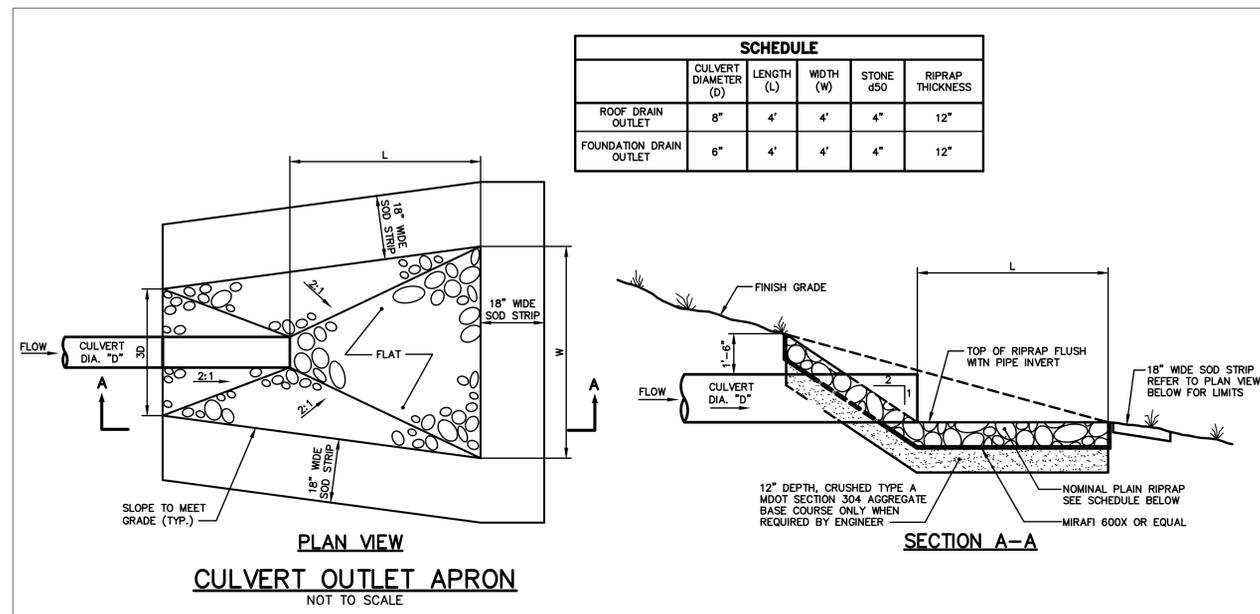


THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: **Brian A. Taddeo, P.E.**

CONTRACT 2019.12, NEW MECHANICS GARAGE, LITCHFIELD MAINTENANCE YARD, MILE MARKER 92.7
SITE AND UTILITY PLAN

SHEET NUMBER: C-101
 CONTRACT: 2019.12
 3 OF 41



Scale: N/A

No.	Revision	By	Date
1	ISSUED FOR BID	DER	10/15/19
3	ADDENDUM 2	DER	11/8/19

Designed by:
DOUGLAS E. REYNOLDS

By: DJG Date: 10/15/2019
Checked: DER Date: 10/15/2019
Drawn: CG Date: 10/15/2019



THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: **Brian A. Taddeo, P.E.**

CONTRACT 2019.12, NEW MECHANICS GARAGE, LITCHFIELD MAINTENANCE YARD, MILE MARKER 92.7

DETAILS - 1

SHEET NUMBER: C-401
CONTRACT: 2019.12
5 OF 41

GENERAL

- ALL DETAILS SHALL BE IN CONFORMANCE WITH MAINE DEPARTMENT OF TRANSPORTATION (MAINEDOT) STANDARD DETAILS HIGHWAYS AND BRIDGES 2014 WITH UPDATES AND MAINEDOT BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL LATEST REVISION UNLESS OTHERWISE INCLUDED IN THESE PLANS OR PROJECT SPECIFICATIONS.
- ALL EXISTING ROADWAYS USED IN ACCESSING THE SITE SHALL REMAIN CLEAN.
- THE CONTRACTOR SHALL SUBMIT THE PROPOSED STAGING AREA(S) AND FIELD TRAILER LOCATION TO THE RESIDENT FOR APPROVAL PRIOR TO STARTING WORK.
- CONTRACTOR IS REQUIRED TO MAINTAIN SAFE ACCESS TO PARKING AREAS FOR MTA EMPLOYEES AT ALL TIMES DURING CONSTRUCTION.
- A COPY OF THE "GEOTECHNICAL REPORT" IS INCLUDED WITH THE CONTRACT DOCUMENTS.
- DUST CONTROL IS INCIDENTAL TO CONTRACT.
- WASTE MATERIALS SHALL BE DISPOSED OFF OF THE PROJECT SITE, IN ACCORDANCE WITH CHAPTER 404, DEPARTMENT OF ENVIRONMENTAL PROTECTION SOLID WASTE MANAGEMENT RULES.
- GEOTECHNICAL INFORMATION FURNISHED OR REFERRED TO IN THIS PLAN SET IS FOR THE USE OF THE BIDDERS AND THE CONTRACTOR. NO ASSURANCE IS GIVEN THAT THE INFORMATION OR INTERPRETATIONS WILL BE REPRESENTATIVE OF ACTUAL SUBSURFACE CONDITIONS OF THE CONSTRUCTION SITE. THE MTA WILL NOT BE RESPONSIBLE FOR THE BIDDERS' OR CONTRACTOR'S INTERPRETATIONS OF, OR CONCLUSIONS DRAWN FROM, THE GEOTECHNICAL INFORMATION.
- THE CONTRACTOR WILL BE REQUIRED TO SUBMIT AS BUILT PLANS.

EARTHWORK

- EXCAVATIONS ACCOMPLISHED AS PART OF THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH OSHA SUBPART P OF 29 CFR PART 1926.650-652 (CONSTRUCTION STANDARDS FOR EXCAVATION).
- THE NORMAL GRUBBING WIDTH IN THE FILLS SHALL BE VARIABLE WHEN SUBGRADE IS LESS THAN 5' ABOVE OLD GROUND. THE GRUBBING DEPTH HAS BEEN ESTIMATED AS 6" IN FIELD AREAS AND 12" IN WOODED AREAS.

UTILITY

- EXISTING UTILITIES ON THESE PLANS WERE COMPILED FROM FIELD SURVEY AND VARIOUS OTHER SOURCES. LOCATIONS ARE NOT GUARANTEED TO BE ACCURATE NOR IS IT GUARANTEED THAT ALL UTILITIES ARE SHOWN. NO SEPARATE OR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR DUE TO ANY VARIANCE BETWEEN THE DATA SHOWN ON THE PLANS AND THE ACTUAL FIELD CONDITIONS ENCOUNTERED. NO WORK SHALL BE STARTED UNTIL THE OWNERS OF THE VARIOUS UTILITIES ARE NOTIFIED BY THE CONTRACTOR OF THE PROPOSED CONSTRUCTION. THE CONTRACTOR IS ALSO REQUIRED TO CALL DIG SAFE AT 1-888-344-7233 PRIOR TO THE START OF THE WORK.
- THE UTILITIES INVOLVED IN THIS CONTRACT ARE:
 MAINE TURNPIKE AUTHORITY
 CENTRAL MAINE POWER
 FAIRPOINT/CONSOLIDATED COMMUNICATIONS
 SPECTRUM/CHARTER COMMUNICATIONS
- THE CONTRACTOR SHALL NOTIFY THE RESIDENT 10 DAYS PRIOR TO CONSTRUCTION SO THE RESIDENT CAN ARRANGE FOR MAINE TURNPIKE UNDERGROUND UTILITY LOCATION. ALL PROPOSED EXCAVATION LOCATIONS SHALL BE MARKED AT THE NOTIFICATION TIME. EXCAVATION WILL NOT BE PERMITTED UNTIL THE AUTHORITY HAS LOCATED AND MARKED ITS' UNDERGROUND UTILITIES, OR NOTIFIED THE RESIDENT THERE ARE NO UNDERGROUND UTILITIES IN THE MARKED AREAS. THE AUTHORITY HAS PROGRAMMED TWO FIELD VISITS FOR MAINE TURNPIKE UTILITY COORDINATION ON THIS PROJECT. SHOULD THE CONTRACTOR NEED ADDITIONAL EXCAVATION LOCATIONS MARKED, OR SHOULD THE CONTRACTOR FAIL TO MAINTAIN THE AUTHORITY'S PREVIOUSLY ESTABLISHED DIG SAFE MARKS, THE AUTHORITY SHALL DEDUCT THE ADDED MARKING COSTS FROM THE CONTRACTOR'S PAYMENTS.

EROSION CONTROL

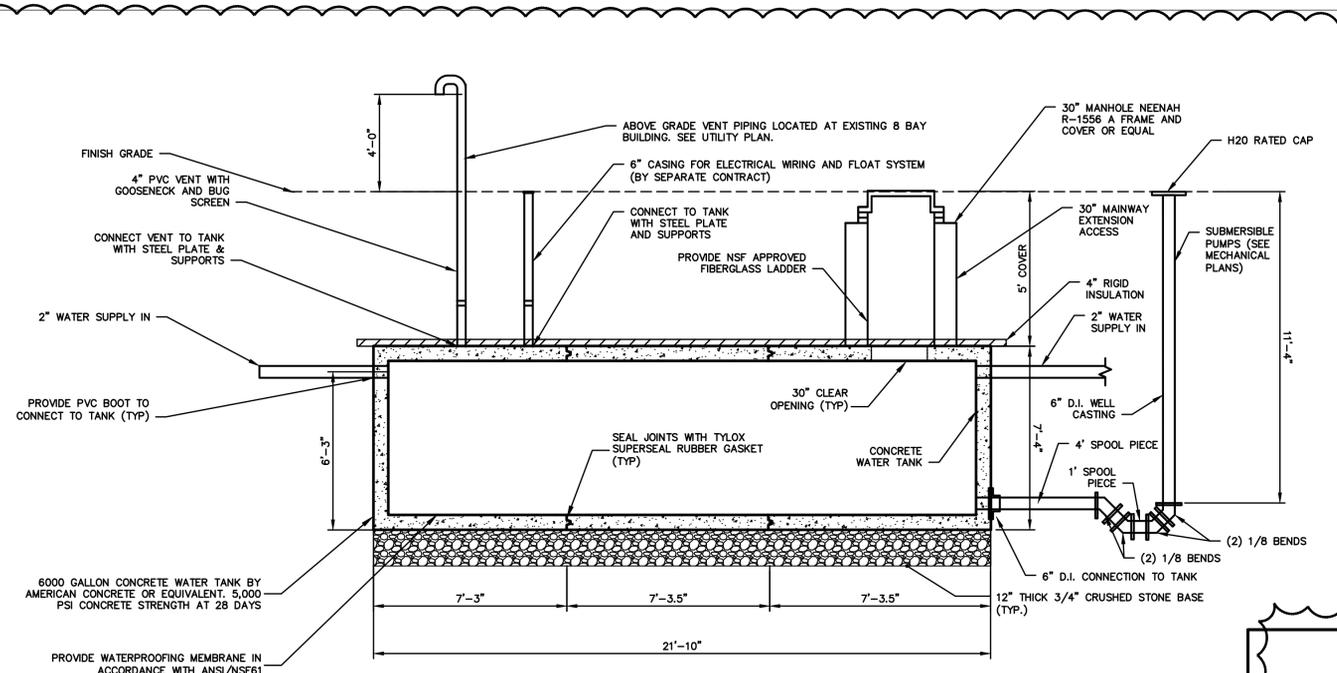
- THE ANTICIPATED EROSION CONTROL DEVICES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL PROPOSED ACTUAL TYPE AND LOCATION OF DEVICES FOR APPROVAL BY THE RESIDENT. ADDITIONAL MEASURES MAY BE PROPOSED BY THE CONTRACTOR DUE TO SITE OR WEATHER CONDITIONS. THE RESIDENT MAY DIRECT THE CONTRACTOR TO IMPLEMENT ADDITIONAL MEASURES. ANY ADDITIONAL MEASURES APPROVED BY THE RESIDENT WILL BE MEASURED FOR PAYMENT.
- 4" LOAM HAS BEEN ESTIMATED FOR 100% OF THE DISTURBED SLOPE AREA UNLESS OTHERWISE SPECIFIED ON THE PLANS. ACTUAL PLACEMENT OF THE LOAM SHALL BE AS DESIGNATED BY THE RESIDENT.
- NEWLY DISTURBED EARTH SHALL BE MULCHED PRIOR TO A RAIN EVENT. THIS WORK SHALL BE PAID FOR UNDER ITEM 619.1202 TEMPORARY MULCH.
- ALL TEMPORARY AND PERMANENT EROSION CONTROL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE MAINE DEPARTMENT OF TRANSPORTATION BEST MANAGEMENT PRACTICES.
- TEMPORARY SEED SHALL BE APPLIED TO ALL DISTURBED AREAS THAT WILL NOT BE COMPLETED WITHIN 30 DAYS. TEMPORARY SEED SHALL BE INCIDENTAL TO THE 618 ITEMS.
- TEMPORARY EROSION CONTROL BLANKET, ITEM 613.319 SHALL BE INSTALLED IN ALL DITCHES AND 2:1 SLOPES FROM TOP TO TOE OF SLOPE. LOAM AND SEED SHALL BE PLACED PRIOR TO THE INSTALLATION OF THE EROSION CONTROL BLANKET. LIMITS OF THE EROSION CONTROL BLANKET IN DITCHES SHALL BE 8' WIDE OR AS DESIGNATED BY THE RESIDENT.

PAVING

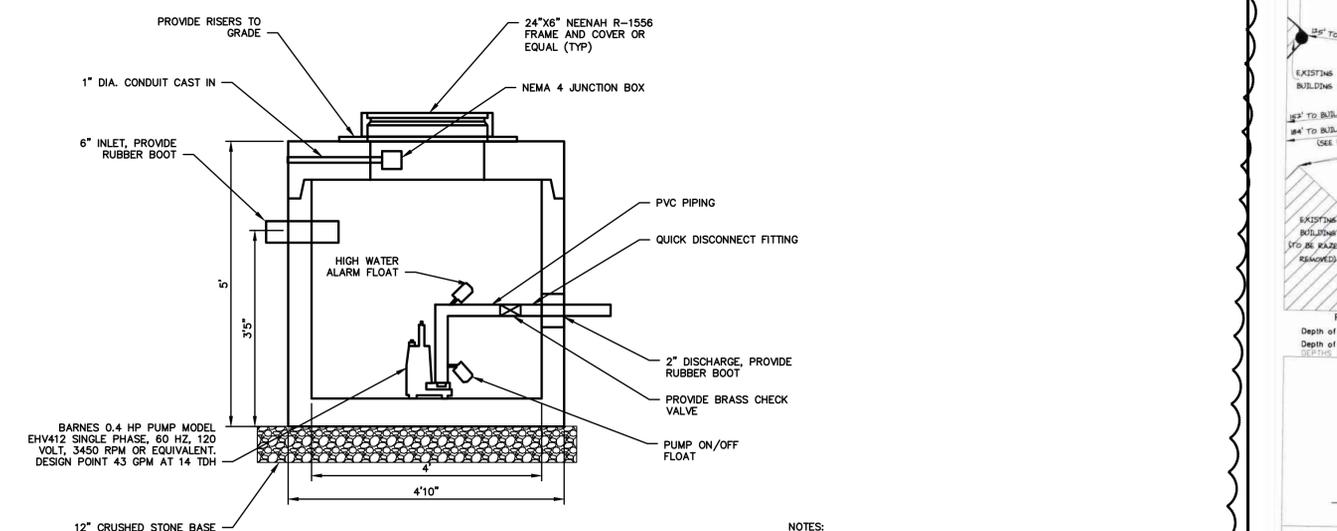
- WHERE PROPOSED PAVEMENT JOINS EXISTING PAVEMENT, THE EXISTING PAVEMENT SHALL BE SAW CUT ALONG AS SMOOTH LINE TO A NET, EVEN AND VERTICAL JOINT, AS DIRECTED BY THE RESIDENT. SAWCUTTING SHALL BE PAID FOR UNDER ITEM 419.05.
- ALL JOINTS BETWEEN EXISTING AND PROPOSED HOT BITUMINOUS PAVEMENT SHALL BE BUTTED.
- ANY NECESSARY CLEANING OF EXISTING PAVEMENT PRIOR TO PAVING SHALL BE CONSIDERED INCIDENTAL TO THE RELATED PAVING ITEMS.
- A BITUMINOUS TACK COAT IS REQUIRED BETWEEN ALL PAVEMENT LIFTS.
- PLACEMENT OF THE FINAL LIFTS OF PAVEMENT SHALL BE DONE IN A MANNER TO LIMIT PAVEMENT JOINTS. CONTRACTOR SHALL COORDINATE WITH RESIDENT.

DRAINAGE

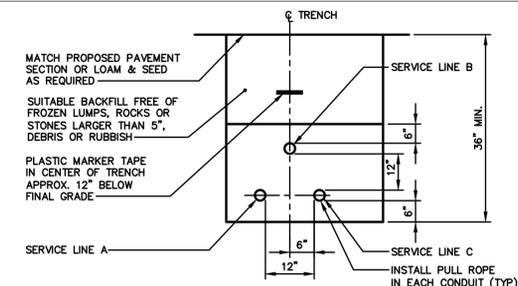
- NO EXISTING DRAINAGE SHALL BE ABANDONED, REMOVED OR PLUGGED WITHOUT PRIOR APPROVAL OF THE RESIDENT.
- INLETS AND OUTLETS OF ALL CULVERTS SHALL BE RIPRAPPED UNLESS OTHERWISE NOTED ON THE PLANS OR DIRECTED BY THE RESIDENT.
- ALL DITCH ELEVATIONS AND OFFSETS SHOWN ON THE CROSS SECTIONS ARE FOR THE FINISHED DITCH FLOW LINE.
- ANY NECESSARY CUTTING OF EXISTING PIPES TO FIT IN AREAS OF PROPOSED CATCH BASINS AND MANHOLES WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE PROPOSED CATCH BASIN AND MANHOLE ITEMS.
- ANY NECESSARY CUTTING OF EXISTING CATCH BASINS TO TAKE A PROPOSED PIPE WILL NOT BE PAID FOR SEPARATELY AND SHALL BE CONSIDERED INCIDENTAL TO THE PROPOSED CULVERT ITEMS.
- ONE GREEN DELINEATOR POST SHALL BE INSTALLED AT ALL UNDERDRAIN AND STORM DRAIN OUTLETS.



6000 GALLON WATER TANK AND WELL CASING
NOT TO SCALE



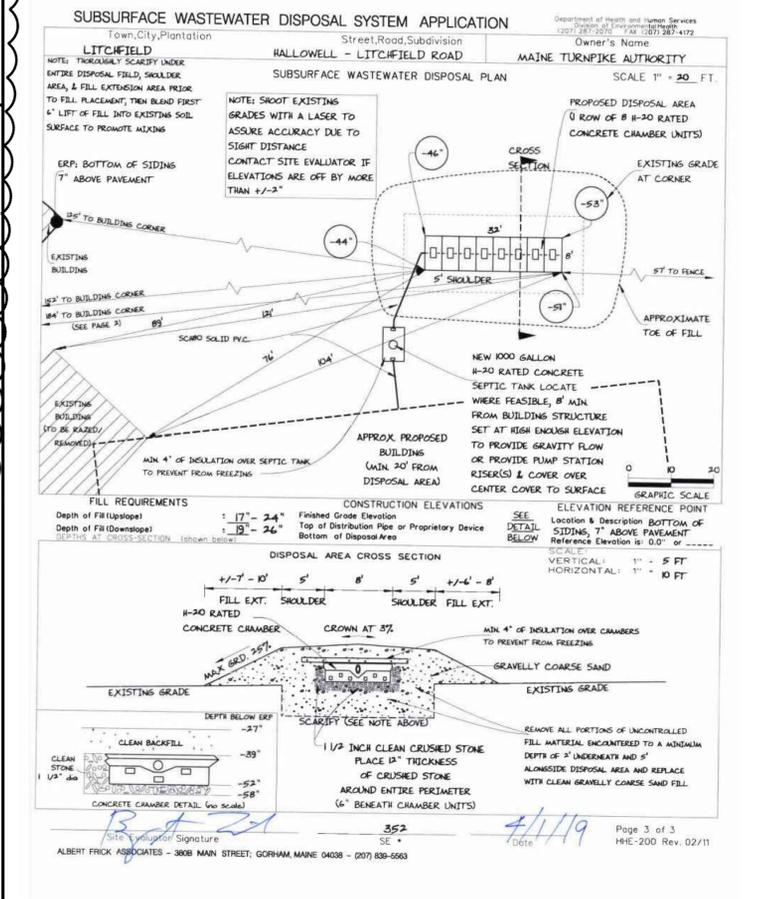
4' MANHOLE PUMP MANHOLE
NOT TO SCALE



UTILITY TRENCH - PRIMARY AND SECONDARY POWER, TELEPHONE, AND CABLE
NOT TO SCALE

CONDUIT TYPE SCHEDULE				
SERVICE	CONDUIT SIZE	GRASS & PAVED AREAS	UTILITY	REMARKS
A	2-4"	SCHEDULE 80 PVC ELECTRICAL GRADE	PRIMARY POWER	SEE NOTE
B	2-4"	SCHEDULE 80	TELEPHONE/DATA	SEE NOTE
C	1-1 1/2"	SCHEDULE 80	SPARE	SEE NOTE

NOTE:
ONE CONDUIT CAPPED FOR SPARE. PROVIDE GALVANIZED STEEL LONG SWEEP AT RISER POLE AND EXTEND GALVANIZED CONDUIT TO 10" ABOVE GRADE AT POLE WITH STAND-OFF BRACKETS.



SUBSURFACE WASTEWATER DISPOSAL-HHE 200
NOT TO SCALE

Scale: N/A

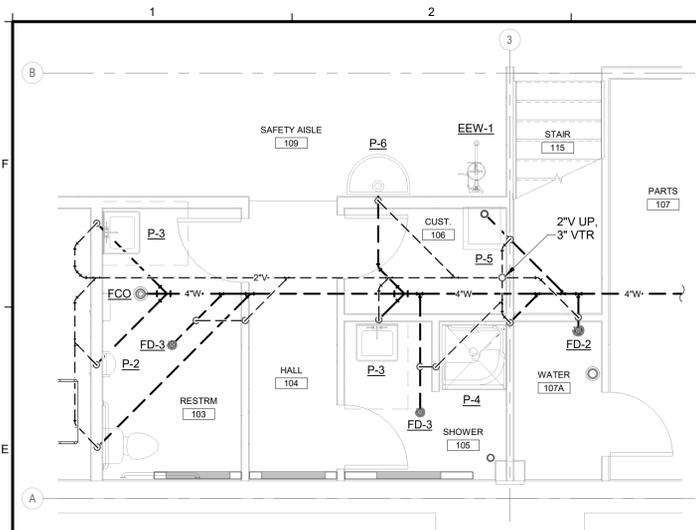
No.	Revision	By	Date
1	ISSUED FOR BID	DER	10/15/19
3	ADDENDUM 2	DER	11/8/19

Designed by: DOUGLAS E. REYNOLDS

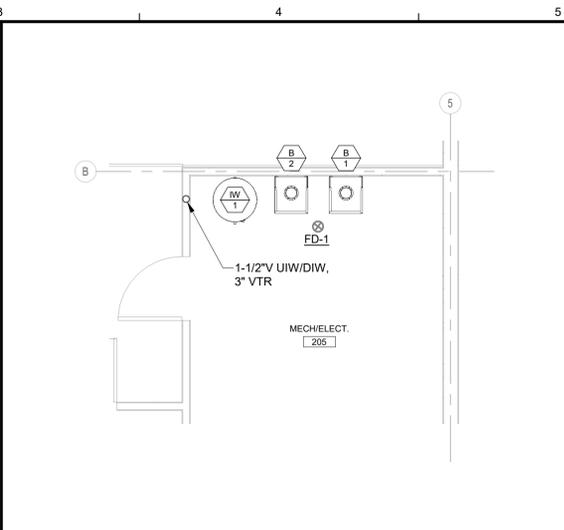
By	Date	By	Date
Designed: DJG	10/15/2019	Checked: DER	10/15/2019
Drawn: CG	10/15/2019		



CONTRACT 2019.12, NEW MECHANICS GARAGE, LITCHFIELD MAINTENANCE YARD, MILE MARKER 92.7
DETAILS - 2
 SHEET NUMBER: C-402
 MTA PROJECT MANAGER: Brian A. Taddeo, P.E.
 CONTRACT: 2019.12
 6 OF 41



E1 DETAIL - SANITARY PIPING PART PLAN
1/4" = 1'-0"



E3 DETAIL - SANITARY PART PLAN - MECH/ELEC 205
1/4" = 1'-0"

INDIRECT WATER DOMESTIC WATER HEATER SCHEDULE																		
TAG	MFR / MODEL	ENT. CW °F	TEMP RISE DELTA °F	ENTERING BOILER WATER °F	LEAVING BOILER WATER °F	BOILER WATER DELTA-T	BOILER GPM	BOILER WATER HEAD LOSS	BOILER HEAT INPUT BTUH	BOILER HWS TEMP TO DHW	RECOVERY RATE, GPH	STORAGE CAPACITY GALLONS	COLD WATER INLET	HOT WATER OUTLET	BOILER SUPPLY/ RETURN CONN.	HEIGHT	DIA.	WEIGHT SHIP'G
DHW-1	VISSMANN 300V	40	100	158	132	26	13.2	3.4'	171,600	176 °F	203	119	1-1/4"	1-1/4"	1-1/4"	69"	36"	245 LB.

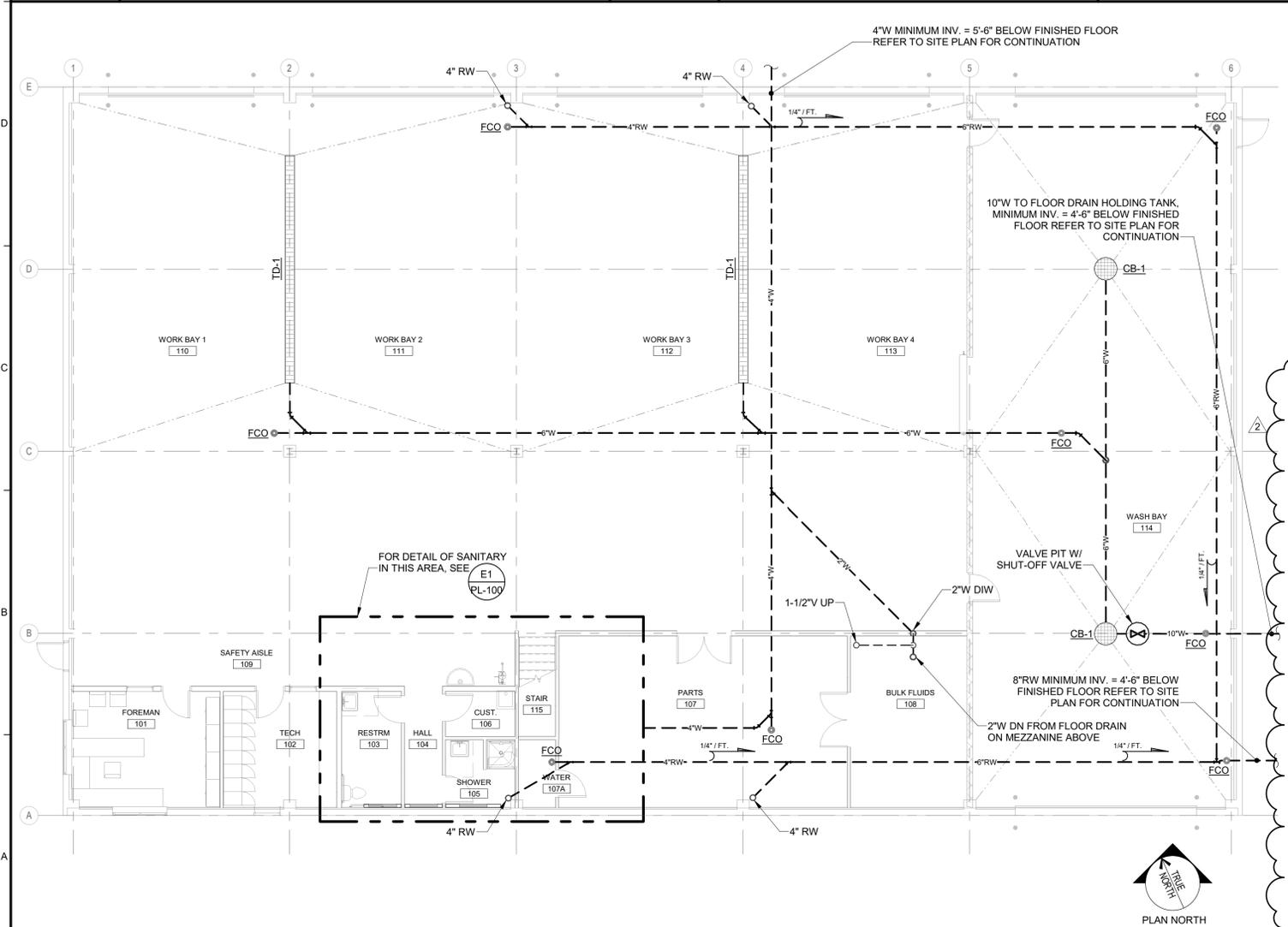
DOMESTIC WATER BOOSTER PUMP PACKAGE												
TAG	SYSTEM	MFR.	MODEL	TYPE	PUMPED FLUID	PERFORMANCE GPM (MAX.)	BOOST-HEAD (FT)	MOTOR HP	VOLTS/ PH (60 Hz.)	ELECTRICAL... SINGLE PHASE VFD... PUMP MFG.	ELECTRICAL... DISC. SW. FURN BY	NOTES
BP-1	DOMESTIC COLD WATER SUPPLY	PENTAIR	PENTEX XE (L50P4JMG5)	VERTICAL IN-LINE MULT-STAGE	WATER	55	185	5	230/3	PUMP MFG.	DISC. SW. DIV 26	1, 2

NOTES: 1. BOOST HEAD COLUMN ASSUMES ABOUT 50 FT PRESSURE DROP THRU WATER TREATMENT SYSTEM AT EACH BUILDING ENTRANCE.
2. REFER TO (A6-PL 100) FOR VFD CONTROLLER LOCATION

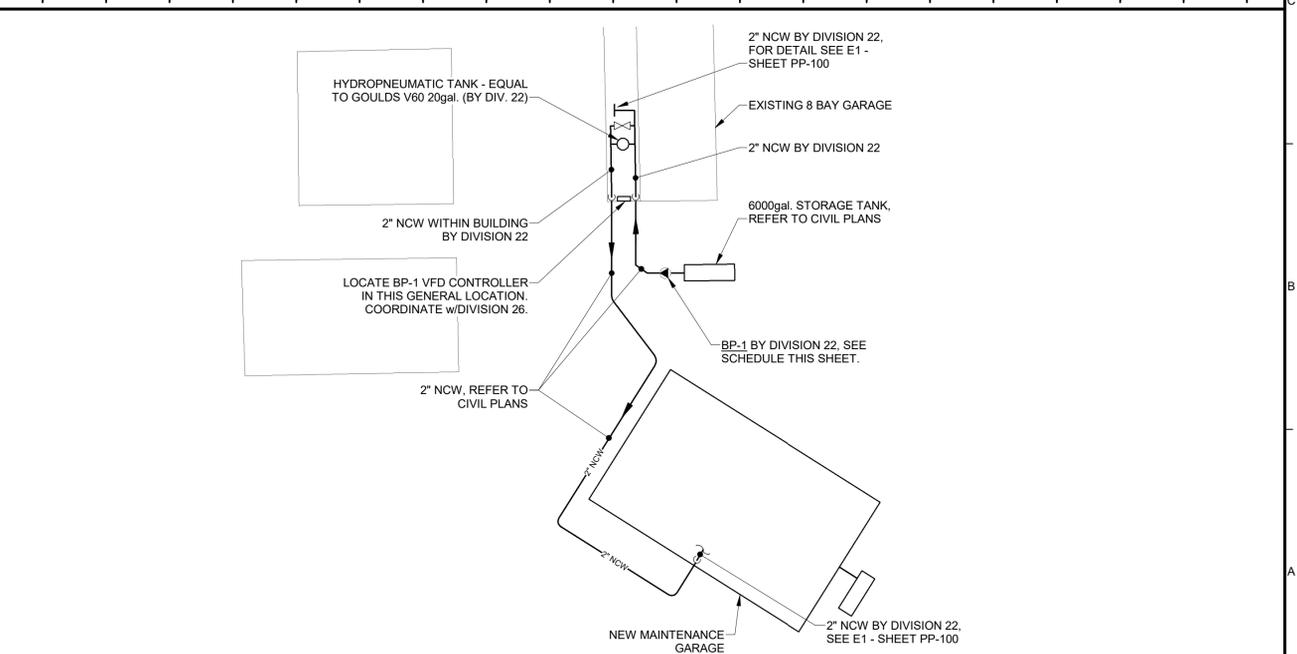
PLUMBING FIXTURE SCHEDULE						
TAG	DESCRIPTION	BRANCH SIZES				NOTES
		CW	HW	VENT	WASTE	
P-1	WATER CLOSET-FLUSH VALVE, FLOOR MOUNT	1"	----	1-1/2"	3"	
P-2	URINAL - FLUSH VALVE - 1/8 GAL/FLUSH	3/4"	----	1-1/2"	2"	
P-3	WALL MOUNT LAVATORY	1/2"	1/2"	1-1/2"	1-1/2"	
P-4	ADA SHOWER	1/2"	1/2"	1-1/2"	2"	
P-5	MOP/SERVICE BASIN	3/4"	3/4"	1-1/2"	3"	PROVIDE CHECK VALVES AT WATER INLETS
P-6	ADA HAND WASHING STATION - SENSOR VALVE	1/2"	1/2"	1-1/2"	2"	
FD-1	FLOOR DRAIN	----	----	1-1/2"	2"	
FD-2	FLOOR DRAIN W/FUNNEL	----	----	1-1/2"	2"	
FD-3	FLOOR DRAIN	----	----	1-1/2"	2"	
EEW-1	EMERGENCY EYE/FACE WASH - WALL MOUNTED	1/2"	1/2"	----	----	TEMPERING VALVE WITH 1/2" INLETS AND OUTLET
WHYD	WALL HYDRANT	3/4"	----	----	----	
HB	HOSE BIBB	1/2"	----	----	----	

DOMESTIC INDOOR PUMP SCHEDULE									
TAG	SERVES	MAKE & MODEL	TYPE	GPM	HEAD	DISCHARGE	ELECTRICAL		NOTES
							MOTOR HP	VOLTS/PH (60 Hz.)	
RCP-1	DHW RECIRC	GRUNDFOS UPS 26-99 SFC	IN LINE CIRCULATOR	2	20	3/4" X 3/4"	197 W	115/1	1

NOTES:
1. SEE SPEC SECTION 22 11 23.21



A1 SANITARY PIPING PLAN
1/8" = 1'-0"



A6 DETAIL - SITE PIPING COORDINATION
NOT TO SCALE

Scale: As indicated

No.	Revision	By	Date
1	ISSUED FOR BID	AEI	10/15/19
2	ADDENDUM #2	AEI	11/08/19

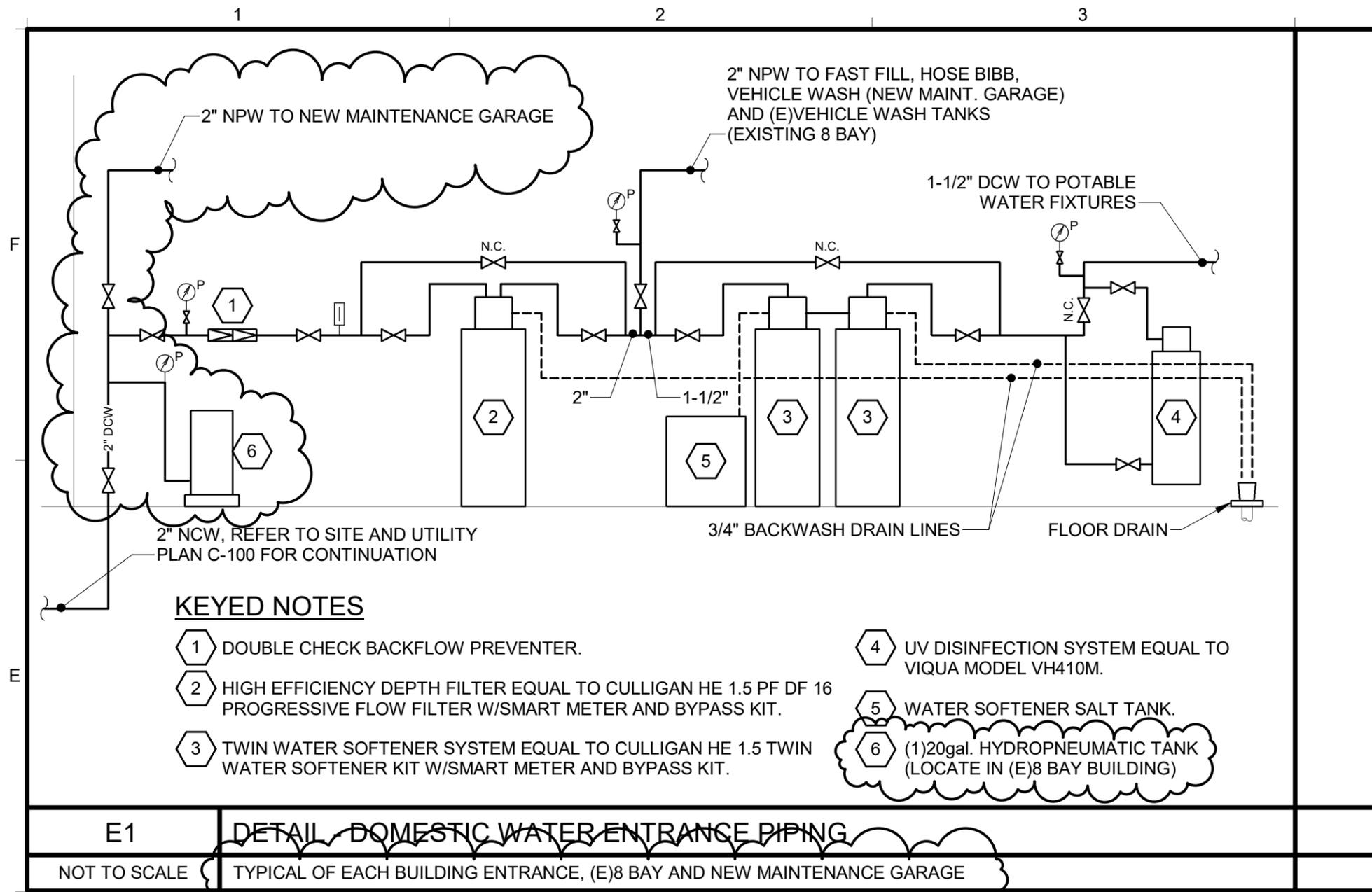
Designed by: ANTHONY DAVIS, P.E.

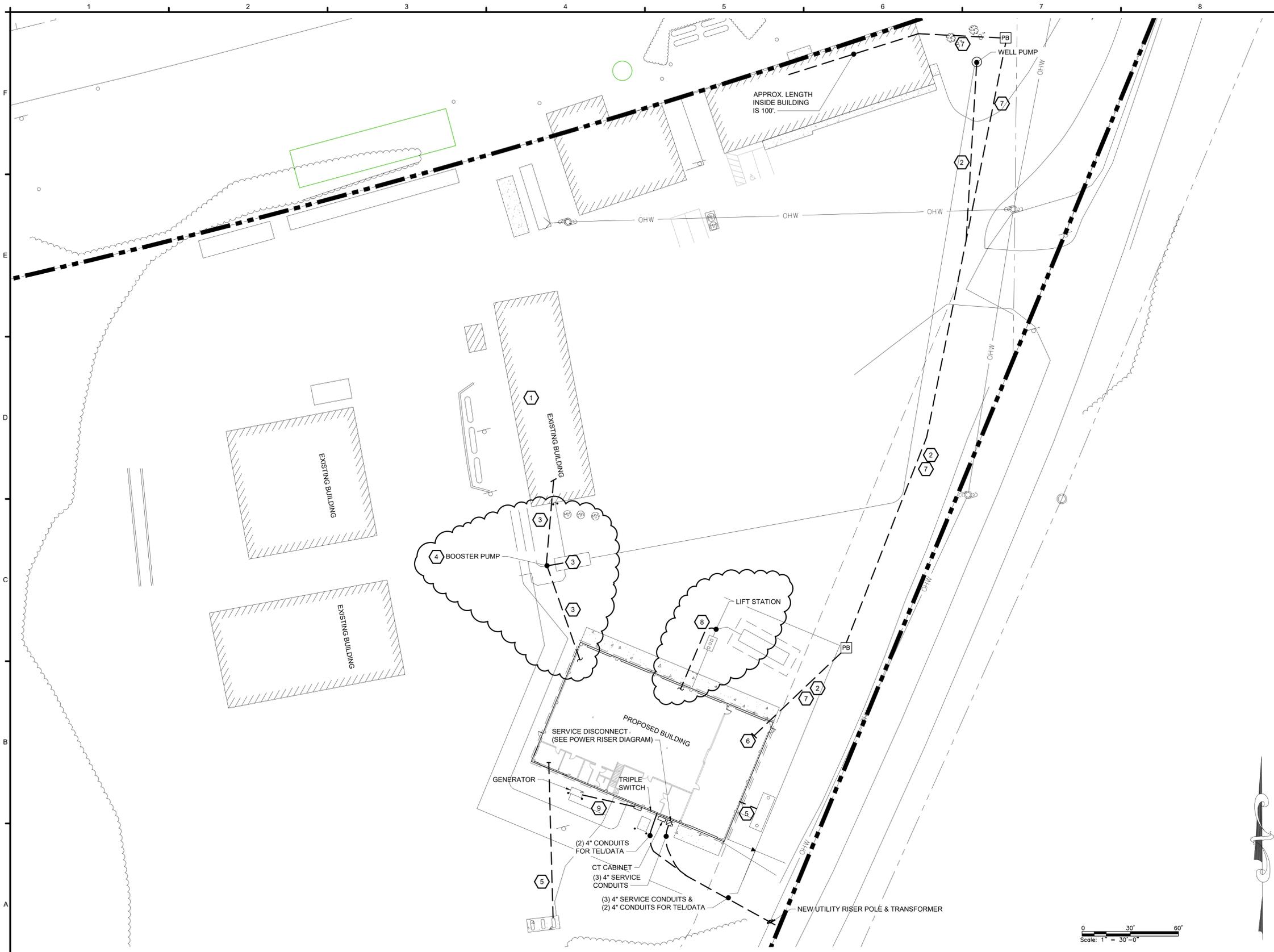
By	Date	By	Date
Designed: HAG	10/15/19	Checked: ASD	10/15/19
Drawn: REW	10/15/19		

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MAINE TURNPIKE
THE GOLD STAR MEMORIAL HIGHWAY
MTA PROJECT MANAGER: Brian A. Taddeo, P.E.

CONTRACT 2019.12, NEW MECHANICS GARAGE
LITCHFIELD MAINTENANCE YARD, MILE MARKER 92.7
SANITARY PIPING PLAN
SHEET NUMBER: PL-100
CONTRACT: 2019.12
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- 1 PROVIDE (2) SINGLE NEMA 5-20R GFI RECEPTACLES. WIRE AND CONNECT TO EXISTING 20A-1P CB IN BUILDING.
- 2 PROVIDE (1) 2" CONDUIT WITH 2 #6, 1 #8G FOR POWER TO WELL PUMP. CIRCUIT TO PANEL MDP.
- 3 PROVIDE 1-1/2" EMPTY CONDUIT WITH PULL STRING FOR CONTROLS. CONTROL WIRING BY OTHERS.
- 4 BOOSTER PUMP (5HP) PROVIDE 2 #8, 1 #10G WITHIN 1" CONDUIT. CIRCUIT TO PANEL P2. PROVIDE NEMA 4X-40A FUSED 2-POLE DISCONNECT SWITCH. WIRE VIA VFD. VFD PROVIDED BY DIVISION 23.
- 5 1" EMPTY CONDUIT WITH PULL STRING FOR ALARM/MONITORING ALARM.
- 6 STUB UP INTO IT ROOM.
- 7 (1) 3" CONDUIT FOR FIBER BACKBONE. (1) SPARE 3" CONDUIT W/ PULL STRING. CONTRACTOR SHALL ROUTE TO IT ROOM IN EXISTING BUILDING AT LOCATION AS DIRECTED BY OWNER.
- 8 SEPTIC PUMP. PROVIDE 1" CONDUIT AND WP GFI RECEPTACLE WIRED TO P2, 20A, 1P. PROVIDE 1" EMPTY CONDUIT WITH PULL STRING FOR CONTROLS.
- 9 GENERATOR PROVIDE (3) 120V, 20A CIRCUITS FOR BATTERY, STRIP HEATER AND WATER JACKET HEATER. PROVIDE 1" CONDUIT, WIRE AND CONNECT TO PANEL P2. PROVIDE (2) 1" EMPTY CONDUIT WITH PULL STRING FOR GENERATOR CONTROL WIRING. SEE ONE-LINE DIAGRAM FOR FEEDER SIZING TO BUILDING.

E8 SITE KEYNOTES

- DO NOT SCALE
- OH— OVERHEAD WIRING, TYPE AS INDICATED
 - UNDERGROUND OR UNDERSLAB WIRING, TYPE AS INDICATED
 - U— UTILITY POLE
 - ⊗ FUSED DISCONNECT SWITCH
 - ⊞ NON-FUSED DISCONNECT SWITCH
 - ⊙ MOTOR
 - ⊥ GROUNDING SYSTEM
 - ⊙ JUNCTION BOX, WALL MOUNTED
 - ⊞ JUNCTION BOX, IN-GROUND
 - ⊙ ELECTRICAL MANHOLE, COORDINATE LOCATION WITH OTHER UNDERGROUND UTILITIES
 - ⊞ PADMOUNT TRANSFORMER
 - ⊞ PULL BOX - SIZE AS REQUIRED
 - ⊞ PEDESTAL LOCATION, PEDESTAL BY SERVICE PROVIDER. STUB UP (2) 2" CONDUITS WITH CONNECTORS AND BUSHINGS FROM HANDHOLE.
 - ⊞ HANDHOLE, MINIMUM 18"x36"x24", SIZE PER NEC FOR NUMBER OF CONDUITS INSTALLED
 - ⊞ METER & CT CABINET, PEDESTAL MOUNTED
 - ⊞ SINGLE POLE MOUNTED LIGHT
 - ⊞ DOUBLE POLE MOUNTED LIGHT
 - ⊞ WALL MOUNTED LIGHT FIXTURE
 - ← SINGLE POLE HOMERUN: (2)#12+(1)#12G UNO, CONNECT TO PANEL INDICATED
 - ← SINGLE-PHASE HOMERUN OR MULTIPLE HOMERUN UTILIZING THE SAME CONDUIT, CONNECT TO PANEL INDICATED
 - ← 3-PHASE HOMERUN OR MULTIPLE HOMERUN UTILIZING THE SAME CONDUIT, CONNECT TO PANEL INDICATED
 - AFF ABOVE FINISHED FLOOR (E) EXISTING ITEM TO REMAIN
 - AFG ABOVE FINISHED GRADE (R) REMOVE ITEM AND DISPOSE OF PROPERLY
 - BAS BUILDING AUTOMATION SYSTEM (ER) RELOCATED ITEM AT NEW LOCATION
 - CATV CABLE TV
 - CB CIRCUIT BREAKER (RL) REMOVE AND RELOCATE
 - P/O PART OF
 - MT MOUNT
 - NEC NATIONAL ELECTRICAL CODE
 - TEL TELEPHONE
 - UNO UNLESS NOTED OTHERWISE
 - WP WEATHERPROOF
 - WG WIREGUARD

A1 ELECTRICAL SITE PLAN

SCALE: 1"=30'

A8 SITE ELECTRICAL LEGEND & ABBREVIATIONS

DO NOT SCALE

No.	Revision	By	Date
1	ISSUED FOR BID	AEI	10/15/19
2	ADDENDUM #2	AEI	11/08/19

Designed by:
CATHY FAUCHER, P.E.

DESIGNED BY: SRM 10/15/19
CHECKED BY: CAF 10/15/19
DRAWN BY: PMC 10/15/19

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MTA PROJECT MANAGER: Brian A. Taddeo, P.E.

CONTRACT 2019.12, NEW MECHANICS GARAGE LITCHFIELD MAINTENANCE YARD, MILE MARKER 92.7

ELECTRICAL SITE PLAN

SHEET NUMBER: ES-100

CONTRACT: 2019.12

41 OF 41

SECTION 221123.13 - DOMESTIC-WATER PACKAGED BOOSTER PUMPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. If the Contractor discovers any ambiguity, error, omission, conflict, or discrepancy, General Conditions Section 101.3.6 Priority of Conflicting Contract Documents shall control.
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
 - 2. State of Maine Department of Transportation, “Standard Specifications,” Revision December 2014, and any revisions thereto, apply to this Section.
 - 3. Any supplements to any of the above specifications and or standards issued prior to issuance of this specification, apply to this section.
- B. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Variable-speed package pumping system-booster pump.

1.3 DEFINITIONS

- A. VFC: Variable-frequency controller.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, and dimensions of individual components and profiles.
 - 2. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

- B. Shop Drawings: For booster pumps.

1. Include plans, elevations, sections, and mounting details.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For booster pumps to include in emergency, operation, and maintenance manuals.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Retain protective coatings and flange's protective covers during storage.

1.7 COORDINATION

- A. Coordinate sizes and locations of concrete bases with actual equipment provided.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Drinking Water System Components - Health Effects and Drinking Water System Components - Lead Content Compliance: NSF 61 and NSF 372.

2.2 VARIABLE SPEED PACKAGED PUMPING SYSTEM

- A. Furnish and install a pre-fabricated and tested variable speed packaged pumping system to maintain constant water delivery pressure. Variable speed package pumping system shall be PENTAIR PENTEK MS Seiries, or approved equal.
- B. The packaged pump system shall be a standard product of a single pump manufacturer. The entire pump system including pumps and pump logic controller, shall be designed, built, and tested by the same manufacturer.
- C. The complete packaged pumping system shall be NSF61 / NSF372 Listed for drinking water and low lead requirements.

2.3 PUMPS

- A. All pumps shall be ANSI NSF 61 / NSF372 Listed for drinking water and low lead requirements.

- B. The pumps shall be of the in-line vertical multi-stage design.
- C. The head-capacity curve shall have a steady rise in head from maximum to minimum flow within the preferred operating region. The shut-off head shall be a minimum of 20% higher than the head at the best efficiency point.
- D. Small Vertical In-Line Multi-Stage Pumps (Nominal flow from 3 to 125 gallons per minute) shall have the following features:
 - 1. The pump impellers shall be secured directly to the pump shaft by means of a splined shaft arrangement.
 - 2. The suction/discharge base shall have ANSI Class 250 flange or internal pipe thread (NPT) connections as determined by the pump station manufacturer.
 - 3. Pump Construction.
 - a. Shell: Stainless Steel
 - b. Impellers, diffuser chambers, outer sleeve: 304 Stainless Steel
 - c. Shaft 316 or 431 Stainless Steel
 - d. Impeller wear rings: 304 Stainless Steel
 - e. Shaft journals and chamber bearings: Silicon Carbide
 - f. O-rings: EPDM
 - 4. The shaft seal shall be a balanced o-ring cartridge type with the following features:
 - a. Shaft Sleeve, Gland Plate: 316 Stainless Steel
 - b. Stationary Ring: Silicon Carbide
 - c. Rotating Ring: Silicon Carbide
 - d. O-rings: EPDM
 - 5. Shaft seal replacement shall be possible without removal of any pump components other than the coupling guard, shaft coupling and motor. The entire cartridge shaft seal shall be removable as a one piece component. Pumps with motors equal to or larger than 15 hp (fifteen horsepower) shall have adequate space within the motor stool so that shaft seal replacement is possible without motor removal.
- E. VARIABLE FREQUENCY DRIVES (Remote Panel Mount)
 - 1. Equal to PENTAIR PENTEK INTELLIDRIVE, water pressure control center.
 - 2. The VFD shall convert incoming fixed frequency single-phase AC power into a variable frequency and voltage for controlling the speed of three-phase AC induction motors.
 - 3. The VFD shall be a six-pulse input design, and the input voltage rectifier shall employ a full wave diode bridge; VFD's utilizing controlled SCR rectifiers shall not be acceptable. The output waveform shall closely approximate a sine wave. The VFD shall be of a PWM output design utilizing current IGBT inverter technology and voltage vector control of the output PWM waveform.
 - 4. The VFD shall produce an output waveform capable of handling maximum motor cable distances of up to 1,000 ft. (unshielded) without tripping or derating.

5. The VFD shall utilize an output voltage-vector switching algorithm, or equivalent, in both variable and constant torque modes. VFD's that utilize Sine-Coded PWM or Look-up tables shall not be acceptable.
6. VFD shall automatically boost power factor at lower speeds.
7. The VFD shall be able to provide its full rated output current continuously at 110% of rated current for 60 seconds.
8. An empty pipe fill mode shall be available to fill an empty pipe in a short period of time, and then revert to the PID controller for stable operation.
9. Switching of the input power to the VFD shall be possible without interlocks or damage to the VFD at a minimum interval of 2 minutes.
10. Switching of power on the output side between the VFD and the motor shall be possible with no limitation or damage to the VFD and shall require no additional interlocks.
11. The VFD shall have temperature controlled cooling fans for quiet operation, minimized internal losses, and greatly increased fan life.
12. VFD shall provide full torque to the motor given input voltage fluctuations of up to +10% to -15% of the rated input voltage.
13. The VFD shall provide internal DC link reactors to minimize power line harmonics and to provide near unity power factor. VFD's without a DC link reactor shall provide a 5% impedance line side reactor.
14. VFD to be provided with the following protective features:
15. VFD shall have input surge protection utilizing MOV's, spark gaps, and Zener diodes to withstand surges of 2.3 times line voltage for 1.3 msec.
16. VFD shall include circuitry to detect phase imbalance and phase loss on the input side of the VFD.
17. VFD shall include current sensors on all three-output phases to detect and report phase loss to the motor. The VFD will identify which of the output phases is low or lost.
18. VFD shall auto-derate the output voltage and frequency to the motor in the presence of sustained ambient temperatures higher than the normal operating range, so as not to trip on an inverter temperature fault. The use of this feature shall be user-selectable and a warning will be exported during the event. Function shall reduce switching frequency before reducing motor speed.
19. VFD shall auto-derate the output frequency by limiting the output current before allowing the VFD to trip on overload. Speed can be reduced, but not stopped.
20. The VFD shall have the option of an integral RFI filter. VFD enclosures shall be made of metal to minimize RFI and provide immunity.
21. VFD shall include optional heaters for cold weather operation.
22. VFD service conditions:
 - a. Ambient temperature operating range, -10 to 45°C (14 to 113°F) Continuous; 50 °C max temperature Intermittent.
 - b. 0 to 95% relative humidity, non-condensing.
 - c. Elevation to 1000 meters (3,300 feet) without derating.
 - d. VFD's shall be rated for line voltage of 525 to 690VAC, 380 to 480VAC, or 200 to 240VAC; with +10% to -15% variations. Line frequency variation of $\pm 2\%$ shall be acceptable.
 - e. No side clearance shall be required for cooling of the units.

2.4 PUMP SYSTEM CONTROLLER

- A. The pump system controller shall be a standard product developed and supported by the pump manufacturer.
- B. The controller shall be microprocessor based capable of having software changes and updates via personal computer (notebook). The controller user interface shall have a color display with a minimum screen size of 3-1/2" x 4-5/8" for easy viewing of system status parameters and for field programming. The display shall have a back light with contrast adjustment. Password protection of system settings shall be standard.
- C. The controller shall provide internal galvanic isolation to all digital and analog inputs as well as all fieldbus connections.
- D. The controller shall have the ability to be connected to a battery to maintain power on controller during periods of loss of supply power.
- E. The controller shall have built in data logging capability. Logged values shall be graphically displayed on the controller and able to be exported. A minimum of 7200 samples per logged value with the following parameters available for logging:
 - 1. Estimated flow-rate
 - 2. Speed of pumps
 - 3. Inlet pressure
 - 4. Process Value (usually discharge pressure of differential pressure depending on application)
 - 5. Power consumption
 - 6. Controlling parameter (process value)
- F. The controller shall display the following as status readings from a single display on the controller (this display shall be the default):
 - 1. Current value of the control parameter, (typically discharge pressure)
 - 2. Most recent existing alarm (if any)
 - 3. System status with current operating mode
 - 4. Status of each pump with current operating mode and rotational speed as a percentage (%)
 - 5. Estimated flow-rate, (not requiring flow meter connection)
 - 6. User defined measured or calculated data
 - 7. Electrical connection overview (all digital I/O and analog I/O)
- G. The controller shall have as a minimum the following hardware inputs and outputs:
 - 1. Three analog inputs (4-20mA or 0-10VDC)
 - 2. Three digital inputs
 - 3. Two digital outputs
 - 4. Ethernet connection
 - 5. Field Service connection to PC for advanced programming and data logging
- H. Pump system programming (field adjustable) shall include as a minimum the following:

1. Water shortage protection (analog or digital)
 2. Sensor Settings (Suction, Discharge, Differential Pressure analog supply/range)
 3. PI Controller (Proportional gain and Integral time) settings
 4. High system pressure indication and shut-down
 5. Low system pressure indication and shut-down
 6. Low suction pressure/level shutdown (via digital contact)
 7. Low suction pressure/level warning (via analog signal)
 8. Low suction pressure/level shutdown (via analog signal)
 9. Flow meter settings (if used, analog signal)
- I. The controller shall be able to control using up to six DP sensors (zones). The zones shall have priority control setting and minimum and maximum setpoint limits for each DP sensor or zone.
- J. The system controller shall be able to accept up to seven programmable set-points via a digital input, (additional input/output module may be required).
- K. The controller shall have advanced water shortage protection. When analog sensors (level or pressure) are used for water shortage protection, there shall be two indication levels. One level is for warning indication only (indication that the water level/pressure is getting lower than expected levels) and the other level is for complete system shut-down (water or level is so low that pump damage can occur). System restart after shut-down shall be manual or automatic (user selectable).
- L. The system pressure set-point shall be capable of being automatically adjusted by using an external set-point influence. The set-point influence function enables the user to adjust the control parameter (typically pressure) by measuring an additional parameter. (Example: Lower the system pressure set-point based on a flow measurement to compensate for lower friction losses at lower flow rates).
- M. The controller shall be capable of receiving a remote analog set-point (4-20mA or 0-10 VDC) as well as a remote system on/off (digital) signal.
- N. The pump system controller shall store up to 24 warning and alarms in memory. The time, date and duration of each alarm shall be recorded. A potential-free relay shall be provided for alarm notification to the building management system. The controller shall display the following alarm conditions:
- | | |
|---|---------------------------------|
| 1. High System Pressure | Low system pressure |
| 2. Low suction pressure (warning and alarm) | Individual pump failure |
| 3. VFD trip/failure | Loss of sensor signal (4-20 mA) |
| 4. Loss of remote set-point signal (4-20mA) | External Fault |
- O. The pump system controller shall be mounted in a NEMA 4X enclosure. The entire control panel shall be UL 508 listed as an assembly. The control panel shall include a main disconnect, circuit breakers for each pump and the control circuit and control relays for alarm functions.
1. Control panel options shall include, but not be limited to:
 - a. Pump Run Lights

- b. System Fault Light
 - c. Emergency/Normal Operation Switches
 - d. Service Disconnect Switches (accessible from side of panel)
 - e. Surge Arrestor
 - f. 100kA SCCR panel rating
- P. The controller shall be capable of receiving a redundant sensor input to function as a backup to the primary sensor (typically discharge pressure).
- Q. Upon loss of signal from remote sensor the controller shall be capable of reverting control to local mounted sensor with new corresponding setpoint.
- R. The controller shall have a pump “Test Run” feature such that pumps are switched on during periods of inactivity (system is switched to the “off” position but with electricity supply still connected). The inoperative pumps shall be switched on for a period of two to three (3-4) seconds every 24 hours, 48 hours or once per week and at specific time of day (user selectable).
- S. The controller shall be capable of changing the number of pumps available to operate or have the ability limit the maximum power consumption by activation of a digital input for purposes of limited generator supplied power.
- T. The controller shall be capable of displaying instantaneous power consumption (Watts or kilowatts) and cumulative energy consumption (kilowatt-hours).
- U. The controller shall be capable of displaying instantaneous specific energy use (kW/gpm), (optional flow meter must be connected).
- V. The actual pump performance curves (5th order polynomial) shall be loaded (software) into the pump system controller. Pump curve data shall be used for the following:
1. Display and data logging of calculated flow rate (not requiring flow measurement)
 2. Proportional pressure control
 3. Pump outside of duty range protection
 4. Pump cascade control based on pump efficiency
- W. The controller shall be capable of displaying an estimated flow-rate on the default status screen.

2.5 SEQUENCE OF OPERATION

- A. The system controller shall operate equal capacity variable speed pump to maintain a constant differential pressure (system set-point from remote DP sensor) or proportional pressure differential pressure setpoint (system setpoint from local mounted sensor(s)), depending on the application. The system controller shall receive an analog signal [4-20mA] from the factory installed pressure transducer on the discharge and suction manifolds, indicating the actual system pressure and inlet pressure. The controller shall be capable of controlling off the subtraction of discharge minus suction transducers for differential pressure across the manifolds.

2.6 LOW FLOW STOP FUNCTION (Constant Pressure Applications)

- A. The system controller shall be capable of stopping pumps during periods of low-flow or zero-flow without wasting water or adding unwanted heat to the liquid. Temperature based no flow shut-down methods that have the potential to waste water and add unwanted temperature rise to the pumping fluid are not acceptable and shall not be used.
- B. Normal Flow Restart: If the pump system controller determines a low flow condition no longer exists the pump shall start and the speed shall be increased until the system pressure reaches the system set-point.

2.7 TESTING

- A. The tester used for testing the pump system shall be constructed and calibrated according to the requirements of hydraulic test standard ISO 9906.
- B. The entire pump station shall as a minimum be factory tested for functionality and documented results of functionality test supplied with pump station.
- C. Functionality testing shall include the following parameters:
 - 1. Complete System Hydrostatic Test – 1.5 times the nameplate maximum pressure
 - 2. No-Flow Detection Shutoff Test
 - 3. Water Shortage Test
 - 4. Two-Point Setpoint Performance Test.
- D. Water used for testing shall be treated with three different filtration systems to ensure only clean water is used for testing pump station.
 - 1. 25 micron mechanical filter – removes solid parts from water
 - 2. Activated carbon filter – keeps water clear and eliminates odor
 - 3. Ultraviolet light system – kills all bacteria growth

2.8 WARRANTY

- A. The warranty period shall be a non-prorated period of 24 months from date of installation, not to exceed 30 months from date of manufacture.

2.9 SOURCE QUALITY CONTROL

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.
- B. ASME Compliance: Comply with ASME B31.9 for piping.

- C. Booster pumps shall be listed and labeled as packaged pumping systems by testing agency acceptable to authorities having jurisdiction.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in for booster pumps to verify actual locations of piping connections before booster-pump installation.

3.2 INSTALLATION

- A. Booster-Pump Mounting:

- 1. Comply with requirements for vibration isolation and seismic-control devices specified in Section 220548 "Vibration and Seismic Controls for Plumbing Piping and Equipment."
- 2. Comply with requirements for vibration isolation devices specified in Section 220548.13 "Vibration Controls for Plumbing Piping and Equipment."

- B. Support connected domestic-water piping so weight of piping is not supported by booster pumps.

3.3 PIPING CONNECTIONS

- A. Comply with requirements for piping specified in Section 221116 "Domestic Water Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

- B. Booster-Pump Piping Connections: Connect domestic-water piping to booster pumps. Install suction and discharge pipe equal to or greater than size of system suction and discharge headers.

- 1. Install shutoff valves on piping connections to booster-pump suction and discharge headers. Install ball, butterfly, or gate valves same size as suction and discharge headers. Comply with requirements for general-duty valves specified in Section 220523.12 "Ball Valves for Plumbing Piping," Section 220523.13 "Butterfly Valves for Plumbing Piping," and Section 220523.15 "Gate Valves for Plumbing Piping."
- 2. Where installing piping adjacent to booster pumps, allow space for service and maintenance.

3.4 ELECTRICAL CONNECTIONS

- A. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

- B. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."

- C. Install electrical devices furnished by manufacturer, but not factory mounted, according to NFPA 70 and NECA 1.

3.5 CONTROL CONNECTIONS

- A. Install control and electrical power wiring to field-mounted control devices.
- B. Connect control wiring according to Section 260523 "Control-Voltage Electrical Power Cables."

3.6 IDENTIFICATION

- A. Identify system components. Comply with requirements for identification specified in Section 220553 "Identification for Plumbing Piping and Equipment."
- B. Install nameplate for each electrical connection, indicating electrical equipment designation and circuit number feeding connection.
 - 1. Nameplate shall be laminated acrylic or melamine plastic signs, as specified in Section 260553 "Identification for Electrical Systems."
 - 2. Nameplate shall be laminated acrylic or melamine plastic signs with a black background and engraved white letters at least 1/2 inch high.

3.7 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- C. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- D. Perform tests and inspections with the assistance of a factory-authorized service representative.
 - 1. Perform visual and mechanical inspection.
 - 2. Leak Test: After installation, charge booster pump and test for leaks. Repair leaks and retest until no leaks exist.
 - 3. Operational Test: After electrical circuitry has been energized, start booster pumps to confirm proper motor rotation and booster-pump operation.
 - 4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Pumps and controls will be considered defective if they do not pass tests and inspections.
- F. Prepare test and inspection reports.

3.8 STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service.
 - 1. Complete installation and startup checks according to manufacturer's written instructions.

3.9 ADJUSTING

- A. Adjust booster pumps to function smoothly, and lubricate as recommended by manufacturer.
- B. Adjust pressure set points.
- C. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting booster pump to suit actual occupied conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose.

3.10 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain booster pumps.

END OF SECTION 221123.13

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MTA Addenda 2 Questions - Contract 2019.12					
		8-Nov-19			
		Litchfield Maintenance Garage			
	Contractor/Vendor	Sheet	Plan/Spec	Question	AEI Team Response/Resolution
1	Crooker Construction			Can precast bollards be substituted for cast in place bollards?+E5:E12E5:E15E5:E19F2E5:E24	AEI: No, Provide as specified in Contract Documents.
2				Our precast concrete supplier can't produce an H20 rated 1000 gallon combination septic tank. Would you like to add a separate lift station adjacent to a regular 1000 gallon tank? If so, can you please provide a detail for this?	GPCEI: After further research and coordination with the manufacturer, the proposed 1000 gallon tank with a separate 4 ft manhole (both H20 rated) with the specified pump will be acceptable.
3				Can you please confirm all complimentary notes in spec section 403?	GPCEI: Only notes C and I in Special Provision 403 apply to this project. Note A was corrected in Addendum 1
4				What are the gravel testing requirements that the Contractor is responsible for?	MTA: MTA just has the contractor submit a gradation on gravel. MTA will then send a their geotechnical consultant to do a sieve and a proctor on the gravel.
5				Spec section 822 calls out HDPE water service while the pay item is for copper water service. Can you please clarify the water service material?	GPCEI: Water service material shall be HDPE material. The pay item number will be updated
6				The geotechnical report calls out soils with a petroleum/chemical odor. Is the intent to keep all of this material on site or will it need to be removed because of the well? If the soils need to be removed how is the removal and replacement of the	GPCEI/MTA: A 203.21 pay item has been included for an allowance of removal of petroleum/chemical odor soils for 100 CY
7				Spec section 800.3 says that the horizontal pay limit is within 5' of edge of building/concrete aprons and the vertical pay limit is bottom of footing.	GPCEI: The pay limit for gravels and pavement is to the face of the building or concrete apron.
8				Do granular borrow and structural fill under the building get paid for by their respective items or by the maintenance garage item?	GPCEI: The respective pay items for structural fill and granular borrow will cover the material under the maintenance garage.
9				Do all gravels and pavements get paid for by their respective pay item within the 5' horizontal pay limit or is that incidental to the maintenance garage pay item?	GPCEI: The gravels and pavement within the 5' horizontal pay limit will not be incidental to the maintenance garage, and will be get paid for by their respective pay item.
10	Great Falls Construction			Does the crane beam need to be designed for a 5-ton capacity so that both 2.5 ton hoists can make a capacity pick at the same time?	WPF: Yes.
11	Glidden Paving			Is there asphalt escalation for this project?	WPF: (Addendum 1 Response) MTA: Yes, page 106 of Supplementals. We have 675 ton in this job
12				Will hot rubber joint sealant be required for the surface pavement?	WPF: (Addendum 1 response) GPCEI: Hot rubber joint sealant will not be required between the new pavement and existing pavement at the facility
13	Sheridan Corp			Good morning. I do not understand why AEI is specifying the roof dead load for the building. The dead load is the building itself. If one PEMB figures out a more efficient way to frame the building and has less than 17 PSF, then what is wrong with that? I am all set with the collateral load and PV load but am still scratching my head as to why they are spec'ing a dead load. Based upon my interpretation of the plans, there are three (3) large items (MUA-1, MUA-2, & EF-4) that need to be supported from the building as concentrated loads. Is AEI applying a 17 PSF dead load to the entire roof area in lieu of specifically addressing the concentrated loads? Please advise so that I can get accurate pricing for the structure.	WPF: Design shall incorporate a minimum of 9 psf for DL. If a PEMB manufacturer can supply a roof system, including structure, that has a DL (PSF) less than this, verification will need to be provided and broken out (psf/component) in the shop submittal.
14			133419	This spec references 053100 Steel Decking. 053100 3.3.A directs installation of roof decking via 5/8" dia. Puddle welds. This method of panel to structural decking attachment to light gage PEMB purlins is not advisable. Please have the EOR change to mechanically fastened in lieu of puddle welding. Might I suggest leaving the deck fastening method up to the PEMB manufacturer as they are designing the structure.	WPF: Agreed. Mechanical Fastening offered by PEMB Engineer and identified in shop submittal will be reviewed by AEI. Please proceed accordingly.

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Contractor/Vendor	Sheet	Plan/Spec	Question	AEI Team Response/Resolution	
15			CB-1 and CB-2 Please confirm if a standard AIA A310-2010 Bid Bond is acceptable for bid submission in lieu of the CB-1 and CB-2 forms issued with the bid documents and Addendum #01.	MTA: MTA Bid bond forms shall be utilized.	
16			133419 2.2.D 133419 2.2.D – Specifies exterior-framed (bypass) girts. 1/A-8 depicts columns inboard with a hammerhead type roof beam. D8/SB-500 depicts columns flush with the wall panels. Please confirm column location. Also note that if the A/E keeps flat architectural wall panels as the BOD, girts will need to be simple span. There is no PEMB manufacturer that will design a building with continuous girts with flat architectural panels due to the potential of oil canning.	GHA/AEI: DELETE (Bypass) from 133419 2.2.D.	
17			133419-2.2-E 133419-2.2-E: Eave height listed at 24'. Plans depict T.O.S. at 26'. Which is correct?	GHA: 26' is the correct TOS elevation.	
18			133419-2.5-A-1-a 133419-2.5-A-1-a – Exterior Surface: A smooth, flat “Architectural” panel is the most expensive panel you can buy. A series drawings depict a ribbed panel. Please confirm panel surface.	GHA: Insulated Metal Panel profile shall be similar to MBCI Summit series - minor striations.	
19	American Concrete	PL-100	Piping Elevation detail states “Removable Grates (by others)”. However, SP Sec 604.06 written spec states ...removable floor grate incidental to Pump MH. Is removable grate provided by Div 22 or incidental to Pump MH? If incidental, please furnish grating material spec.	AEI: Scope Change for system reflected in Add 2 makes comment no longer relevant.	
20		C-402 & PL-100	Plan Sheets C-402 & PL-100 both detail the Well Pump MH, but no inside floor elevation provided. Please provide MH floor elev. or total overall.	AEI/GPCEI: Scope Change for system reflected in Add 2 makes comment no longer relevant.	
21	Nickerson & Oday		101400 signs Sheet 8 of 41 calls for two exterior ADA signs. In our experience braille ADA signs are not required for exterior doors. We can provide 12" wide x 18" tall x .100" thick aluminum handicap entrance signs, which are basically handicap parking signs with slightly different verbiage on it.	GHA: Signage shall be per contract documents for location and type.	
22			101400 signs ADA requires all doors to be labeled. Eight doors are not shown to be labeled. Should we account for those in our quote?	GHA: Signage shall be per contract documents for location and type.	
23			101400 signs Can you verify the sizes of the ADA signs also? 6" x 8"?	GHA: 6" wide x 9" high	
24			4200 A mason mentioned there are no control joints shown in the CMU wall at the wash bay. Should we have controls included? If so how many	WPF: Provide vertical control, expansion or contraction joints spaced at 15'-0" on-center (max) and locate joints at each door jamb openings for interior masonry walls.	
25		DWG. A-2	Shows a 5,000 lbs capacity bridge crane. Specifications 412213 calls for two 2.5 ton gantry trollies. Are you looking for a 5 ton bridge crane or a 5,000 lbs bridge crane? Please note a 5 ton crane would handle the load of both trollies at full capacity. Please confirm.	WPF: Specification is correct. There should be two (2) 2.5 Ton cranes running on a single gantry beam, each with its own operating equipment.	
26			Specifications Each specification has a section 1.1 Related Documents. A2 lists the State of Maine Department of Transportation “Standard Specifications” applies to this section. This is an 800 +- page document. Please explain what sections of the Standard Specifications exactly pertains to these individual specifications. For instance if we look at section 042200 in the project specifications it clearly asks for 8x16 concrete masonry units. If we look at the State of Maine DOT spec for masonry units it calls for clay or shale brick. The same applies for division 051200 structural steel and State of Maine DOT section 713 structural steel which seems to apply to bridges. Which Specification supersedes the other? How does the State of Maine DOT spec apply to these building trades?	WPF: Div 800 shall encompass all building elements including foundations, foundation drainage, associated insulations and vapor barrier elements, concrete apron slabs and entry foundation systems. A lump sum value is requested in the Bid form for Div 800.. The following activities are covered under MaineDOT Standard Specifications, as modified by MTA Supplemental Specifications and Special Provisions, and are listed separately on Bid form for individual Division proposal value requests •borrow and structural fill shall extend to include beneath the limits of building foundations, footings and both interior and apron slabs-on-grade. •paving shall extend to the perimeter of the building and concrete apron slabs •piping shall extend to within 5' of the perimeter of the building.	

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Contractor/Vendor	Sheet	Plan/Spec	Question	AEI Team Response/Resolution	
27		Structural Fill	Does the structural fill under the building need to be included in line item 304.105 or 800.01?	GPCEI: All structural fill beneath the building footprint and extending out 5 feet beyond the building is Division 800. all other fills beyond this shall be by Division 304.	
28		Taxes	Is this project tax exempt?	MTA: Yes	
29		Metal Building	Is divider support beam W12x30 detailed in C9 SF500 to impose any loads on pre-engineered building columns? If so how much weight?	AEI: yes, self weight, plus whatever wash bay divider curtain GC offers for consideration by EOR during the shop review. GC shall coordinate this load with PEMB manufacturer based on their choice of curtain.	
30		Mezzanine	Does the structural mezzanine impose any loads on the pre-engineered building columns?	AEI: NO	
31		133419 2.5	What thickness exterior metal building wall panels are required?	GHA: See Sheets A-7 & A-8	
32		133419 1.9B	Calls for warranty on standing seam metal roof panels. We assume this is an error.	AEI: Asked and answered in Addendum 1.	
33		055000 2.11 Lintels	We could not find a lintel schedule. What size lintels need to be installed in the masonry openings? Or are they required?	Masonry lintels for Man door and Ohd door between Washbay and Workbay 4 are referenced from Sheet SF-100 to Detail E8/SF-500.	
34		Section 655 page SP47	Description: This section talks about tunnels and structural slab infills as well as waterproofing membrane. I couldn't find any duct bank, tunnels, or slab infills on the drawings. Is this information accurate?	AEI: Addendum 2 addresses this. Description revised.	
35		Pay item 656.632	Silt Fence. There is no description in the spec.	GPCEI: The standard MDOT Specification for Section 656 -Temporary Soil Erosion and Water Pollution Control, which includes silt fence, applies to this project.	
36		Section 800	Page SP49 calls for coordination drawings of the mechanical room. In our opinion these should not be required and could save the owner money. Can this be deleted?	AEI: No, provide as specified.	
37		51200	Structural Steel spec calls for AISC certified fabricators. Can this requirement be removed but still have quality held to AISC standards?	AEI: As all the steel falling under Section 051200 represents miscellaneous steel and not main building structure steel, yes, AISC fabricator certification shall be considered waived.	
38		52100	The mezzanine is shown to be framed with Cold Formed Metal Framing. Where do the steel joists in section 051200 go?	AEI: Steel joists section was provided as an option for PEMB manufacturer to use joists v. Z-purlin roof elements for support of deck thru EPDM roof system.	
39		51200	What size are the runway beams for the overhead crane to be?	AEI: This is a coordination item between the GC, Crane Supplier and Pre-engineered Building Designer.	
40		Detail 2 on drawing A4	Shows a roof separation board. Is this the 5/8" plywood that is specified in section 061600 1.2 A1.? There is a substrate called for in the EPDM section.	GHA: Separation Board is the same as Substrate Board in Section 075323	
41		75323	EPDM spec calls for white reinforced EPDM. A roofing contractor is telling us they do not make white reinforced EPDM. Black reinforced EPDM is less expensive than white non-reinforced. Would black reinforced EPDM be acceptable?	GHA: No. Provide non-reinforced white EPDM	
42		Septic	C-401	On C-401 the design calls out for a combination 1,000-gallon tank with a pump station. I checked around with suppliers and none make it with the H2O Load. We could use a H2O 1,000-gallon tank and cast-iron cover and a standard street style manhole. Can we do it this way?	GPCEI: After further research and coordination with the manufacturer, the proposed 1000 gallon tank with a separate 4 ft manhole (both H2O rated) with the specified pump will be acceptable.
43		Septic	C-401	Are you wanting the concrete tank chamber to be H2O also?	GPCEI: Both the septic tank and 6000 gallon holding tank are to be H2O rated.
44		Septic		On the electrical side the controls are duplex. I feel it should be the standard home panel for the single pump system. The panel comes with a high-water alarm. Please let us know if this is acceptable.	GPCEI Yes this is acceptable.

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Contractor/Vendor	Sheet	Plan/Spec	Question	AEI Team Response/Resolution	
45		Septic		The inside catch basins. Oil & sand trap on SKP-01 – Should we plan on flat tops & 6” donuts & 6” frame & covers? This will allow for a cushion of gravel between concrete top & concrete floor. Can you please advise yes or no.	AEI: Yes, please provide flat tops & 6” donuts & 6” frame & covers.
46			Bid Form	We’ve analyzed the drawings and specs and are wondering why there are so many unit prices. The earthwork is a small piece of this project. Typically in the building trades, sub-contractor’s quotes are submitted to general contractors just hours prior to the bid time. Making it very difficult to follow the bid form included with this project. Would it be acceptable to bid the project as a lump sum and submit a schedule of values if awarded the project?	WPF: NO, Project is to be bid as shown in the Contract documents. See response to Question 26 above for further clarification.
47	Sheridan Corp			Detail 2 on drawing A-4 depicts a wood framed parapet, but wall sections on drawing A-8 seems to depict steel stud framing. Please confirm if the parapet is to be framed with wood or steel studs. Also, should the cavity be insulated, and what is the desired width of the framing?	GHA/AEI: Provide 400S162-33 (33ksi) @24” oc spacing in 400T150-33 (33ksi) top and bottom tracks. Provide 2x8 KD Doug Fir No. 2 or better nailer installed flush with inside CFM studs on roof side. Provide 1/2” dens deck sheathing on roof side of wall (roof deck to top edge of nailer). Insulate parapet wall with Foamed-in-place insulation (Section 072119) for full depth of stud, full height of parapet wall)
48				Detail 4/A-12 depicts a 3-line guardrail with toe angle at the stair opening. Detail E5/SF-500 depicts a 2-line guardrail with kick plate at the edge of mezzanine. Is it the intent to have different guardrail details at each location? If so, please provide clarification on the “toe angle” called for on 4/A-12.	GHA: Guardrail shall be per E5/SF-500.
49				Please provide additional detail on the Roof Ladder with Safety Cage. It is our current understanding that these are no longer OSHA compliant.	GHA: Delete safety cage requirement.

END Addendum 2 Questions/Responses