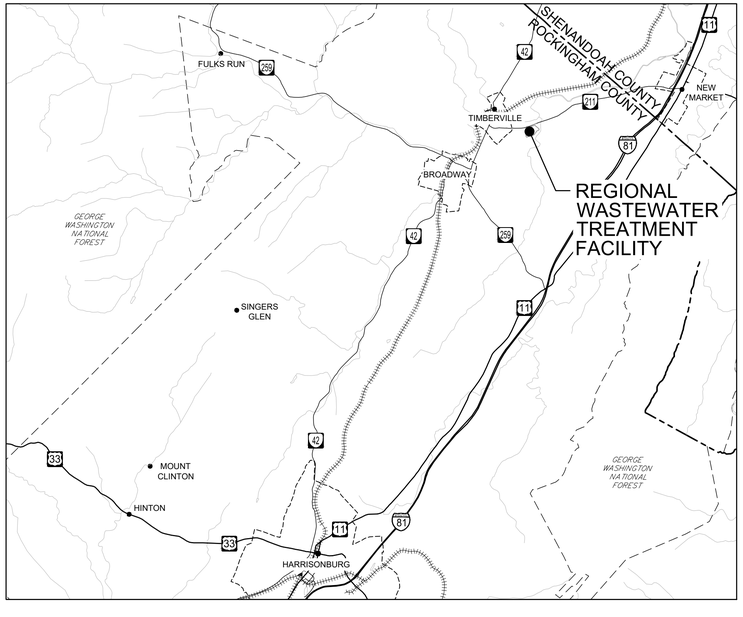
TOWN OF BROADWAY
REGIONAL WASTEWATER TREATMENT FACILITY EQUALIZATION PROJECT
SOLICITED PPEA BASIS OF DESIGN

TOWN OF BROADWAY
BROADWAY, VIRGINIA



PROJECT VICINITY MAP
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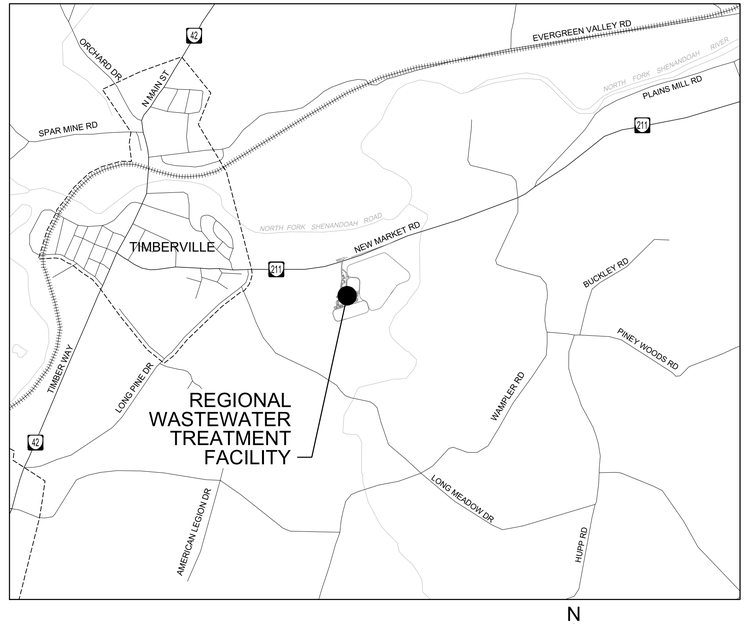

PROJECT LOCATION MAP
NOT TO SCALE

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COMMONWEALTH OF VIRGINIA
CARL ROBERT LAWRENCE MANGRUM
Lic. No. 33450
6/24/2019
REGISTERED PROFESSIONAL ENGINEER

TOWN OF BROADWAY
REGIONAL WASTEWATER TREATMENT FACILITY
EQUALIZATION PROJECT
SOLICITED PPEA BASIS OF DESIGN
OWNER:
TOWN OF BROADWAY
BROADWAY, VIRGINIA

MARK	DATE	DESCRIPTION

PROJECT NO:	0001909
DATE:	JUNE 24, 2019
DRAWN BY:	MCT
CHECKED BY:	CRLM
SHEET TITLE	

COVER SHEET

XG-001

SHEET 1 OF 3

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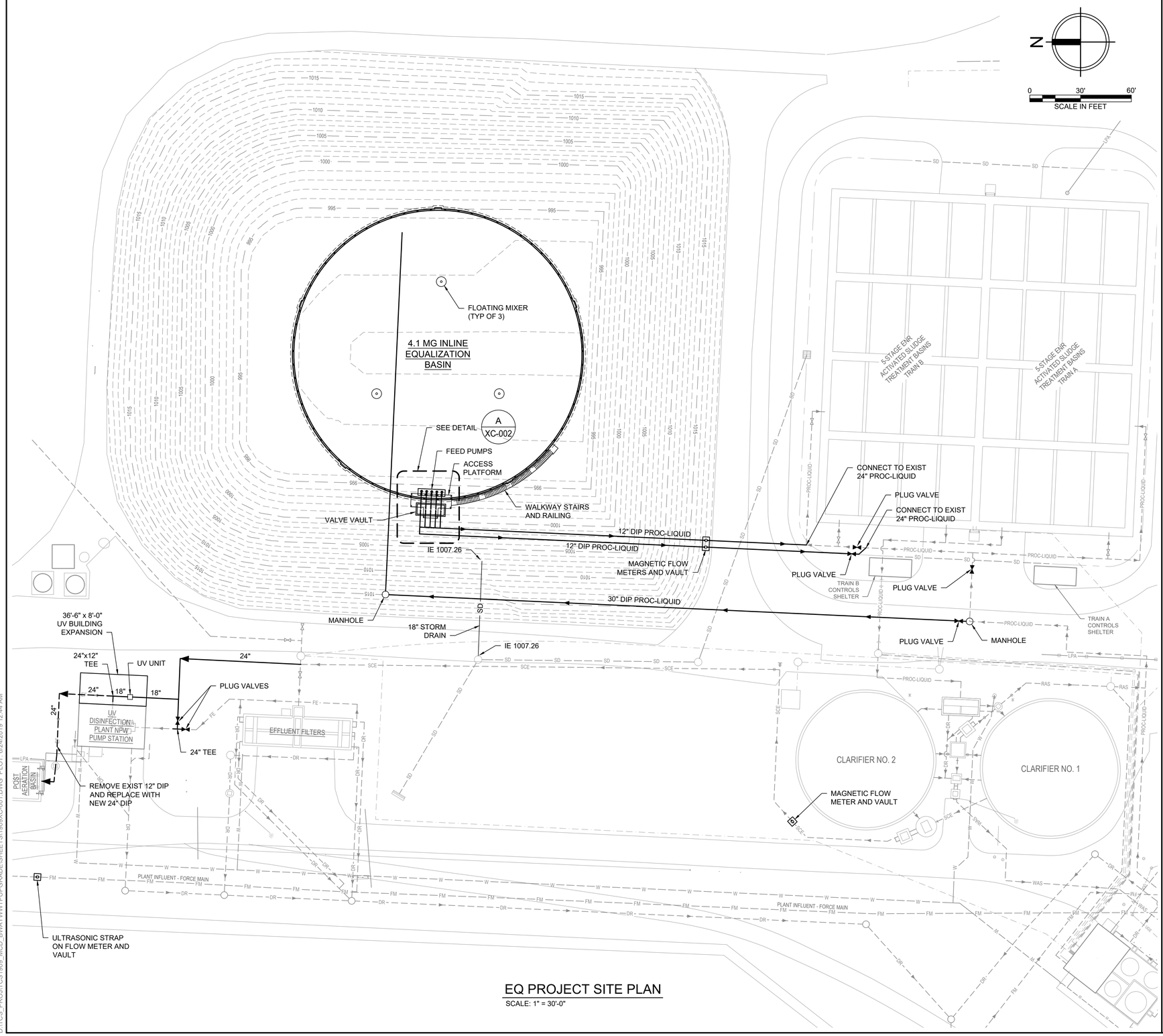

EQ PROJECT SITE PLAN

SCALE: 1" = 30'-0"

PROJECT SUMMARY:

THIS IS A SOLICITED PPEA PROPOSAL FOR THE BROADWAY REGIONAL WASTEWATER TREATMENT FACILITY WITH THE DESIRED SCOPE AS DESCRIBED HEREIN. THE PROJECT OWNER IS THE TOWN OF BROADWAY. THIS PPEA PROCESS WILL ABIDE BY THE REQUIREMENTS AS PREVIOUSLY APPROVED BY THE BROADWAY TOWN COUNCIL. UPON RECEIPT OF PROPOSAL(S), THE TOWN MAY OR MAY NOT ELECT TO MOVE FORWARD WITH THE PROJECT. WITHIN 90 DAYS OF RECEIPT OF THE PROPOSAL(S), THE TOWN WILL DECIDE TO MOVE FORWARD OR NOT WITHOUT RISK OF COMMITMENT. IF THE TOWN DECIDES TO MOVE FORWARD WITH THE PPEA PROCESS WITHIN THE 90 DAY PERIOD, THE PPEA TEAM THAT SUBMITTED THE HIGHEST RANKED PPEA PROPOSAL WILL BE ALLOWED TO DEVELOP A GUARANTEED MAXIMUM PRICE (GMP) PROPOSAL FOR CONSIDERATION BY THE TOWN. UPON RECEIPT OF THE GMP, THE TOWN WILL HAVE 90 DAYS TO DECIDE WHETHER TO MOVE FORWARD WITH THE PROJECT OR NOT, WITHOUT RISK OF COMMITMENT. ALTERNATIVE FUNDING MECHANISMS ARE ENCOURAGED TO BE PRESENTED IN THE PPEA PROPOSAL.

GENERAL STATEMENT ON ENGINEERING RESPONSIBILITY OF THIS PROJECT: OWNER'S TECHNICAL AGENT WILL APPLY TO DEQ FOR THE CTC UTILIZING THE FINAL ENGINEERING REPORT APPROACH DESIGNATED FOR PPEA/DB PROJECTS. AREAS WHERE DELEGATED DESIGN IS REQUIRED ARE IDENTIFIED HEREIN. THE PPEA DESIGN-BUILD CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DESIGN ACTIVITIES AND PERMIT FEES REQUIRED TO OBTAIN PROJECT BUILDING PERMITS/PROJECT APPROVAL FROM THE LOCAL BUILDING CODE AUTHORITY. THE OWNER'S TECHNICAL WILL SUBMIT THE CTO TO DEQ UPON SUCCESSFUL PROJECT COMPLETION. THE OWNER'S TECHNICAL AGENT WILL BE RESPONSIBLE FOR UPDATING THE BROADWAY REGIONAL WASTEWATER TREATMENT FACILITY O&M MANUAL PURSUANT TO DEQ REQUIREMENTS.

TECHNICAL SPECIFICATIONS AND MANUFACTURER MODEL NUMBERS ARE PROVIDED HEREIN AS THE BASIS OF DESIGN, FUNCTIONALITY AND QUALITY. OR EQUALS MAY BE SUBMITTED AS PART OF THE PPEA PROPOSAL, HOWEVER, THEY ARE SUBJECT TO FINAL APPROVAL OF OR EQUAL STATUS BY THE OWNER. NO PRE-APPROVALS WILL BE PROVIDED TO PPEA TEAMS. THE SUBMITTED PPEA PROPOSAL SHALL BE BASED ON THE COST OF THE BASIS OF DESIGN EQUIPMENT WITH STATED DEDUCTS FOR ANY PROPOSED OR EQUAL EQUIPMENT. IF A PROPOSED OR EQUAL IS DETERMINED BY THE OWNER TO BE IN FACT EQUAL, THEN THE OWNER HAS THE OPTION TO ACCEPT THE DEDUCT PRICE FOR THE APPROVED OR EQUAL OR TO NOT ACCEPT THE APPROVED OR EQUAL, AS PART OF THE PROJECT. THE OWNER WILL RENDER THE FINAL DECISION ON ALL EVALUATIONS OF PROPOSED OR EQUALS AND MAY REQUIRE SUBSTANTIAL ADDITIONAL INFORMATION TO BE SUBMITTED TO THE TOWN DURING THE PPEA PROPOSAL REVIEW PERIOD TO ASSIST IN MAKING OR EQUAL DETERMINATIONS.

GENERAL NOTES:

EQ TANK:

1. PRECAST POST-TENSIONED CIRCULAR CONCRETE TANK WITH THE FOLLOWING FEATURES:
   a. BASE OUTSIDE DIAMETER: 174'-0"
   b. TANK INSIDE DIAMETER: 170'-0"
   c. TANK WALL HEIGHT: 26'-0"
   d. MAXIMUM WATER LEVEL: 24'-0"
   e. TANK FREEBOARD: 2'-0"
   f. TOTAL VOLUME TO MAXIMUM WATER LEVEL: 4,075,000 GALLONS
   g. FINISHED FLOOR ELEVATION AT TANK WALL: 993.18
   h. TOP OF WALL ELEVATION: 1019.18
   i. MAXIMUM WATER ELEVATION: 1017.18
   j. CAST-IN-PLACE REINFORCED CONCRETE BASE SLAB.
   k. BASE SLAB TO SLOPE ½% MINIMUM TO CAST-IN-PLACE SUMP.
   l. CAST-IN-PLACE SUMP TO BE 16' BY 4' BY 4' DEEP AND LOCATED AS SHOWN HEREIN.
2. TANK STRUCTURE SHALL BE DESIGNED BASED ON THE LATEST ACI 350 CODE INCLUDING REQUIREMENTS FOR POST-TENSIONED TANKS:
   a. SECTION 03310: CAST-IN-PLACE CONCRETE FOR PRECAST, POST-TENSIONED, CONCRETE TANK BASE SLABS.
   b. SECTION 03430: PRECAST, POST-TENSIONED, CONCRETE TANKS - CIRCULAR (ACI 350).
3. TANK MANUFACTURER SHALL BE RESPONSIBLE FOR COMPLETE TANK ERECTION AND FABRICATION.
4. TANK MANUFACTURER SHALL BE RESPONSIBLE FOR DESIGN AND INSTALLATION OF THE BASE SLAB.
5. 10-YEAR STRUCTURAL WARRANTY SHALL BE PROVIDED BY THE TANK MANUFACTURER. REFERENCES SHALL BE PROVIDED AS TO SIMILAR TANKS PREVIOUSLY INSTALLED WITH A 10-YEAR WARRANTY. DEMONSTRATED PRIOR EXPERIENCE IN SIMILAR APPLICATIONS WITH 10-YEAR STRUCTURAL WARRANTY SHALL BE REQUIRED FOR THE PROPOSED TANK MANUFACTURER. DISQUALIFICATION OF THE ENTIRE PPEA PROPOSAL MAY RESULT FOR FAILURE TO MEET THESE REQUIREMENTS.
6. TANK DESIGN SHALL ACCOMMODATE A GROUND WATER ELEVATION UP TO 1007.76 FT SITE ELEVATION CONDITIONS.
7. TANK DESIGN SHALL INCORPORATE ALL NECESSARY APPURTENANCES, COORDINATION WITHIN THE PPEA DESIGN-BUILD TEAM DESIGN DISCIPLINES, CONSTRUCTION COORDINATION TO FACILITATE TANK STAIRS, SUBMERSIBLE PUMP PLATFORM, EQUIPMENT SUPPORTS, AND WALL PENETRATIONS AS DESCRIBED AND SHOWN HEREIN.
8. DELEGATED DESIGN ITEM FOR TANK AND FOUNDATION DESIGN: SIGNED AND SEALED DRAWINGS AND DESIGN CALCULATIONS BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF VIRGINIA SHALL BE SUBMITTED AS PART OF SHOP DRAWING SUBMITTAL PROCESS AFTER THE PPEA GMP STAGE.

TANK STAIRS:

1. TANK STAIRS SHALL BE SPIRAL TYPE AND MOUNTED TO EXTERIOR OF TANK WALL. COORDINATION WITH TAN MANUFACTURER WILL BE REQUIRED.
2. MATERIALS OF CONSTRUCTION SHALL BE ALUMINUM.
3. STAIR TREAD SHALL BE FRP NON SLIP TYPE.
4. STAIR WIDTH SHALL BE 48 INCHES.
5. STAIR RISE SHALL BE 10 INCHES MAXIMUM.
6. STAIR TREAD DEPTH SHALL BE 7 INCHES MINIMUM.
7. HANDRAILS AND TOE PLATE AS REQUIRED BY OSHA GENERAL INDUSTRY STANDARDS.
8. INTERMEDIATE PLATFORMS SHALL BE PROVIDED FOR AT LEAST EVERY 12' OF VERTICAL RISE.
9. INTERMEDIATE PLATFORMS SHALL HAVE COLUMN SUPPORTED BY A CONCRETE FOUNDATION.
9. DELEGATED DESIGN ITEM FOR TANK STAIRS, APPURTENANCES AND INTERMEDIATE PLATFORM SUPPORT FOUNDATIONS: SIGNED AND SEALED DRAWINGS AND DESIGN CALCULATIONS BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF VIRGINIA SHALL BE SUBMITTED AS PART OF SHOP DRAWING SUBMITTAL PROCESS AFTER THE PPEA GMP STAGE.

(SEE XC-002 FOR CONTINUATION)

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OWNER:
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SITE PLAN

XC-001

SHEET 2 OF 3

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GENERAL NOTES: (CONTINUED)

SUBMERSIBLE PUMP ACCESS PLATFORM:

1. MATERIALS OF CONSTRUCTION SHALL BE ALUMINUM.
2. GRATING SHALL BE PULTRUDED FRP NON-SLIP TYPE.
3. PLATFORM SIZE SHALL BE AS INDICATED IN DETAIL A.
4. HANDRAILS AND TOE PLATE AS REQUIRED BY OSHA GENERAL INDUSTRY STANDARDS.
5. ACCESS PLATFORM SHALL BE FULLY SELF-SUPPORTING WITH COLUMNS BEARING ON THE FINISHED TANK FLOOR AND ADJACENT GRADE.
6. PERMANENTLY INSTALLED STANCHIONS (ALUMINUM OR STAINLESS STEEL) SHALL BE PROVIDED AT EACH PUMP LOCATION FOR MOUNTING A PORTABLE DAVIT/HOIST TO FACILITATE PUMP REMOVAL.
7. AT LEAST ONE STANCHION (ALUMINUM OR STAINLESS STEEL) SHALL BE PROVIDED PROXIMATE TO THE PLATFORM EDGE TO FACILITATE LOWERING AND RAISING PUMPS TO/FROM ADJACENT GRADE.

   THREE PORTABLE HOISTS/DAVITS SHALL BE FURNISHED AND INSTALLED.
8. DELEGATED DESIGN ITEM FOR PLATFORM, APPURTENANCES, SUPPORTS AND FOUNDATION: SIGNED AND SEALED DRAWINGS AND DESIGN CALCULATIONS BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF VIRGINIA SHALL BE SUBMITTED AS PART OF SHOP DRAWING SUBMITTAL PROCESS AFTER THE PPEA GMP STAGE.

VALVE VAULT:

1. SUBMERSIBLE PUMP ISOLATION AND CHECK VALVES SHALL BE LOCATED IN A CONCRETE VALVE VAULT LOCATED ADJACENT TO THE EQ TANK STRUCTURE AND THE TOP OF VALVE VAULT WALL SHALL BE ACCESSIBLE FROM GRADE. MAXIMUM DEPTH OF THE VALVE VAULT SHALL BE 4 FEET DEEP.
2. VALVE VAULT SHALL BE WATERTIGHT AND HAVE ALUMINUM HATCHES TO FACILITATE REMOVAL AND REPLACEMENT OF EACH CHECK VALVE.
3. VALVE VAULT TO HAVE A RECESSED SUMP ALONG WITH SUMP PUMP AND FLOAT SWITCHES. SUMP PUMP STALL DISCHARGE TO THE NEAREST STORM WATER PIPE/STRUCTURE.
4. DELEGATED DESIGN ITEM FOR STRUCTURAL DESIGN OF VALVE VAULT: SIGNED AND SEALED DRAWINGS AND DESIGN CALCULATIONS BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF VIRGINIA SHALL BE SUBMITTED AS PART OF SHOP DRAWING SUBMITTAL PROCESS AFTER THE PPEA GMP STAGE.

CONTROLS:

1. TWO COMPLETE AND INDEPENDENT PRESSURE TRANSDUCER SYSTEMS SHALL BE INSTALLED IN THE EQ TANK. ONE SHALL BE DUTY AND THE OTHER ON-LINE BACKUP. IN THE EVENT THAT THE DUTY LEVEL INSTRUMENT FAILS THE ON-LINE BACKUP INSTRUMENT SHALL AUTOMATICALLY BE UTILIZED BY THE CONTROL SYSTEM FOR CONTROL OF THE EQ PUMPING SYSTEM. PROGRAMMING OF EXISTING PLC(S) SHALL BE UTILIZED TO IMPLEMENT THE REQUISITE EQ PUMPING SYSTEM CONTROL LOGIC. ADDITIONAL PLCS, MATCHING THE EXISTING PLC NETWORK, SHALL BE FURNISHED, INSTALLED AND PROGRAMMED IF ADDITIONAL I/O CAPACITY OR PLC MEMORY IS REQUIRED TO ACHIEVE THE FULL FUNCTIONALITY OF THIS PROJECT.

2. THE EQ PUMPING SYSTEM SHALL HAVE TWO MODES OF AUTOMATIC OPERATION, (1) FLOW CONTROL AND (2) LEVEL CONTROL. MANUAL CONTROL WILL ALSO BE AVAILABLE. ALL CONTROL OF THE EQ PUMPING SYSTEM SHALL BE FROM THE PLANT SCADA SYSTEM. THE EXISTING IGNITION SCADA SYSTEM SHALL BE EXPANDED/UPDATED TO REFLECT ALL NEW ELECTRO-MECHANICAL ELEMENTS INSTALLED AS PART OF THIS PROJECT. THE EXISTING IGNITION MOBILE APPLICATION SHALL ALSO BE SIMILARLY EXPANDED AND UPDATED.

3. FLOW CONTROL MODE SHALL ENTAIL THE EQ SYSTEM CONTINUOUSLY PUMPING AT AN OPERATOR ADJUSTABLE SET FLOW RATE. CONSTANT FLOW FROM THE EQ TANK SHALL BE EQUALLY SENT TO EACH BIOLOGICAL TREATMENT TRAIN THROUGH A DEDICATED PUMP AND FORCEMAIN ARRANGEMENT WHILE THE EQ TANK LEVEL FLUCTUATES BETWEEN A DEFINED BAND OF NORMAL HIGH AND NORMAL LOW SET POINTS (EXPRESSED AS SITE ELEVATIONS). THE SCADA INPUT SET POINT FOR DESIRED FLOW FOR FLOW CONTROL MODE SHALL BE THE TOTAL DESIRED COMBINED PUMPING RATE AND THE CONTROLS SHALL MAKE EACH TRAIN RECEIVE HALF THE TOTAL FLOW THROUGH INDEPENDENT VFD CONTROL AND FLOW METER READINGS.

4. LEVEL CONTROL SHALL ENTAIL THE EQ PUMPING SYSTEM TO CONTINUOUSLY MAINTAIN AN OPERATOR ADJUSTABLE SET EQ TANK LEVEL. FLOW FROM THE EQ TANK SHALL BE EQUALLY SENT TO EACH BIOLOGICAL TREATMENT TRAIN THROUGH A DEDICATED PUMP AND FORCEMAIN ARRANGEMENT WHILE THE EQ TANK LEVEL REMAINS CONSTANT AS THE PUMP SPEED IS VARIED UP TO A MAXIMUM PUMPING RATE. THE MAXIMUM PUMPING RATE SET POINT OF EACH PUMP SHALL BE OPERATOR ADJUSTABLE ON THE SCADA SCREEN. ONCE THE MAXIMUM PUMPING RATE IS ACHIEVED, EACH PUMP WILL REMAIN AT THE MAXIMUM PUMPING RATE AND THE EQ TANK LEVEL WILL RISE UNTIL HIGH FLOW CONDITIONS ABATE. ONCE THE EQ TANK REACHES AN ELEVATION OF 1016.50 FT ELEVATION, AN EXISTING HYDRAULIC STRUCTURE AT THE HEADWORKS WILL BEGIN TO DIVERT A PORTION OF THE TOTAL INFLUENT FLOW TO THE EXISTING OFF-LINE EQUALIZATION BASIN WHILE THE EQ PUMPS CONTINUE TO OPERATE.

5. THE SCADA SYSTEM SHALL BE UPDATED FOR ALL NEW ELECTRO-MECHANICAL EQUIPMENT FOR: EQ TANK LEVEL, PUMP STATUS, MIXER STATUS, DESIGNATION OF FLOW OR LEVEL CONTROL MODES; THREE NEW FLOW METER READINGS; UV SYSTEM STATUS, AND GENERAL ALARMS FOR ALL. THE CONTROL LOGIC SHALL ALSO BE PROGRAMMED AS PART OF THIS PROJECT FOR THE FUTURE 5 PUMP CONFIGURATION.

YARD PIPING

1. ALL DIP PIPING SHALL HAVE AN INDURON CERAMAPURE^{TM} INTERIOR COATING OF CERAMIC MODIFIED NOVALAC EPOXY. ALL DIP INSTALLED OUTSIDE OF EQ TANK SHALL HAVE ASPHALTIC EXTERIOR COATING FOR BURIED APPLICATIONS. ALL DIP INSTALLED INSIDE THE EQ TANK, SHALL HAVE AN CERAMAWRAP^{TM} EPOXY EXTERIOR COATING. THE EXTERIOR COATING SHALL BE A HIGH SOLIDS, SOLVENT FREE, FAST CURING TWO- COMPONENT EPOXY FORMULATED ESPECIALLY TO COAT THE EXTERIOR OF DUCTILE IRON PIPE FOR AGGRESSIVE ATMOSPHERES OR LIQUIDS. CERAMAWRAP^{TM} IS A CHEMICAL RESISTANT PRODUCT THAT WILL PROTECT DUCTILE IRON PIPE IN SALT WATER, HIGH PH, LOW PH, AND AGGRESSIVE LIQUIDS AND ATMOSPHERES. APPLICATION SHALL BE 20-25 MILS. ALL PIPE SHALL BE SUPPLIED BY PIPE MANUFACTURER TO THE PROJECT SITE WITH THE INTERIOR AND EXTERIOR COATINGS ALREADY APPLIED AND FULLY WARRANTED BY PIPE SUPPLIER.
2. ALL DIP PIPE AND VALVES SHALL BE MJ OR FLANGED CONNECTIONS. HEX-HEAD HIGH STRENGTH HEAVY-DUTY CORROSION RESISTANT BOLTS AND NUTS SHALL BE UTILIZED FOR ALL FLANGED DIP CONNECTIONS. ALL MJ CONNECTIONS SHALL BE OF THE RESTRAINED TYPE UTILIZING
3. ALL DIP MJ PIPE AND VALVES SHALL BE RESTRAINED WITH SERIES 1100 MEGALUG FITTINGS FURNISHED AS PACKAGED ACCESSORIES COMPLETE WITH RESTRAINT, GASKET, LUBRICATION, AND BOLTING HARDWARE FROM MANUFACTURER.

PLUG VALVES:

1. PLUG VALVE SHALL BE ECCENTRIC TYPE WITH CAST IRON PLUG COATED WITH CHLOROPRENE (CR). SEALS TO BE NITRILE. PORT SHALL BE 100 PERCENT OPENING TYPE. BEARINGS SHALL BE SLEEVE TYPE AND MADE OF SINTERED, OIL IMPREGNATED PERMANENTLY LUBRICATED TYPE 316 STAINLESS STEEL FOR SIZES 4-18" AND ASTM A743 GRADE CF8M FOR SIZES 20-36". PRESSURE RATINGS SHALL BE 150 PSI.
2. SEATS ON SHALL BE 1/8" THICK WELDED OVERLAY OF NOT LESS THAN 95% PURE NICKEL. SEAT SHALL BE AT LEAST 1/2" WIDE, 1/8" THICK THROUGH ENTIRE WIDTH AND RAISED. THE RAISED SURFACE SHALL BE COMPLETELY COVERED WITH NICKEL TO INSURE THAT THE RESILIENT PLUG FACE CONTACTS ONLY THE NICKEL SEAT.
3. ADJUSTABLE PACKING SHALL BE ACRYLONITRILE-BUTADIENE (NBR) MULTIPLE V-RING TYPE, WITH A PACKING GLAND FOLLOWER. PACKING GLAND SHALL PERMIT INSPECTION, ADJUSTMENT OR COMPLETE REPLACEMENT OF PACKING WITHOUT DISTURBING ANY PART OF THE VALVE OR ACTUATOR ASSEMBLY, EXCEPT THE GLAND FOLLOWER.
4. ALL VALVES LARGER THAN 6" SHALL BE INSTALLED WITH WORM GEAR ACTUATORS. ALL GEARING SHALL BE ENCLOSED IN A CAST IRON HOUSING, WITH OUTBOARD SEALS TO PROTECT THE BEARINGS AND OTHER INTERNAL COMPONENTS. THE ACTUATOR SHAFT AND GEAR QUADRANT SHALL BE SUPPORTED ON PERMANENTLY LUBRICATED BRONZE BEARINGS.
5. BURIED ACTUATORS SHALL BE 90% GREASE FILLED. INPUT SHAFT AND FASTENERS SHALL BE STAINLESS STEEL. ACTUATOR MOUNTING BRACKETS SHALL BE TOTALLY ENCLOSED.
6. VALVE SHALL BE DEZURIK PEF 100% PORT ECCENTRIC PLUG VALVE.

SUBMERSIBLE PUMPS - EQ TANK:

1. BASIS OF DESIGN AND LAYOUT: FIVE (5) FLYGT DRY-PIT SUBMERSIBLE PUMPS COMPLETE WITH RAILS, BASE ELBOW AND MIN-CAS SYSTEM FOR EACH OF THE FIVE PUMPS. TWO PUMPS WILL BE DEDICATED TO EACH TRAIN AND WITH THE MIDDLE PUMP BEING AN INSTALLED BACKUP PROVIDING ADDITIONAL REDUNDANCY FOR EITHER TRAIN.
2. EACH PUMP SHALL BE RATED FOR 1.5 MGD @ 25 FT TDH.
3. EACH PUMP SHALL BE PROVIDED WITH A VFD WITH AIR CONDITIONED CABINET.
4. VFDS, ELECTRICAL DISCONNECTS AND MOTOR STARTERS TO BE LOCATED UNDER A CANOPY SUFFICIENT TO PROTECT ELECTRICAL COMPONENTS FROM WEATHER AND DIRECT SUN MATCHING CONSTRUCTION TYPE AND FASHION OF EXISTING CANOPIES ON PROJECT SITE.

FLOATING ANOXIC MIXERS:

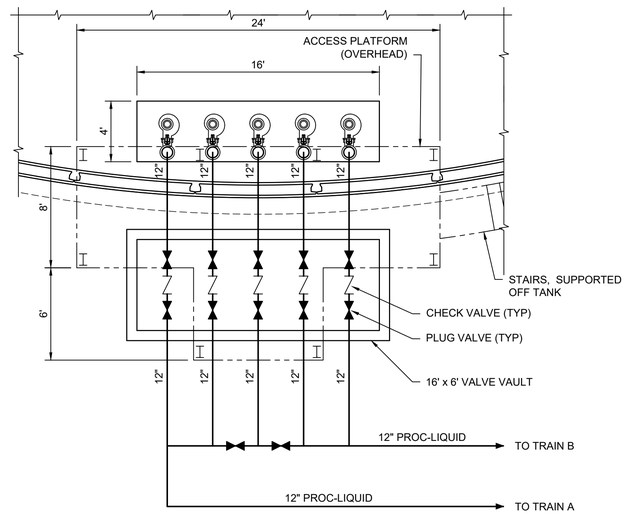
1. THREE FLOATING ANOXIC MIXERS SHALL BE FURNISHED AND SUPPLIED COMPLETE WITH MOUNTING EQUIPMENT THAT FACILITATES 0 - 24 FT FLUCTUATING OPERATING LEVEL IN THE EQ TANK. PERMANENT POSTS FOR EACH MIXER SHALL BE PROVIDED. EACH MIXER POST SHALL HAVE STOPS THAT PREVENT MIXERS FROM RESTING ON THE TANK FLOOR WHEN TANK IS EMPTY.
2. EACH MIXER SHALL BE A 15 HP FSS ENDURA SERIES AQUADDM MIXER BY AQUA AEROBIC.

CANOPY FOR PROTECTION OF ELECTRICAL EQUIPMENT PROXIMATE TO EQ TANK:

1. ALL VFDS, ELECTRICAL DISCONNECTS, MOTOR STARTERS ETC. SHALL BE LOCATED UNDER A CANOPY SUFFICIENT TO ADEQUATELY PROTECT ALL ELECTRICAL COMPONENTS FROM WEATHER AND DIRECT SUN MATCHING CONSTRUCTION TYPE AND FASHION OF EXISTING CANOPIES ON PROJECT SITE.
2. DELEGATED DESIGN ITEM FOR CANOPY AND FOUNDATION: SIGNED AND SEALED DRAWINGS AND DESIGN CALCULATIONS BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF VIRGINIA SHALL BE SUBMITTED AS PART OF SHOP DRAWING SUBMITTAL PROCESS AFTER THE PPEA GMP STAGE.

UV DISINFECTION:

1. PRE-ENGINEERED BUILDING (PRECAST CONCRETE OR FRP) WITH LENGTH/WIDTH DIMENSIONS SHOWN HEREIN. CLEAR INTERIOR HEIGHT SHALL BE NOT LESS THAN CLEAR HEIGHT OF EXISTING UV BUILDING.
2. A NEW SINGLE TRAIN ENCLOSED VESSEL UV SYSTEM SHALL BE PROVIDED. THE MANUFACTURER OF THE EXISTING UV SYSTEM SHALL BE PROVIDED. THE NEW SINGLE TRAIN UV SYSTEM SHALL BE DESIGNED FOR 6.0 MGD PEAK-HOUR FLOW AND TSS OF 30 MG/L WITH A TRANSMISSIVITY OF 0.55.
3. DELEGATED DESIGN ITEM FOR BUILDING, BUILDING APPURTENANCES AND FOUNDATION: SIGNED AND SEALED DRAWINGS AND DESIGN CALCULATIONS BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF VIRGINIA SHALL BE SUBMITTED AS PART OF SHOP DRAWING SUBMITTAL PROCESS AFTER THE PPEA GMP STAGE.



DETAIL A
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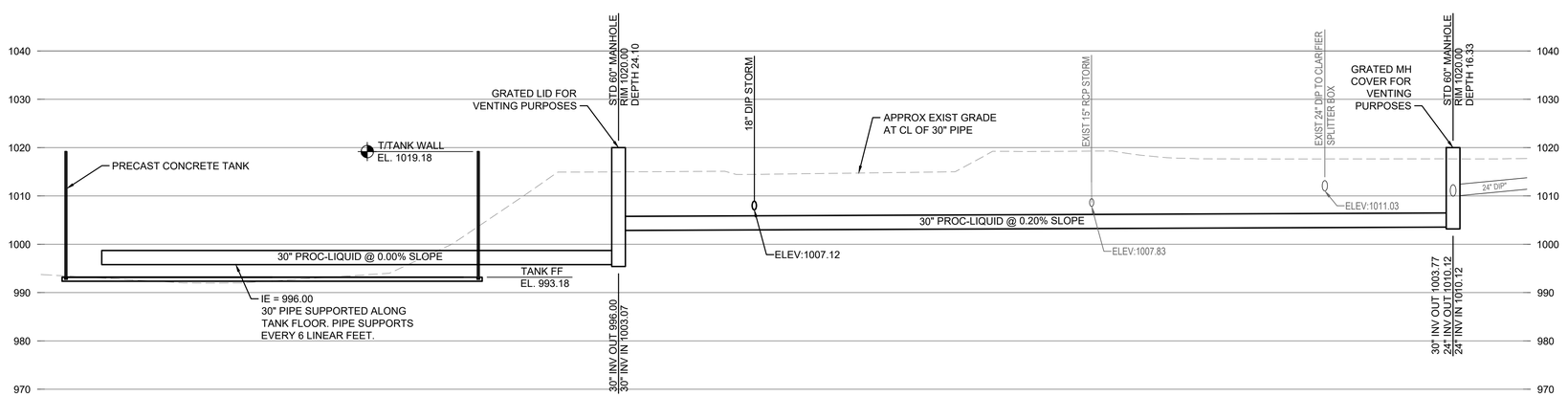
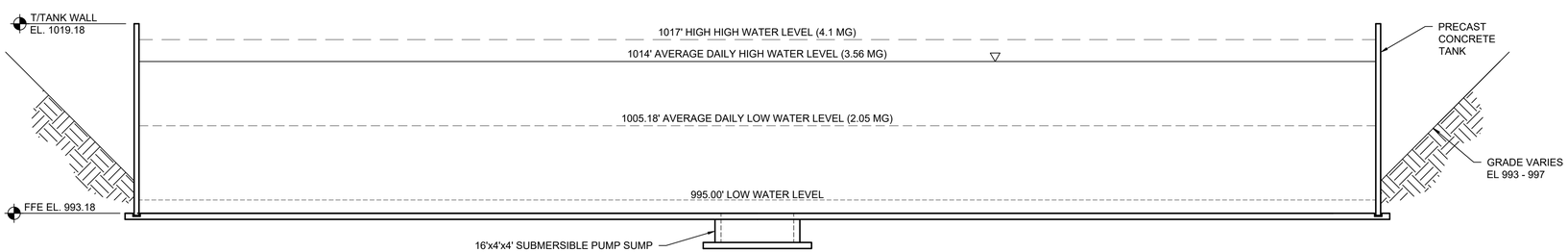


30" PIPE PROFILE
SCALE: 1" = 30' HORIZ, 1" = 15' VERT



EQ TANK ELEVATION
SCALE: 1" = 10'

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XC-002

SHEET 3 OF 3

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