Forsyth County Procurement
Greg Bridges, Procurement Agent III

ADDENDUM #4

RFP Number: 23-016-3340	Title: Antioch Water Treatment Plant Phase 3A Expansion
	Date: May 30, 2023
Issuing Officer: Greg Bridges	Bid Initially Solicited: April 27, 2023
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This addendum supersedes and supplements all portions of the bidding documents and becomes part of the contract documents for the above-referenced project. Where any item called for in the specifications or indicated on the drawings is supplemented hereby, the original requirements shall remain in effect. Where any original item is amended, voided, or superseded hereby, the provision of such item not so specifically amended, voided, or superseded shall remain in effect.

#	Addition	Drawings or Specification	Details
1.	Add a low pressure grinder sewer pump station and approximately 1700 LF of 3" HDPE pressure sewer line to the upstream gravity sewer manhole.	Section 31 10 00 Section 40 05 33.11 Section 43 26 13 Drawings: C-05-103-3A C-05-104-3A C-05-106-3A C-05-107-3A C-05-109-3A C-05-110-3A C-05-112-3A C-05-113-3A C-05-116-3A C-05-117-3A C-05-501-3A C-05-508-3A E-60-101-3A E-90-303-3A E-90-609-3A E-90-616-3A	Work includes the addition of an attached Site Clearing specification (Section 31 10 00), HDPE Pipe (Section 40 05 33.11), and Submersible Grinder Pump (Section 43 26 13) and addition of project drawings attached. Contractor will be required to connect existing effluent flow from the Administration Building septic tank line to the grinder sewer pump station. The 3" HDPE pressure sewer will connect to the designed upstream gravity sewer manhole.

#	Addition	Drawings or Specification	Details
2.	Remove the following existing filter valves and replace with new valves for the below (number, size and function included: 6- 10" Air Scour Valves 4- 16" Effluent Valves 4- 20" Filter to Waste Valves 4- 20" Backwash Supply Valves 4- 20" Filter Influent Valves 4- 30" Backwash to Waste Valves	Section 40 05 64.22 Drawings: M-25-101-3A M-25-301-3A	Only one filter can be taken down at a time and will need to be coordinated with plant staff. Electrical actuators will be reused and will need to be disconnected from the old valves and reconnected to the new valves; startup of each valve will be responsibility of the Contractor. All liquid valves will be AWWA Butterfly Valves per Section 40 05 64.11. Air scour valves will be Industrial Butterfly Valves per Section 40 06 64.22 – with a revised specification attached. All valves shall be shop painted with colors as follows: Air Scour – Green; Effluent Valves – Blue; Filter to Waste Valves – Tan; Backwash Supply Valves – Dark Blue; Filter Influent Valves – Blue; Backwash to Waste Valves – Tan.
3.	Add the following paragraph to Specification Section 01 14 00: J. Filter Valve Replacement 1. Work Requirements a. Contractor shall notify the Owner 14 days prior to any work, and the work shall be coordinated with the Owner. b. Only 1 filter may be removed from service at a time for valve replacement. c. Filter valve replacement shall be performed between December 1 and March 31. d. All valves and components for the filter must be onsite and ready to install before any shutdowns will be approved.	Section 01 14 00	

Section 31 10 00

SITE CLEARING

PART 1 - GENERAL

1-1. SCOPE. Work described in this Section includes furnishing all labor, materials, equipment, tools and incidentals required for all clearing and grubbing including, but not limited to, the removal from the Site of trees, stumps, roots, brush, structures, abandoned utilities, trash, debris and all other materials found on or near the surface of the ground in the construction area and understood by generally accepted engineering practice not to be suitable for construction of the type contemplated.

The extent of route clearing is that minimum degree of clearing necessary to carry out all construction activities including construction of appurtenances and other additional clearing needed for access purposes.

Clearing and grubbing operations shall be coordinated with temporary and permanent erosion control requirements. Contractor shall coordinate this work with Erosion and Sediment Control Drawings for this contract.

Clearing operations include, but are not limited to, the following:

1. Protection of existing trees and other vegetation
2. Removal of trees and other vegetation
3. Clearing
4. Removing above-grade improvements
5. Removing underground improvements
6. Restoring damaged improvements
7. Protecting above-grade and underground improvements
8. Erosion control of disturbed areas

Related Work Specified Elsewhere:

1. Division 1 General Requirements
2. Section 31 23 11, Excavation and Fill for Structures.
2. Section 31 23 33, Trenching and Backfilling.

1-2. JOB CONDITIONS. Protection of Existing Structures:

1. Provide barricades, coverings, or other types of protection necessary to prevent damage to existing structures.

2. Protect structures on adjoining properties as well as those on the project site. Restore structures damaged by this work to their original condition, as acceptable to the Owner and or the Engineer. Replace property line monuments (such as iron pins) removed or disturbed by clearing operations under the direction of a Land Surveyor licensed in the State of Georgia.

A. Protection of Existing Trees and Vegetation:

1. Protect existing trees and other vegetation to avoid cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip lines, foot or vehicular traffic, and parking of vehicles or equipment within drip line. Provide temporary fences, barricades or guards as required to protect trees and vegetation to be left standing.

2. Provide protection for tree roots over 1-1/2 inches diameter that are cut during any construction operation. Coat the cut faces with emulsified asphalt, or other acceptable coating, especially formulated for horticultural use on cut or damaged plant tissues. Temporarily cover all exposed roots of trees with wet burlap to prevent roots from drying out; provide earth cover as soon as possible.

3. Repair or replace damaged trees and vegetation resulting from any construction operation, in a manner acceptable to the Engineer. A qualified arborist approved by the engineer shall perform tree damage repair at no cost to the Owner. Replace damaged trees that cannot be repaired and restored to full-growth status, as determined by the Engineer.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION

3-1. EXISTING TREES AND VEGETATION. Avoid cutting or injuring trees and vegetation outside the tree protection areas and outside areas to be cleared, Contractor shall be responsible for damages outside these lines.

3-2. CLEARING AND GRUBBING. Clearing operations shall begin no more than seven days before beginning construction work for any area.

Materials to be cleared, grubbed and removed from the project site include but are not limited to vegetation, trees, stumps, roots, lawns, shrubbery, gardens, paving, miscellaneous structures, debris, and abandoned utilities to the minimum practicable extent to complete the work. Limit clearing to a single lane work route without provision for construction vehicles to pass utility operation. Determine and stake limitations of

construction easement or right-of-way prior to commencement of work and keep construction activity within such limits.

A. Grubbing shall consist of completely removing roots, stumps, trash and other debris from all areas to be graded so that topsoil is free of roots and debris. Topsoil is to be left sufficiently clean so that further picking and raking will not be required.

B. All stumps, roots, foundations and planking embedded in the ground shall be removed and disposed of. Stumps and roots larger than 1 inch shall be grubbed and removed to a depth not less than 4 feet below grade. All holes or cavities which extend below the subgrade elevation of the proposed work shall be filled with crushed rock or other suitable material, compacted to the same density as the surrounding material. Piling and butts of utility poles shall be removed to a minimum depth of two feet below the limits of excavation for structures, trenches and roadways or two feet below finish grade, whichever is lower.

C. Landscaping features shall include, but are not necessarily limited to: fences, cultivated trees, cultivated shrubbery, property corners, man made improvements, subdivision and other signs shall be moved off the easement. The Contractor shall take extreme care in moving landscape features and shall re establish these features as directed by the Engineer

D. Surface rocks and boulders shall be grubbed from the soil and removed from the site or used as fill in accordance with Section 31 23 11, Excavation and Fill for Structures.

E. Where the tree limbs interfere with utility wires, or where the trees to be felled are in close proximity to utility wires, the tree shall be taken down in sections to eliminate the possibility of damage to the utility.

F. Any work pertaining to utility poles shall comply with the requirements of the appropriate utility.

G. All fences adjoining any excavation or embankment that, in the Contractor's opinion, may be damaged or buried, shall be carefully removed, stored and replaced. Any fencing that is damaged shall be replaced with new fence material of equal or better quality and construction.

H. Stumps and roots shall be grubbed and removed to a depth not less than two feet below grade. All holes or cavities which extend below the subgrade elevation of the proposed work shall be filled with crushed rock or other suitable material, compacted to the same density as the surrounding material

I. Burying of residual materials and organics will not be allowed.

J. The Contractor shall utilize special precautions required for the protection and preservation of trees, cultivated shrubs, sod, fences, etc. situated within the construction area but not directly within excavation and/or fill limits. The Contractor shall be responsible for repair or replacement of any items damaged as a result of its operations.

K. Remove lawn sod by cutting into maximum size which can be handled without tearing, stripping sod and underlying topsoil, and stockpiling for use in restoring the surface area. Water sod and otherwise maintain sod in viable, growing condition. Alternative means of lawn sod replacement may be approved by the Engineer.

L. Remove above-grade structures only where shown on the Drawings or as authorized by the Engineer.

3-2. HOLES AND DEPRESSIONS. Fill holes, depressions and voids created or exposed by clearing operations with non-organic soil material approved by the Engineer, unless further excavation or earthwork is indicated.

Place fill material in horizontal layers not exceeding six inches loose-depth and compact to a 95 per-cent standard Proctor.

3-3. DISPOSAL OF WASTE MATERIALS. Disposal General Requirements: Dispose cleared matter daily so as to maintain site in a safe and neat condition throughout the contract period. Owners of the property may remove merchantable timber, buildings or other items from the work site before the Contractor begins operations, and no assurance exists that any such material will be on the work site when the Contractor begins work.

A. On-Site Disposal:

1. When authorized by the Engineer, cut tree trunks and limbs, over two inches in diameter, into 48 inch lengths and neatly stack within work limits on the same property as that on which the tree originally grew.

2. On undeveloped property, distribute brush, trees and limbs less than two inches in diameter, within the work area from which cut, as directed by the Engineer. On developed property, remove all such clearing waste and properly dispose of it off-site.

B. The debris resulting from the clearing and grubbing operation shall be hauled to a disposal site secured by the Contractor and shall be disposed of in accordance with all requirements of federal, state, county and municipal regulations. No debris of any kind shall be deposited in any stream or body of water, or in any street or alley. No debris shall be deposited upon any private property except with written consent of the property owner. In no case shall any material or debris be left on the project site, shoved onto abutting private

properties, or buried on the project site.

3-4. CONSTRUCTION ACCESS ROUTE ON EASEMENT.

A. When shown on the Drawings or directed by the Engineer, a construction access route shall be built on the sewer or stormwater easement for the purpose of accessing manholes and performing all other necessary work within the easement.

B. Construction access route shall be cut as 15 feet wide, minimum (or as shown in the drawings), and (6) six inches deep below existing grade. Filter fabric shall be placed at the bottom of the cut, and surge stone shall be placed on top of the fabric, filling the six inch depth along the roadway.

C. The filter fabric for use under the stone shall be as specified in Section 31 23 11.

D. Surge stone shall be 4” to 6” size (4X6) rip rap type stone, or equivalent. Use sound, tough, durable stones resistant to the action of air and water. Slabby or shaley pieces will not be acceptable. Specific gravity shall be 2.0 or greater. Stones shall have less than 66 percent wear when tested in accordance with AASHTO T-96.

3-6. TREE REMOVAL ON EASEMENTS.

A. The contractor shall confirm ownership of all on-site trees within the easement before work commences and submit a tree removal and disposal plan to the Engineer.

B. The Engineers written approval shall be obtained prior to the removal of any trees from the easement

C. All trees that need further processing (wood chips) on-site or disposal off-site must be processed or disposed of in conformance with Federal, State, and local rules and regulations.

D. Contractor must acquire any additional permits prior to commencement of any type of work done in the easement

E. Stemmed vegetation such as brush, shrubs, and trees as necessary shall be removed at or near the ground level, leaving the root systems intact.

F. Trees shall be felled into the cleared construction area or areas to be cleared and not onto vegetation to be preserved.

G. Trees that have fallen into water bodies, or beyond the construction area, shall be removed immediately.

End of Section

Section 40 05 33.11

HIGH DENSITY POLYETHYLENE (HDPE) PRESSURE PIPE

PART 1 - GENERAL

1-1. SCOPE. This section covers furnishing and installation of 4 inch through 36 inch buried solid wall high density polyethylene (HDPE) pressure pipe. HDPE pressure pipe shall be furnished and installed complete with all fittings, jointing materials, anchors, blocking, encasement, and other necessary appurtenances.

Pressure and leakage tests and cleaning are covered in other sections. Pipe trenching, bedding, and backfill are covered in the Trenching and Backfilling section.

1-2. GOVERNING STANDARDS. Except as modified or supplemented herein, all HDPE pressure pipe shall conform to the applicable requirements of ANSI/AWWA C906, latest edition.

The supplementary information required in the foreword of the governing standard is as follows:

Affidavit of Compliance (Sec. 6.3)	Required.
Plant Inspection by Purchaser (Sec. 5.8)	Not required.
Markings (Sec. 6.1)	Required.
Shipping (Sec. 6.2)	Required.
Verification (Sec. 5)	Required.

1-3. SUBMITTALS. Drawings and data shall be submitted in accordance with the Submittals Procedures section. Drawings and data shall include, but shall not be limited to, the following:

Details of joints and connections .
Pipe section length.
Pipe Dimension Ratio.
Certification of compliance with NSF Standard No. 61 (for potable water system pipe)
Affidavit of Compliance (ANSI/AWWA C906, Sec. 6.3).
Verification, including Quality Assurance Testing (ANSI/AWWA C906, Sec. 5).

1-4. QUALITY ASSURANCE.

1-4.01. Qualifications. The pipe manufacturer shall provide the services of an experienced, competent, and authorized representative to visit the site of the

work to advise and consult with Contractor during joining and installation of the pipe. The manufacturer's representative shall not directly supervise Contractor's personnel, and Contractor shall remain responsible for the pipeline work.

1-4.02. Fusion. Fusion joints shall be made by qualified fusion technicians who shall demonstrate fusion experience on projects completed within a year of the Bid date which included similar or larger installation lengths, similar pipe sizes (+/- 2 pipe sizes) and similar DRs (+/- 2 DRs).

1-5. STORAGE AND HANDLING. Storage and handling shall meet the requirements of Product Storage and Handling Requirements section, and shall be in accordance with Chapter 7, Transportation, Handling and Storage of Pipe and Fittings of AWWA Manual M55, to ensure installation in sound, undamaged conditions. Pipe shall not be stored uncovered in direct sunlight.

PART 2 - PRODUCTS

2-1. PERFORMANCE AND DESIGN REQUIREMENTS.

2-1.01. Dimensions. Dimensions shall be as specified in the materials paragraph.

2-2. MATERIALS.

Pipe	ANSI/ AWWA C906; material designation (ASTM D3350) PE3608 or PE4710, minimum cell classification 344464C, DIPS (Ductile Iron Pipe Size). Pressure class and wall thickness as specified herein. Thermal butt fusion joints, ASTM D3261.
Joints	Butt fusion joints, ASTM D3261; manufactured by injection molding; pressure class of the pipe or greater.
Fittings	
Electrofusion Type	ASTM F1055 having pressure class equivalent to the pipe or greater as required.
Molded or Fabricated Type	Meet applicable AWWA C906 requirements; pressure class and cell class equivalent to the pipe or greater as required.

Other Types	Subject to review by the Engineer.
Tapping Saddles	Ductile iron, with galvanized steel straps and synthetic rubber sealing gasket, 250 psi [1.7 MPa] pressure rating.
Tapping Sleeves	Ductile iron, 250 psi [1.7 MPa] pressure rating.

PART 3 - EXECUTION

3-1. INSPECTION. Pipe and fittings shall be carefully examined for cracks and other defects immediately before installation, with special attention to pipe ends. All defective pipe and fittings shall be removed from the site of the work.

3-2. INSTALLATION.

3-2.01. Laying Pipe. Pipe shall be protected from lateral displacement by pipe embedment material installed as specified in the Trenching and Backfilling section. Pipe shall not be laid in water or under unsuitable weather or trench conditions, and shall be protected against entry of foreign matter.

During freezing weather, particular care shall be taken in handling and laying pipe to prevent damage by impact.

Whenever pipe laying is stopped, the open end of the line shall be closed with a tight-fitting end board to keep out sand and earth. The end board shall have several perforations near its center to admit water into the pipe, to prevent flotation in the event the trench is flooded. Any standing water shall be removed from the trench before the end board is removed.

Pipe shall be protected from extended exposure to sunlight, shall be kept as cool as possible during installation, and shall be covered with backfill immediately after installation.

3-2.02. Cleaning. The interior of all pipe and fittings shall be thoroughly cleaned before installation and shall be kept clean until the work has been accepted.

3-2.03. Alignment. Piping shall be laid to the lines and grades indicated on the drawings. Pipelines or runs intended to be straight shall be laid straight. Deflections from a straight line or grade shall not exceed the maximum deflection specified by the manufacturer.

Unless otherwise specified or indicated on the drawings, and subject to acceptance of the Engineer, either shorter pipe sections or fittings shall be installed as required to maintain the indicated pipeline alignment or grade.

3-2.04. Cutting Pipe. Cutting shall be in accordance with the pipe manufacturer's recommendations. Cuts shall be smooth, straight, and at right angle to the pipe axis. After cutting, the end of the pipe shall be dressed to remove all roughness and sharp corners and shall be beveled in accordance with the manufacturer's instructions.

3-2.05. Jointing. Jointing of pipe and fittings shall be performed in accordance with the instructions and recommendations of the pipe manufacturer and in accordance with ASTM F2620 and PPI TR 33. Sections of HDPE pipe shall be joined above ground into continuous lengths by the thermal butt fusion method.

Saddle fusion shall be performed in accordance with ASTM F2620 or PPI TR-41 and the fitting manufacturer’s recommendations.

Where required, electrofusion shall be performed in accordance with ASTM F1290, PPI TN-34, and the manufacturer recommended procedure.

Socket fusion and extrusion welding or hot gas welding will not be acceptable.

All joining procedures shall be acceptable to Engineer.

3-2.06. Connections with Existing Piping. Connections between new work and existing piping shall be made using suitable fittings. Each connection with an existing pipe shall be made at a time and under conditions which will least interfere with service to customers, and as authorized by Owner. Facilities shall be provided for proper dewatering and for disposal of all water removed from the dewatered lines and excavations without damage to adjacent property.

3-2.07. Service Connections. Tapping saddles or tapping sleeves shall be used for all 2 inch [50 mm] and smaller service connections. Direct tapping of HDPE pipe will not be acceptable. Fittings shall be used for service connections larger than 2 inches [50 mm].

3-2.08. Concrete Encasement. Concrete encasement shall be installed as indicated on the drawings. Concrete and reinforcing steel shall be as specified in the Cast-in-Place Concrete section. All pipes to be encased shall be suitably supported and blocked in proper position and shall be anchored against flotation.

3-2.09. Reaction Anchorage and Blocking. All tees and plugs installed in piping subject to internal hydrostatic head in excess of 30 feet [9.1 m] shall be provided with suitable reaction blocking, anchors, joint harnesses, or other acceptable means of preventing movement of the pipe caused by internal pressure.

Concrete blocking shall extend from the fitting to solid undisturbed earth and shall be installed so that all joints are accessible for repair. The dimensions of

concrete reaction blocking shall be as indicated on the drawings or as directed by Engineer.

Reaction blocking, anchorages, or other supports for fittings installed in fill or in other unstable ground shall be provided as indicated on the drawings or as directed by Engineer.

3-3. FIELD QUALITY CONTROL.

3-3.01. Hydrostatic Tests. After installation, HDPE piping shall be hydrostatically tested for defective workmanship and materials as specified in the Pipeline Pressure and Leakage Testing section.

3-3.02. Leakage. All HDPE piping shall be watertight and free from leaks. Each leak that is discovered within the correction period stipulated in the General Conditions shall be repaired by and at the expense of Contractor.

3-4. CLEANING. After installation, HDPE piping shall be cleaned as specified in the Cleaning and Disinfection of Water Pipelines section.

End of Section

Section 43 26 13

SUBMERSIBLE GRINDER PUMPS

PART 1 - GENERAL

1-1. SCOPE. This section covers furnishing vertical rotor, motor driven, solids handling progressing cavity pumping grinder pump stations with grinder and controls as indicated herein or on the Drawings. A high density polyethylene tank shall house the units in an integral system supplied by one grinder pump station manufacturer. The package pump station shall be provided by E/One or equal.

Pump application.	Sanitary Pumping
Number of pumps.	2
Pump tag numbers.	
Pump location.	Administration Building Sewer Pump Station

Each pumping unit shall be complete with a close-coupled, submersible electric motor, and all other appurtenances specified, or otherwise required for proper operation.

Each pumping unit, including motor and all integral controls, shall be rated and labelled for use in a Class 1, Division 1, Group D area as defined by the National Electric Code.

1-2. GENERAL. Equipment furnished under this section shall be fabricated and assembled in full conformity with Drawings, Specifications, engineering data, instructions, and recommendations of the equipment manufacturer, unless exceptions are noted by Engineer. Hydraulic considerations and definition of terms shall be as set forth in the Hydraulic Institute Standards.

1-2.01. General Equipment Stipulations. The General Equipment Stipulations shall apply to all equipment furnished under this section. If requirements in this specification differ from those in the General Equipment Stipulations, the requirements specified herein shall take precedence.

1-2.02. Seismic Design Requirements. Seismic design requirement for products specified herein shall be as indicated in the Meteorological and Seismic Design Criteria section.

1-2.03. Tagging. Each item of equipment and each part shipped separately shall be tagged and identified with indelible markings for the intended service. Tag numbers shall be clearly marked on all shipping labels and on the outside of all containers.

1-2.04. Power Supply. Unless otherwise indicated, power supply to the equipment shall be 120/240V volts, 60 Hz, 1 phase.

1-2.05. Identification. Pumps shall be identified in accordance with the Equipment and Valve Identification section.

1-3. SUBMITTALS.

1-3.01. Drawings and Data. Complete fabrication and assembly drawings, together with detailed specifications and data covering materials, parts, devices, and accessories forming a part of the equipment furnished, shall be submitted in accordance with the Submittals Procedures section. The data and specifications for each unit shall include, but shall not be limited to, the following:

Pumps
- Name of manufacturer.
- Type and model.
- Tag number.
- Pump designation.
- Pump location.
- Rotative speed.
- Size of suction nozzle.
- Size of discharge nozzle.
- Net weight of pump and motor only.
- Net weight with pedestal, when specified.
- Complete performance curves showing capacity versus head, NPSH required, pump efficiency, wire-to-water efficiency, and pump input power.
- Data on shop painting.

Motors
- Name of manufacturer.
- Type and model.
- Type of bearings and method of lubrication.
- Rated size of motor, hp [kW], and service factor.
- Insulation class and temperature rise.
- Full load rotative speed.
- Efficiency at full load and rated pump condition.
- Full load current.
- Locked rotor current.

Control Components
- Type and manufacturer.

Model.
Enclosure rating.
Published descriptive data on all components, indicating all specific characteristics and options.
Where liquid level sensors are provided, provide mounting details.

Seismic Design Requirements

Confirmation of compliance with the requirements of the Meteorological and Seismic Design Criteria section.

1-3.02. Operation and Maintenance Data and Manuals. Operation and maintenance manuals shall be submitted in accordance with the Submittals Procedures section. The operation and maintenance manuals shall be in addition to any instructions or parts lists packed with or attached to the equipment when delivered.

1-4. QUALITY ASSURANCE.

1-4.01. Balance. All rotating parts shall be accurately machined and shall be in as nearly perfect rotational balance as practicable. Excessive vibration shall be sufficient cause for rejection of the equipment. The mass of the unit and its distribution shall be such that resonance at normal operating speeds is avoided. In any case, the unfiltered vibration velocity, as measured at any point on the machine including top of motor, shall not exceed the maximum velocity as indicated in Figure 11.6.9.4 of the governing standard.

At any operating speed, the ratio of rotative speed to the critical speed of a unit or its components shall be less than 0.8 or more than 1.3.

1-5. SPARE PARTS. Not used.

Spare parts shall be suitably packaged with labels indicating the contents of each package. Spare parts shall be delivered to Owner as directed.

PART 2 - PRODUCTS

2-1. SERVICE CONDITIONS. Submersible grinder pumps to pump sewage from the Dewatering Building and the Administration Building.

The equipment provided under this section shall be suitable for the following service conditions:

Seismic design requirements.	See Meteorological and Seismic Design Criteria section

Maximum liquid temperature.	65	°F
Maximum solids concentration, by weight.	0.1	%
Pumps start and stop against a closed valve.	No	
Site elevation.	See Meteorological and Seismic Design Criteria section	

All equipment furnished shall be designed to meet all specified conditions and to operate satisfactorily at the elevation indicated.

2-2. PERFORMANCE AND DESIGN REQUIREMENTS. Pumping units shall be designed for the performance and design requirements as follows:

Pump tag numbers.		
Rated head.	28	ft
Capacity at rated head.	20	gpm
Operating head range for full speed continuous operation.	25 to 25.3	ft
Minimum shutoff head.	25	ft
Maximum nominal pump speed.	1,725	rpm
Maximum power required at pump input shaft at any point from minimum operating head to shutoff head.	1.0	bhp
Wetwell depth (guide-rail mounted).	N/A	ft
Minimum liquid depth in wetwell (guide-rail and skid mounted)	N/A	ft
Pump designed for reverse rotation at rated head.	No	
Minimum NSPHA at rated head.	34.2	ft

Pump tag numbers.		
Maximum vibration velocity.	HIS	in/s
Minimum pump discharge nozzle/elbow size.	N/A	in

All specified conditions shall be at rated speed unless otherwise indicated.

Overall (wire-to-water) efficiency for constant speed pumps shall include losses in the pump and motor.

The minimum hydrostatic test pressure shall be 1.5 times shutoff head plus max suction pressure.

Pump performance shall be stable and free from cavitation and noise throughout the specified operating head range at minimum suction submergences. The design running clearance between the impeller inlet and the casing wearing ring (if provided) shall be not less than 0.01 inch [250 µm] or 1 mil per inch [25 µm per 25 mm] of casing wearing ring diameter, whichever is greater.

2-3. MATERIALS.

Pump Casting	Cast iron
Casting Wearing Ring	Martensitic stainless steel, Brinell 300+.
Rotor	Precipitation hardened stainless steel, AISI Type 416 or 420.
Mechanical Seal	Stationary ceramic seat and carbon rotating surface. Stainless steel spring.
Epoxy Coating	
Primer & Finish Coat	Carboline "Carboguard 891" or Tnemec "Series N140 Pota-Pox Plus".

2-4. PUMP CONSTRUCTION.

2-4.01. Wearing Rings. Double radial O-ring seals are required at all casting joints to minimize corrosion and create a protective barrier. Any connections are to be sealed radially with redundant O-rings.

2-4.02. Check Valve. The pump discharge shall be equipped with a factory installed, gravity operated, flapper-type integral check valve built into the stainless steel discharge piping. The check valve will provide a full-ported passageway when open, and shall introduce a friction loss of less than 6 inches of water at maximum rated flow. Moving parts will be made of a 300 Series stainless steel and fabric reinforced synthetic elastomer to ensure corrosion resistance, dimensional stability, and fatigue strength. A nonmetallic hinge shall be an integral part of the flapper assembly providing a maximum degree of freedom to assure seating even at a very low back-pressure. The valve body shall be an injection molded part made of an engineered thermoplastic resin. The valve shall be rated for continuous operating pressure of 235 psi. Ball-type check valves are unacceptable due to their limited sealing capacity in slurry applications.

2-4.03. Anti-Siphon Valve. The pump discharge shall be equipped with a factory-installed, gravity-operated, flapper-type integral anti-siphon valve built into the stainless steel discharge piping. Moving parts will be made of 300 Series stainless steel and fabric-reinforced synthetic elastomer to ensure corrosion resistance, dimensional stability, and fatigue strength. A nonmetallic hinge shall be an integral part of the flapper assembly, providing a maximum degree of freedom to ensure proper operation even at a very low pressure. The valve body shall be injection-molded from an engineered thermoplastic resin. Holes or ports in the discharge piping are not acceptable anti-siphon devices due to their tendency to clog from the solids in the slurry being pumped. The anti-siphon port diameter shall be no less than 60% of the inside diameter of the pump discharge piping.

2-4.04. Mechanical Seal. The pump/core shall be provided with a mechanical shaft seal to prevent leakage between the motor and pump. The seal shall have a stationary ceramic seat and carbon rotating surface with faces precision lapped and held in position by a stainless steel spring.

2-4.05. Sealing of Mating Surfaces. Double radial O-ring seals shall be required at all casting joints to minimize corrosion and create a protective barrier.

2-4.06. Grinder. The grinder shall be placed immediately below the pumping elements and shall be direct-driven by a single, one-piece motor shaft. The grinder impeller (cutter wheel) assembly shall be securely fastened to the pump motor shaft by means of a threaded connection attaching the grinder impeller to the motor shaft. Attachment by means of pins or keys will not be acceptable. The grinder impeller shall be a one-piece, 4140 cutter wheel of the rotating type with inductively hardened cutter teeth. The cutter teeth shall be inductively hardened to Rockwell 50 – 60c for abrasion resistance. The shredder ring shall be of the stationary type and the material shall be white cast iron. The teeth shall be ground into the material to achieve effective grinding. The shredder ring shall have a staggered tooth pattern with only one edge engaged at a time,

maximizing the cutting torque. These materials have been chosen for their capacity to perform in the intended environment as they are materials with wear and corrosive resistant properties.

This assembly shall be dynamically balanced and operate without objectionable noise or vibration over the entire range of recommended operating pressures. The grinder shall be constructed so as to minimize clogging and jamming under all normal operating conditions including starting. Sufficient vortex action shall be created to scour the tank free of deposits or sludge banks which would impair the operation of the pump. These requirements shall be accomplished by the following, in conjunction with the pump:

1. The grinder shall be positioned in such a way that solids are fed in an upward flow direction.

2. The maximum flow rate through the cutting mechanism must not exceed 4 feet per second. This is a critical design element to minimize jamming and as such must be adhered to.

3. The inlet shroud shall have a diameter of no less than 5 inches. Inlet shrouds that are less than 5 inches in diameter will not be accepted due to their inability to maintain the specified 4 feet per second maximum inlet velocity which by design prevents unnecessary jamming of the cutter mechanism and minimizes blinding of the pump by large objects that block the inlet shroud.

4. The impeller mechanism must rotate at a nominal speed of no greater than 1800 rpm.

The grinder shall be capable of reducing all components in normal domestic sewage, including a reasonable amount of “foreign objects,” such as paper, wood, plastic, glass, wipes, rubber and the like, to finely-divided particles which will pass freely through the passages of the pump and the 1-1/4" diameter stainless steel discharge piping.

2-4.07. Core Unit. The grinder pump station shall have a cartridge type, easily removable core assembly consisting of pump, motor, grinder, all motor controls, check valve, anti-siphon valve, level controls, electrical quick disconnect and wiring. The core unit shall be installed in the basin by the manufacturer. Field assembly of the pump and controls into the basin is not acceptable because of potential workmanship issues and increased installation time. The core unit shall seal to the tank deck with a stainless steel latch assembly. The latch assembly must be actuated utilizing a single quick release mechanism requiring no more than a half turn of a wrench. The watertight integrity of each core unit shall be established by a 100 percent factory test at a minimum of 5 PSIG.

2-5. ELECTRIC MOTORS. Each pump shall be driven by an air-filled, totally submersible electric motor provided by the pump manufacturer. Motor nameplate rating shall exceed the maximum power required by the pump in the operating head range. Each motor shall be rated for the power supply provided to the pump, and shall have a service factor of 1.15. The stator housing shall be an air-filled, watertight casing. A cooling jacket shall encase the motor housing for each pump where needed to maintain adequate cooling. The cooling jacket shall require no external source of cooling water. Motor insulation shall be moisture resistant, Class H, 155°C. Each motor shall be NEMA Design B for continuous duty at 40°C ambient temperature, and designed for at least 10 starts per hour.

The motor bearings shall be antifriction, permanently lubricated type. The lower bearing shall be fixed to carry the pump thrust and the upper bearing free to move axially. The bearings shall have a calculated ABMA L_{10} Life Rating of 40,000 hours when operating at maximum operating head. Maximum shaft runout at the mechanical seals shall not exceed 2 mils [50 µm] at any point in the operating head range.

Each motor installed in a wetpit shall be capable of continuous operation in air (unsubmerged) for at least 24 hours under pump full load conditions, without exceeding the temperature rise limits for the motor insulation system.

Each pump shall be equipped with one or more multiconductor cable assemblies for power and control. Each multiconductor assembly containing power cables shall be provided with a separate grounding conductor. Each cable assembly shall bear a permanently embossed code or legend indicating the cable is suitable for submerged use. Cable sizing shall conform to NEC requirements.

All cables for wetwell mounted pumps shall be of sufficient length to terminate in a junction box outside the wetwell as indicated on the Drawings, with 10 feet [3 m] of slack which will be coiled on a cable hook at the top of the wetwell. Each cable shall be supported by AISI Series 300 corrosion-resistant stainless steel Kellems or woven grips to prevent damage to the cable insulation. Mounting of cable supports in the wetwell shall be coordinated by Contractor to prevent damage to the cable.

The cable entry water seal shall include a strain relief and a grommet type seal designed so that a specific fastener torque is not required to ensure a watertight, submersible seal. The cable entry junction box and motor shall be separated by a stator lead sealing gland or a terminal board. The junction box shall isolate the motor interior from moisture gaining access through the top of the stator housing.

2-5.01. Adjustable Frequency Drives. Not used.

2-6. CONTROLS.

2-6.01. Liquid Level Sensors. Each system of sensors shall be furnished complete with all required aluminum mounting brackets, weights, galvanized steel mounting pipes and accessories.

2-6.02. Pump Controls. Each motor shall be protected by one motor temperature switch embedded in each phase winding. Each switch shall be designed to operate at 140°C (± 5°C). Each switch shall be normally closed automatic reset type rated 5 amps at 120 volts ac. The switches shall be wired in series with end leads wired to terminals within the motor housing.

All necessary motor starting controls shall be located in the cast iron enclosure of the core unit secured by stainless steel fasteners. Locating the motor starting controls in a plastic enclosure is not acceptable. The wastewater level sensing controls shall be housed in a separate enclosure from motor starting controls. The level sensor housing must be sealed via a radial type seal; solvents or glues are not acceptable. The level sensing control housing must be integrally attached to pump assembly so that it may be removed from the station with the pump and in such a way as to minimize the potential for the accumulation of grease and debris accumulation, etc. The level sensing housing must be a high-impact thermoplastic copolymer over-molded with a thermo plastic elastomer. The use of PVC for the level sensing housing is not acceptable.

Non-fouling wastewater level controls for controlling pump operation shall be accomplished by monitoring the pressure changes in an integral air column connected to a pressure switch. The air column shall be integrally molded from a thermoplastic elastomer suitable for use in wastewater and with excellent impact resistance. The air column shall have only a single connection between the water level being monitored and the pressure switch. Any connections are to be sealed radially with redundant O-rings. The level detection device shall have no moving parts in direct contact with the wastewater and shall be integral to the pump core assembly in a single, readily-exchanged unit. Depressing the push to run button must operate the pump even with the level sensor housing removed from the pump.

All fasteners throughout the assembly shall be 300 Series stainless steel. High-level sensing will be accomplished in the manner detailed above by a separate air column sensor and pressure switch of the same type. Closure of the high-level sensing device will energize an alarm circuit as well as a redundant pump-on circuit. For increased reliability, pump ON/OFF and high-level alarm functions shall not be controlled by the same switch. Float switches of any kind, including float trees, will not be accepted due to the periodic need to maintain (rinsing, cleaning) such devices and their tendency to malfunction because of incorrect wiring, tangling, grease buildup, and mechanical cord fatigue. To assure reliable operation of the pressure switches, each core shall be equipped with a factory installed equalizer diaphragm that compensates for any atmospheric pressure or

temperature changes. Tube or piping runs outside of the station tank or into tank-mounted junction boxes providing pressure switch equalization will not be permitted due to their susceptibility to condensation, kinking, pinching, and insect infestation. The grinder pump will be furnished with a 6 conductor 14 gauge, type SJOW cable, pre-wired and watertight to meet UL requirements with a **FACTORY INSTALLED** NEMA 6P EQD half attached to it.

2-7. SHOP TESTS. Not used.

PART 3 - EXECUTION

3-1. INSTALLATION. Each pumping unit shall be installed in accordance with the Hydraulic Institute Standards, the Equipment Installation section, and as specified herein.

The equipment base for dry pit type pumping units shall be grouted after initial fitting and alignment, but before final bolting of connecting piping. Special care shall be taken to maintain alignment of pumping unit components. No stresses shall be transmitted to the pump flanges. After final alignment and bolting, connections to pumping equipment shall be tested for applied piping stresses by loosening the flange bolts. If any movement or opening of the joints is observed, piping shall be adjusted to proper fit.

Control cables shall be supported to prevent tension and damage. Mounting of cable supports in wetwells shall be coordinated by the pump supplier. Liquid level sensors shall operate freely and shall be adjusted to the levels indicated in the respective pump schedules, or in the electrical schematics or P&ID's. Each system of sensors shall be installed complete with all required mounting brackets, weights, galvanized steel mounting pipes and accessories, control panel transformers, auxiliary relays, cables, and junction boxes.

3-2. FIELD QUALITY CONTROL.

3-2.01. Installation Check. An experienced, competent, and authorized representative of the manufacturer shall visit the site of the Work and inspect, check, adjust if necessary, and approve the equipment installation. The representative shall be present when the equipment is placed in operation in accordance with Section 01650, Startup Requirements, and shall revisit the job site as often as necessary until all trouble is corrected and the equipment installation and operation are satisfactory in the opinion of Engineer.

The manufacturer's representative shall furnish a written report certifying that the equipment has been properly installed and lubricated; is in accurate alignment; is free from any undue stress imposed by connecting piping or anchor bolts; and has been operated under full load conditions and that it operated satisfactorily.

All costs for these services shall be included in the contract price.

3-2.02. Installation Supervision. Installation supervision by the manufacturer is not required.

3-2.02. Field Vibration Tests. Not Used.

End of Section

Section 40 05 64.22

INDUSTRIAL BUTTERFLY VALVES

PART 1 - GENERAL

1-1. SCOPE. This section covers the furnishing of manual or remote operated industrial butterfly valves as specified herein .

Industrial type butterfly valves shall be provided where AWWA type butterfly valves are not required.

Piping, pipe supports, insulation, and accessories that are not an integral part of the valves or are not specified herein are covered in other sections. Powered actuators are covered in the Valve and Gate Actuators section.

1-2. GENERAL.

1-2.01. General Equipment Stipulations. The General Equipment Stipulations shall apply to all equipment furnished under this section. If requirements in this specification differ from those in the General Equipment Stipulations, the requirements specified herein shall take precedence.

1-2.02. Temporary Number Plates. Not used.

1-2.03. Identification. Valves specified herein shall be tagged in accordance with the Equipment and Valve Identification section.

1-3. SUBMITTALS. Complete drawings, details, and specifications covering the valves and their appurtenances shall be submitted in accordance with the Submittals Procedures section. Included in the submittal shall be drawings by the valve manufacturer to indicate the position of the valve actuator and valve shaft.

Drawings shall include separate wiring diagrams for each electrically operated or controlled valve and the electrical control equipment. Each drawing shall be identified with the valve number or name as specified in this section.

PART 2 - PRODUCTS

2-1. CONSTRUCTION. Unless otherwise specified, industrial butterfly valves shall be the rubber-seat, tight-closing type. Valves specified with an electric, air, or hydraulic actuators shall be the lugged wafer style. Valve discs shall seat at 90 degrees with the pipe axis.

Industrial butterfly valves with center lines more than 7'-6" [2.3m] above the floor shall be provided with chain-wheels and operating chains as specified herein.

Flanged end valves shall be of the short-body type. Where mechanical joint ends are specified, either mechanical joint or push-on ends conforming to ANSI/AWWA C111/A21.11 will be acceptable. For buried or submerged service, shaft seals shall be O-ring type.

2-1.01. Valves VBF-1. Not used.

2-1.02. Valves VBF-2.

VBF-2	Rating	150 psi shutoff
	Body	ASTM A126, Class B, cast iron
Air scour	Trim	
	Seat	EPDM
Lugged	Disc	316 stainless steel ASTM A276, Grade 416, stainless steel
	Stem	Synthetic O-rings Buna-N
	Stem Seal Stem Packing Shaft Bearings	Upper and lower bearings or two upper bearings, bronze, reinforced teflon, or acetal
	Shaft Seal	Synthetic rubber O-rings
	End Connection	Wafer
	Temperature Limitations	-20 to 250°F [-29 to 114°C]
	Manual Valve Operator	
	6" [150 mm] & smaller	Lever
	8" [200 mm] & larger	Geared Handwheel
	Manufacturer	Keystone "AR2", Pratt BF2, Dezurik BHP, Bray Series 41

2-1.03. Valves VBF-3. Not used.

2-1.04. Valves VBF-4.

VBF-4 Neat polymer, polymer solution PVC piping 3” and larger. Seats and seals in polymer service shall be Viton	Rating	Class 150
	Body	PVC, molded
	Shaft	AISI Type 316 stainless steel
	Trim	
	Seat	FPM (Viton)
	Disc	PVC or polypropylene
	Stem	316 stainless steel
	Stem Seal	Viton O-rings
	Shaft Bearings	Upper and lower bearings, reinforced Teflon
	End Connection	Flanged, ASME B16.5, Class 150 diameter and drilling
	Temperature Limitations	-20 to 140°F
	Manual Valve Operator	Lever
	Manufacturer	Asahi American “Type 56”, Chemtrol “Model B”

2-1.05. Length Tolerance. Unless otherwise specified, the actual length of valves shall be within plus or minus 1/16 inch [1.6 mm] of the specified or theoretical length.

2-1.06. Shop Coatings. All ferrous metal surfaces of valves and accessories, both interior and exterior, shall be shop coated for corrosion protection. The valve manufacturer’s standard coating will be acceptable, provided it is functionally equivalent to the specified coating.

Coating Materials	Specification Compliance
Coal Tar Epoxy	High-build coal tar epoxy; Ameron "Amercoat 78HB Coal Tar Epoxy", Carboline "Bitumastic 300 M", Tnemec "46H-413 Hi-Build Tneme-Tar", or Sherwin-Williams "Hi-Mil Sher-Tar Epoxy".
Rust-Preventive Compound	As recommended by the manufacturer.
Universal Primer	As recommended by the manufacturer.

Surfaces To Be Coated	Material
Unfinished Surfaces	
Exterior Surfaces of Valves To Be Buried, Submerged, or Installed in Manholes or Valve Vaults	Asphalt varnish or coal tar epoxy.
Exterior Surfaces of All Other Valves	Universal primer.
Polished or Machined Surfaces	Rust-preventive compound.
Actuators and Accessories	Universal primer.

2-2. VALVE ACTUATORS. Manual actuated valves 6 inches and smaller, unless chain-wheel actuators are required, shall be provided with levers as specified herein. Valves 8 inches and larger shall have enclosed, geared, hand-wheel or chain-wheel actuators with position indicators as specified herein. Requirements for automatic valve actuators shall be as specified herein, and as specified in the Valve and Gate Actuator section.

2-2.01. Manual Actuators. Manual actuators of the types listed herein shall be provided by the valve manufacturer.

Unless otherwise indicated or specified, each geared manual actuator shall be equipped with an operating hand-wheel.

The direction of rotation of the wheel, wrench nut, or lever to open the valve shall be to the left (counterclockwise). Each valve body or actuator shall have cast thereon the word "Open" and an arrow indicating the direction to open.

The housing of traveling-nut type actuators shall be fitted with a removable cover which shall permit inspection and maintenance of the operating mechanism without removing the actuator from the valve. Travel limiting devices shall be provided inside the actuator for the open and closed positions. Travel limiting stop nuts or collars installed on the reach rod of traveling-nut type operating mechanisms shall be field adjustable and shall be locked in position by means of a removable roll pin, cotter pin, or other positive locking device. The use of stop nuts or adjustable shaft collars which rely on clamping force or setscrews to prevent rotation of the nut or collar on the reach rod will not be acceptable.

Each actuator shall be designed so that shaft seal leakage cannot enter the actuator housing.

Valves for throttling service shall be equipped with an infinitely variable locking device or a totally enclosed gear actuator.

Actuators shall produce the required torque with a maximum pull of 80 lbs on the lever, hand-wheel, or chain. Actuator components shall withstand, without damage, a pull of 200 lbs on the hand-wheel or chain-wheel or an input of 300 foot-lbs on the operating nut.

2-2.02. Handwheels. Handwheel diameters shall be as recommended by the valve manufacturer.

2-2.03. Levers. Levers shall be capable of being locked in at least five intermediate positions between fully open and fully closed.

2-2.04. Chain-wheels. All valves with center lines more than 7'-6" above the floor shall be provided with chain-wheels and operating chains. Each chain-wheel operated valve shall be equipped with a chain guide which will permit rapid handling of the operating chain without "gagging" of the wheel and will also permit reasonable side pull on the chain. Suitable extensions shall be provided, if necessary, to prevent interference of the chain with adjacent piping or equipment. Operating chains shall be hot-dip galvanized carbon steel and shall be looped to extend to within 4 feet [1.2 m] of the floor below the valve.

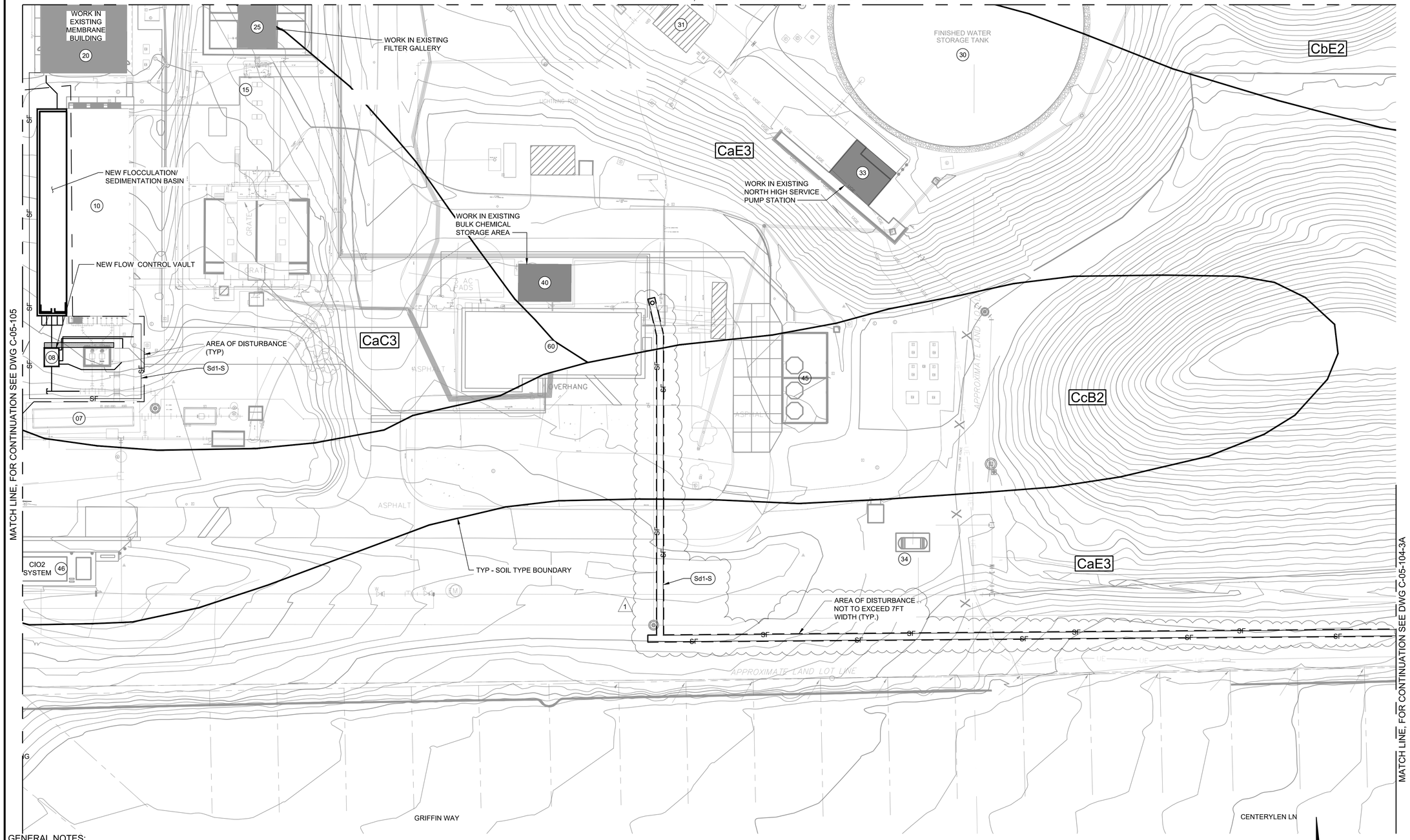
2-3. ACCESSORIES. Requirements for extension stems and stem guides, position indicators, floor boxes, operating stands, torque tubes, and valves boxes shall be as specified in Valve and Gate Actuator section.

PART 3 - EXECUTION

3-1. INSTALLATION. Materials furnished under this section shall be installed in accordance with Valve Installation section.

End of Section

MATCH LINE, FOR CONTINUATION SEE DWG C-05-102-3A



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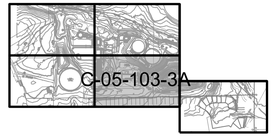

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Black & Veatch Corporation
Atlanta, Georgia

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER

ANTIOCH WTP EXPANSION PHASE 3A

1	05/2023	ADDENDUM 4

REVISIONS AND RECORD OF ISSUE

DESIGNED:	JML
DETAILED:	JEG
CHECKED:	TWD
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DATE:	MARCH 2023
PROJECT NO.:	408049

CIVIL SITE

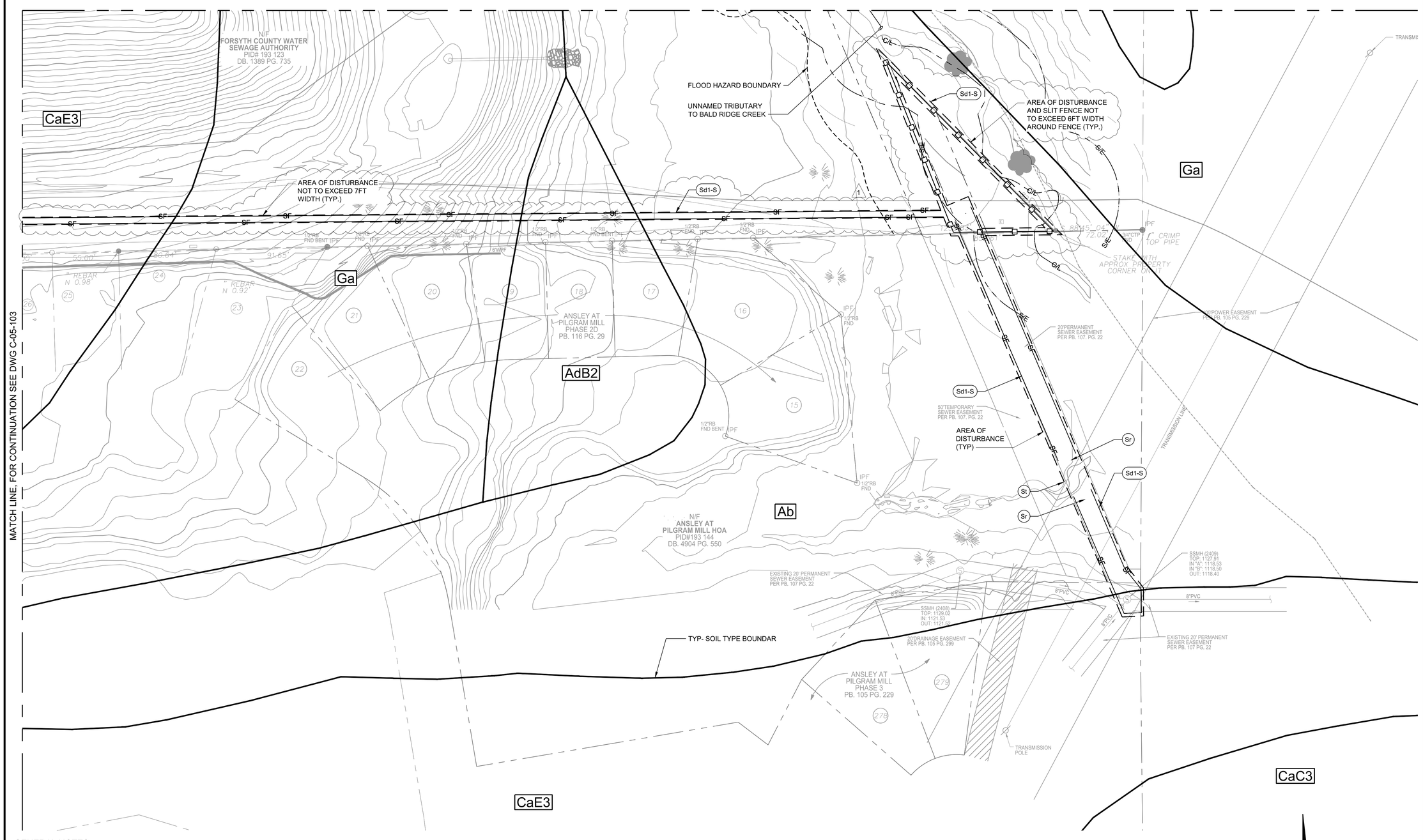
CIVIL

EROSION AND SEDIMENT CONTROL PLAN QUADRANT 4 PHASE 1

C-05-103-3A

22 OF 144

MATCH LINE, FOR CONTINUATION SEE DWG C-05-103



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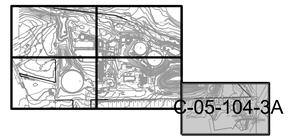

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Black & Veatch Corporation
Atlanta, Georgia

FORSYTH COUNTY
DEPARTMENT OF
WATER AND SEWER

ANTIOCH WTP
EXPANSION
PHASE 3A

1	05/2023	ADDENDUM 4

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CIVIL SITE

CIVIL

EROSION AND SEDIMENT
CONTROL PLAN
QUADRANT 5 PHASE 1

C-05-104-3A

23
OF
144

MATCH LINE, FOR CONTINUATION SEE DWG C-05-108

MATCH LINE, FOR CONTINUATION SEE DWG C-05-109

MATCH LINE, FOR CONTINUATION SEE DWG C-05-107-3A

WORK IN EXISTING MEMBRANE BUILDING 20

WORK IN EXISTING FILTER GALLERY

25

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FLOW CONTROL VAULT

15

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NEW FLOCCULATION/ SEDIMENTATION BASIN

10

FLOCCULATION/ SEDIMENTATION BASIN

NEW FLOW CONTROL VAULT

AREA OF DISTURBANCE (TYP)

08

Sd1-S

07

RAPID MIX VAULT

CIO2 SYSTEM 46

TYP - SOIL TYPE BOUNDARY

HIGH SERVICE PUMP STATION ELECTRICAL BLDG NO. 1

31

LIGHTNING ROD

CaE3

FINISHED WATER STORAGE TANK

30

CbE2

WORK IN EXISTING NORTH HIGH SERVICE PUMP STATION

33

WORK IN EXISTING BULK CHEMICAL STORAGE AREA

40

3 AC PADS

CaC3

60

ASPHALT

OVERHANG

45

APPROXIMATE LAND LOT LINE

CcB2

SURGE TANK COMPRESSOR BUILDING

34

CaE3

Sd1-S

AREA OF DISTURBANCE NOT TO EXCEED 7FT WIDTH (TYP.)

APPROXIMATE LAND LOT LINE

GRIFFIN WAY

CENTERYLEN LN

GRATE

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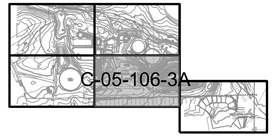

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Black & Veatch Corporation
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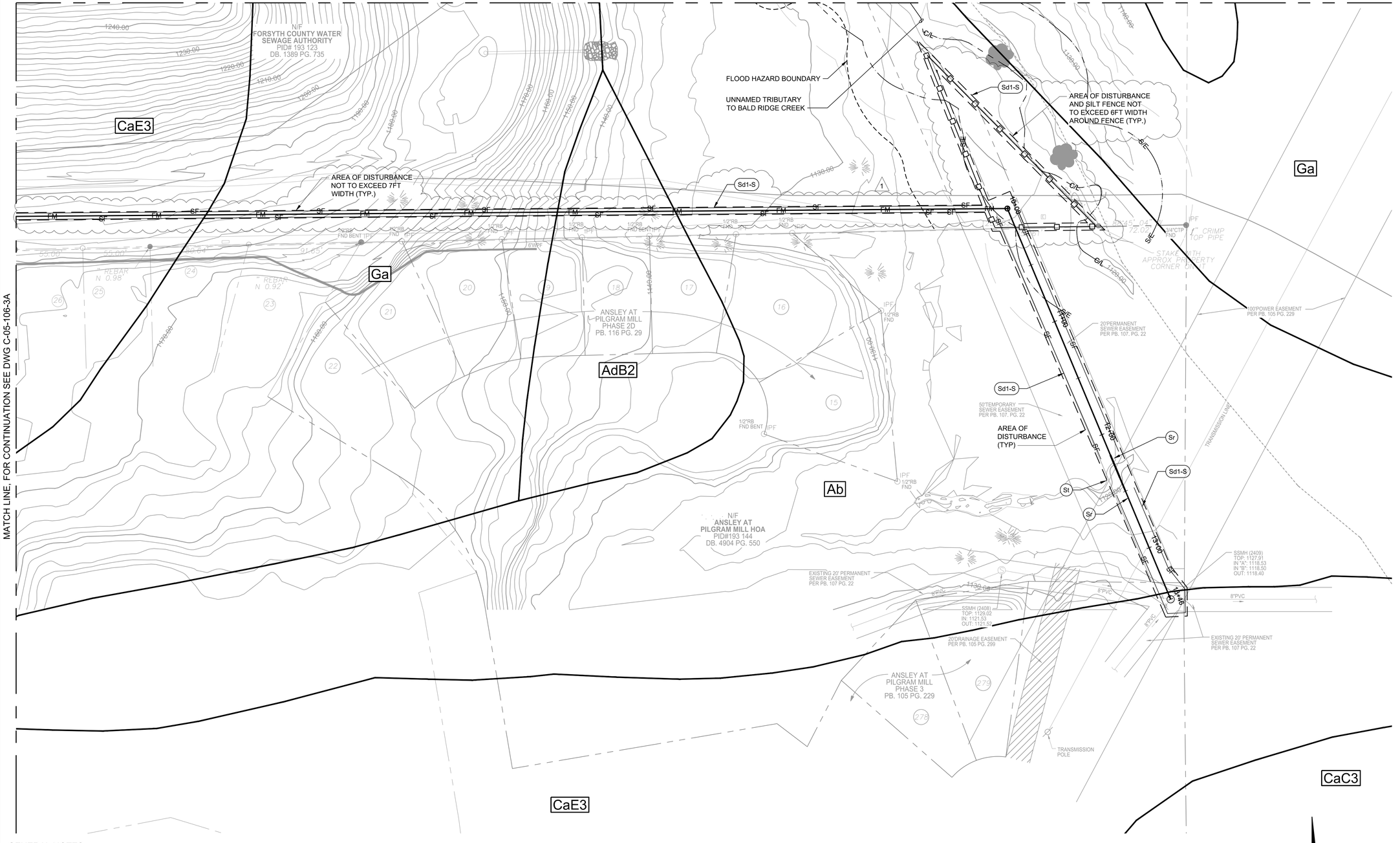
EROSION AND SEDIMENT CONTROL PLAN QUADRANT 4 PHASE 2

C-05-106-3A

25 OF 144

MATCH LINE, FOR CONTINUATION SEE DWG C-05-106-3A



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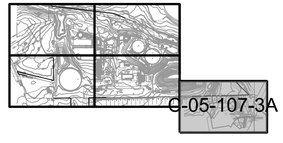
6. ALL BURIED PRESSURE PIPING TO BE RESTRAINED JOINT.

SITE KEY



40' 20' 0 40' 80'
HORIZONTAL SCALE 1"=40'

(SCALE BAR IS 4" AT FULL SCALE) 0 1/2 1 2 3 4

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DT:500

BLACK & VEATCH

Black & Veatch Corporation
Atlanta, Georgia

FORSYTH COUNTY
DEPARTMENT OF
WATER AND SEWER

ANTIOCH WTP
EXPANSION
PHASE 3A

1	05/203	ADDENDUM 4

REVISIONS AND RECORD OF ISSUE

DESIGNED:	JML
DETAILED:	JEG
CHECKED:	TWD
APPROVED:	GVG
DATE:	MARCH 2023
PROJECT NO.:	408049

CIVIL SITE

CIVIL

EROSION AND SEDIMENT
CONTROL PLAN
QUADRANT 5 PHASE 2

C-05-107-3A

26
OF
144

MATCH LINE, FOR CONTINUATION SEE DWG C-05-108-3A

WORK IN EXISTING MEMBRANE BUILDING
20
25
WORK IN EXISTING FILTER GALLERY
N:1543069.46
E:2314767.40
FLOW CONTROL VAULT
15
OZONE
N:1543046.46
E:2314752.90
NEW FLOCCULATION/ SEDIMENTATION BASIN
10
FLOCCULATION/ SEDIMENTATION BASIN
ALL DISTURBED AREAS DS1DS2DS3
NEW FLOW CONTROL VAULT
SUPERPULSATOR CLARIFIER
GRATE
FIRE VAULT
SUPERPULSATOR CLARIFIER RAPID MIX BOX
08
AREA OF DISTURBANCE (TYP)
Sd1-S
ALL DISTURBED AREAS DS1DS2DS3
07
RAPID MIX VAULT
SUPERPULSATOR CLARIFIER METER VAULT
CIO2 SYSTEM
46
TYP - SOIL TYPE BOUNDARY
ASPHALT
POSSIBLE AIR RELEASE VALVE
852.61'
APPARENT GAP
WATER TANK ON CONCRETE PAD
LIGHTNING ROD
EXISTING SURGE TANK
6" BLOCK WALL
DUMPSTER PAD
NATURAL GAS TANK
HIGH SERVICE PUMP STATION ELECTRICAL BLDG NO. 1
31
BUILDING NO.1
FINISHED WATER STORAGE TANK
FINISHED WATER STORAGE TANK
30
CbE2
CaE3
33
WORK IN EXISTING NORTH HIGH SERVICE PUMP STATION
TRACT 1 PROPERTY OF FORSYTH COUNTY WATER & SEWERAGE AUTHORITY DEED BOOK 10 PAGE 102 PLAT BOOK 1 PAGE 192
WORK IN EXISTING BULK CHEMICAL STORAGE AREA
CONCRETE WALLS WITH OVERHANG
40
CHEMICAL BULK STORAGE NO. 1
3 AC PADS
GAS CONTROL
DISTURBED AREA
CaC3
60
OVERHANG
45
CHEMICAL BULK STORAGE NO. 2
APPROXIMATE LAND LOT LINE
CcB2
CONCRETE PILE
ALL DISTURBED AREAS DS1DS2DS3
SURGE TANK COMPRESSOR BUILDING
34
CaE3
AREA OF DISTURBANCE NOT TO EXCEED 7FT WIDTH (TYP.)
APPROXIMATE LAND LOT LINE
GRIFFIN WAY
CENTERYLEN LN
MATCH LINE, FOR CONTINUATION SEE DWG C-05-110-3A

GENERAL NOTES:

1. "SCREENED" (LIGHT) DELINEATION SHOWN ON THE DRAWINGS INDICATES EXISTING FACILITIES. "SCREENED" INFORMATION WAS TAKEN FROM PREVIOUS CONSTRUCTION DRAWINGS, IS FOR REFERENCE ONLY, AND SHALL BE FIELD VERIFIED. "BOLD" (DARK) DELINEATION IS NEW WORK OR LOCATION OF EXISTING CONSTRUCTION TO BE MODIFIED UNDER THIS CONTRACT UNLESS OTHERWISE NOTED.
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4. FOR ALL SITE GRADING, SMOOTH PARABOLIC TRANSITIONS SHALL BE MADE BETWEEN CHANGES IN SLOPE. PARABOLIC ROUNDING SHALL APPLY TO ALL CUT AND FILL SECTIONS.
5. NEW GRAVEL STAGING AREAS SHALL BE MAINTAINED BY CONTRACTOR. FOLLOWING SUBSTANTIAL COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE GRAVEL AND PROVIDE PERMANENT SEEDING AS REQUIRED.

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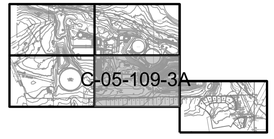

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BLACK & VEATCH

Black & Veatch Corporation
Atlanta, Georgia

FORSYTH COUNTY, GEORGIA

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER

ANTIOCH WTP EXPANSION PHASE 3A

1	05/2023	ADDENDUM 4
	REVISIONS AND RECORD OF ISSUE	

DESIGNED:	JML
DETAILED:	JEG
CHECKED:	TWD
APPROVED:	GVG
DATE:	MARCH 2023
PROJECT NO.:	408049

CIVIL SITE

CIVIL

EROSION AND SEDIMENT CONTROL PLAN QUADRANT 4 PHASE 3

C-05-109-3A

28 OF 144

MATCH LINE, FOR CONTINUATION SEE DWG C-05-109-3A

CaE3

AREA OF DISTURBANCE NOT TO EXCEED 7FT WIDTH (TYP.)

N/F FORSYTH COUNTY WATER SEWAGE AUTHORITY PID# 293 123 / DB. 1389 PG. 735

FLOOD HAZARD BOUNDARY

UNNAMED TRIBUTARY TO BALD RIDGE CREEK

ALL DISTURBED AREAS DS1DS2DS3

AREA OF DISTURBANCE AND SILT FENCE NOT TO EXCEED 6FT WIDTH AROUND FENCE (TYP.)

Ga

AdB2

ANSLEY AT PILGRAM MILL PHASE 2D PB. 116 PG. 29

Ab

N/F ANSLEY AT PILGRAM MILL HOA PID#193 144 DB. 4904 PG. 550

ANSLEY AT PILGRAM MILL PHASE 3 PB. 105 PG. 229

CaC3

CaE3

20'PERMANENT SEWER EASEMENT PER PB. 107, PG. 22

50'TEMPORARY SEWER EASEMENT PER PB. 107, PG. 22

EXISTING 20' PERMANENT SEWER EASEMENT PER PB. 107, PG. 22

20'DRAINAGE EASEMENT PER PB. 105 PG. 299

100'POWER EASEMENT PER PB. 105 PG. 229

SSMH (2409) TOP: 1127.91 IN "A": 1118.53 IN "B": 1118.50 OUT: 1118.40

SSMH (2408) TOP: 1129.02 IN: 1121.53 OUT: 1121.5±

TRANSMISSION POLE

TRANSMISSION LINE

STAKE WITH APPROX. PROPERTY CORNER ONLY

f" CRIMP TOP PIPE

8"PVC

SITE KEY

C-05-110-3A

HORIZONTAL SCALE 1"=40'

(SCALE BAR IS 4" AT FULL SCALE)

GENERAL NOTES:

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FD10004

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Black & Veatch Corporation
Atlanta, Georgia

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER

ANTIOCH WTP EXPANSION PHASE 3A

1	05/2023	ADDENDUM 4

REVISIONS AND RECORD OF ISSUE

DESIGNED:	JML
DETAILED:	JEG
CHECKED:	TWD
APPROVED:	GVG
DATE:	MARCH 2023
PROJECT NO.:	408049

CIVIL SITE

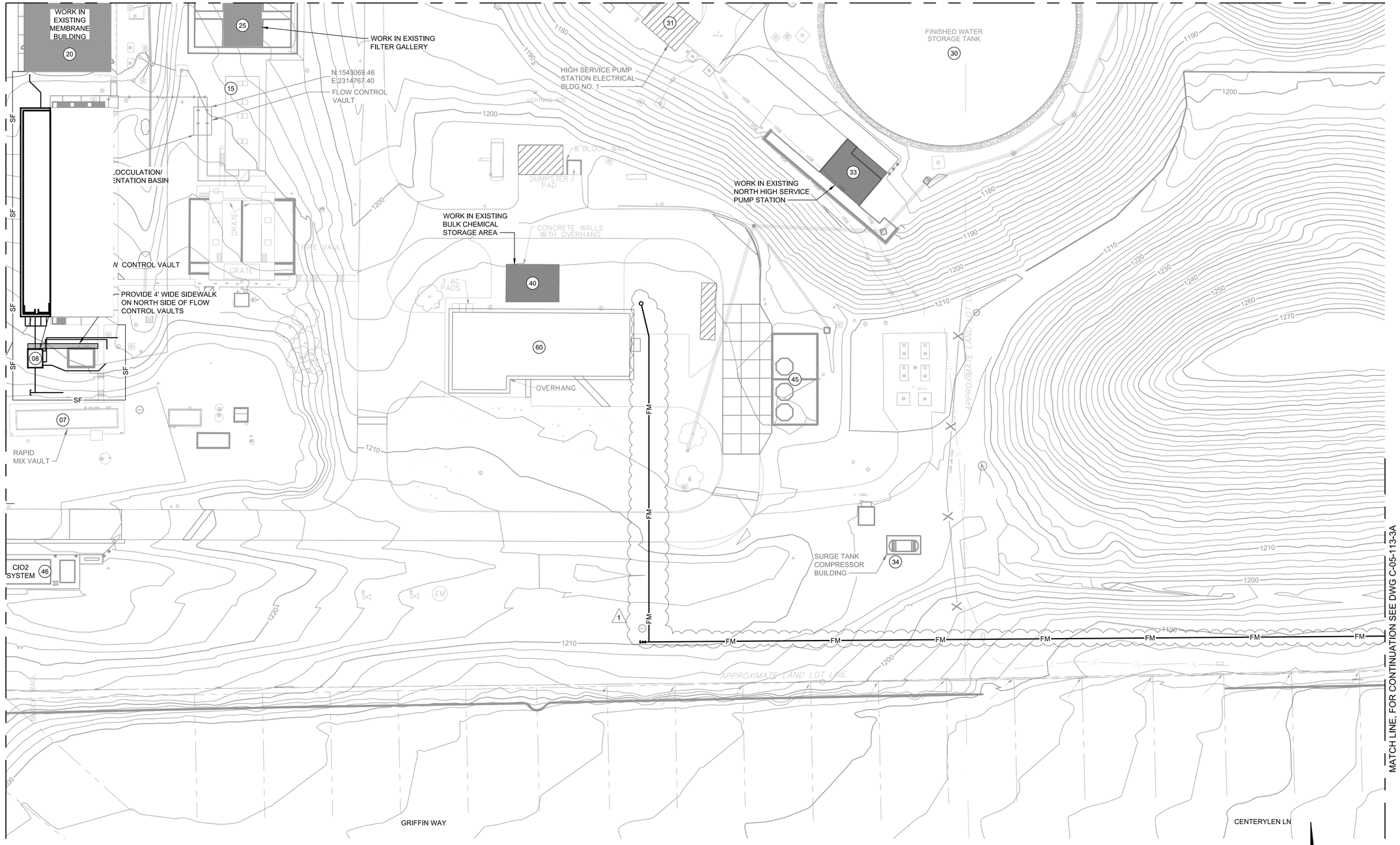
CIVIL

EROSION AND SEDIMENT CONTROL PLAN QUADRANT 5 PHASE 3

C-05-110-3A

29 OF 144

MATCH LINE, FOR CONTINUATION SEE DWG C-05-111-3A



MATCH LINE, FOR CONTINUATION SEE DWG C-05-113-3A

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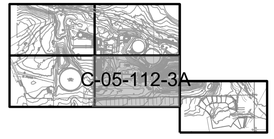

HORIZONTAL SCALE 1"=40'

40' 20' 0 40' 80'

(SCALE BAR IS 4" AT FULL SCALE) 0 1/2 1 2 3 4

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Black & Veatch Corporation
Atlanta, Georgia

FORSYTH COUNTY, GEORGIA

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER

ANTIOCH WTP EXPANSION PHASE 3A

1	05/2023	ADDENDUM 4

REVISIONS AND RECORD OF ISSUE

DESIGNED:	GVG
DETAILED:	SMM
CHECKED:	TWD
APPROVED:	GVG
DATE:	MARCH 2023
PROJECT NO.:	408049

CIVIL SITE

CIVIL

SITE LAYOUT, GRADING, PAVING, AND DRAINAGE PLAN QUADRANT 4

C-05-112-3A

31 OF 144

MATCH LINE, FOR CONTINUATION SEE DWG C-05-112-3A

FLOOD HAZARD BOUNDARY

UNNAMED TRIBUTARY TO BALD RIDGE CREEK

N/F FORSYTH COUNTY WATER SEWAGE AUTHORITY PID# 293 123 / DB. 1389 PG. 735

PROPOSED CITY OF CUMMING EASMENT

REMOVE EXISTING FENCING AND INSTALL NEW FENCE - SEE DWG C-05-509-3A

PROVIDE A DOUBLE SWING GATE - SEE DWG C-05-509-3A

CONNECT 3" SANITARY LOW PRESSURE FORCE MAIN TO NEW MANHOLE

4" Ø MANHOLE A (NEW)

STAKE WITH APPROX PROPERTY CORNER ON IT

ANSLEY AT PILGRAM MILL PHASE 2D PB. 116 PG. 29

100'POWER EASEMENT PER PB. 105 PG. 229

20'PERMANENT SEWER EASEMENT PER PB. 107, PG. 22

10" PVC C900 DR 18 GRAVITY SEWER AT 0.29% SLOPE SEE SHEET C-05-301-3A

50'TEMPORARY SEWER EASEMENT PER PB. 107, PG. 22

32 LF OF 18" STEEL ENCASEMENT STA 2+18 TO 2+50 (UNDER CREEK) SEE STANDARD DETAIL ON DRAWING C-05-301-3A

PROVIDE RIP RAP AT CREEK CROSSING

MARKER BALL TO BE INSTALLED ON EACH END OF STEEL CASING

MANHOLE B (EXISTING)

SSMH (2409) TOP: 1127.91 IN "A": 1118.53 IN "B": 1118.50 OUT: 1118.40

SSMH (2408) TOP: 1129.02 IN: 1121.53 OUT: 1121.52

EXISTING 20' PERMANENT SEWER EASEMENT PER PB. 107 PG. 22

20'DRAINAGE EASEMENT PER PB. 105 PG. 299

ANSLEY AT PILGRAM MILL PHASE 3 PB. 105 PG. 229

ANSLEY AT PILGRAM MILL HOA PID#193 144 DB. 4904 PG. 550

TRANSMISSION POLE

GENERAL NOTES:

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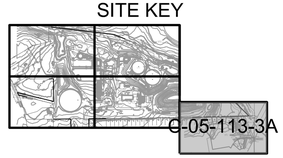

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HORIZONTAL SCALE 1"=40'

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FD10004

BLACK & VEATCH

Black & Veatch Corporation
Atlanta, Georgia

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER

ANTIOCH WTP EXPANSION PHASE 3A

1	05/2023	ADDENDUM 4

REVISIONS AND RECORD OF ISSUE

DESIGNED:	JML
DETAILED:	JEG
CHECKED:	TWD
APPROVED:	GVG
DATE:	MARCH 2023
PROJECT NO.:	408049

CIVIL SITE

CIVIL

SITE LAYOUT, GRADING, PAVING, AND DRAINAGE PLAN QUADRANT 5

C-05-113-3A

32 OF 144

MATCH LINE, FOR CONTINUATION SEE DWG C-05-114-3A

MATCH LINE, FOR CONTINUATION SEE DWG C-05-115-3A

MATCH LINE, FOR CONTINUATION SEE DWG C-05-117-3A

WORK IN EXISTING MEMBRANE BUILDING

36" DIP - CONNECT TO EXISTING 36" STUB, SEE DWG M-10-101-3A

16" DRAIN

24" DIP

6" CLS

WORK IN EXISTING FILTER GALLERY

N:1543069.46
E:2314767.40

FLOW CONTROL VAULT
N:1543046.46
E:2314752.90

16" BFV (TYP)

12" DRAIN

16" DIP (TYP)

24" CE

N:1543046.46
E:2314752.90

NEW FLOCCULATION/ SEDIMENTATION BASIN

FLOCCULATION/ SEDIMENTATION BASIN

TYP 12" DIP - SEE DRAWING M-10-101

24" DIP

NEW FLOW CONTROL VAULT

PROVIDE 4' WIDE SIDEWALK ON NORTH SIDE OF FLOW CONTROL VAULTS

1-1/2" W2 LINE - TIE INTO EXISTING 1-1/2" W2

EXISTING 4" DRAIN

WORK IN EXISTING CONTROL VAULTS

RAPID MIX VAULT

EXTEND 48" LINE

24" DIP

48" X 24" TEE AND 48" PLUG

1/2" SH LINE - TIE I INTO EXISTING 1/2" SH

NEW 4" DRAIN - TIE INTO EXISTING DRAIN WITH 4' WYE

3/4" NAOH

36" FW

HIGH SERVICE PUMP STATION ELECTRICAL BLDG NO. 1

FINISHED WATER STORAGE TANK

WORK IN EXISTING NORTH HIGH SERVICE PUMP STATION

PVC CHEM LINES

WORK IN EXISTING BULK CHEMICAL STORAGE AREA

10" W-2

3 AC PADS

2" W-2

1/2" RW

8" BWR

30" CCW

3/4" AL

4" DRAIN

PVC CHEM LINES

10" W-2

OVERHANG

LOW PRESSURE SANITARY PUMP STATION - SEE C-05-508-3A DETAIL C
-CONTRACTOR TO CONNECT LINE GOING TO EXISTING SEPTIC TANK TO PUMP STATION

APPROXIMATE LAND LOT LINE

1" RW

24" FW

CIO2 SYSTEM

4" W-1

6" PD

36" PW

24" PW

2" DR

48" CCW

3" HDPE SANITARY LOW PRESSURE FORCE MAIN (NOTE 7)

SURGE TANK COMPRESSOR BUILDING

3" HDPE CAP AND 3" GATE VALVE

3" HDPE TEE

3" SANITARY LOW PRESSURE FORCE MAIN (NOTE 7)

APPROXIMATE LAND LOT LINE

GRIFFIN WAY

CENTERYLEN LN

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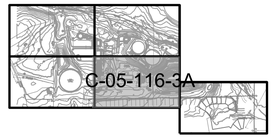
6. ALL BURIED PRESSURE PIPING TO BE RESTRAINED JOINT.
7. AT LEAST 4 FEET OF COVER SHALL BE MAINTAINED ON TOP OF 3-INCH FORCE MAIN. DISTURBED AREA ALONG THE ROUTE OF THE FORCE MAIN SHALL BE LIMITED TO 7 FEET TOTAL WIDTH. SEE EROSION CONTROL SHEETS. (1)

SITE KEY



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FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER

ANTIOCH WTP EXPANSION PHASE 3A

1	05/2023	ADDENDUM 4

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DATE:	MARCH 2023
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CIVIL SITE

CIVIL

SITE PIPING PLAN QUADRANT 4

C-05-116-3A

35 OF 144

MATCH LINE, FOR CONTINUATION SEE DWG C-05-116-3A

3" SANITARY LOW PRESSURE FORCE MAIN (NOTE 7)

FLOOD HAZARD BOUNDARY

UNNAMED TRIBUTARY TO BALD RIDGE CREEK

CONNECT 3" SANITARY LOW PRESSURE FORCE MAIN TO NEW MANHOLE

4" Ø MANHOLE A (NEW)

PROPOSED CITY OF CUMMING EASMENT

REMOVE EXISTING FENCING AND INSTALL NEW FENCE - SEE DWG C-05-509-3A

PROVIDE A DOUBLE SWING GATE - SEE DWG C-05-509-3A

10" PVC C900 DR 18 GRAVITY SEWER AT 0.29% SLOPE SEE SHEET C-05-301-3A

32 LF OF 18" STEEL ENCASEMENT STA 2+18 TO 2+50 (UNDER CREEK) SEE STANDARD DETAIL ON DRAWING C-05-301-3A

PROVIDE RIP RAP AT CREEK CROSSING (SEE EROSION CONTROL PLANS)

MARKER BALL TO BE INSTALLED ON EACH END OF STEEL CASING

MANHOLE B (EXISTING)

SSMH (2409)
TOP: 1127.91
IN "A": 1118.53
IN "B": 1118.50
OUT: 1118.40

SSMH (2408)
TOP: 1129.02
IN: 1121.53
OUT: 1121.52

N/F FORSYTH COUNTY WATER SEWAGE AUTHORITY PID# 193 123 / DB. 1389 PG. 735

N/F ANSLEY AT PILGRAM MILL HOA PID# 193 144 DB. 4904 PG. 550

ANSLEY AT PILGRAM MILL PHASE 2D PB. 116 PG. 29

ANSLEY AT PILGRAM MILL PHASE 3 PB. 105 PG. 229

EXISTING 20' PERMANENT SEWER EASEMENT PER PB. 107 PG. 22

20'DRAINAGE EASEMENT PER PB. 105 PG. 299

100'POWER EASEMENT PER PB. 105 PG. 229

20'PERMANENT SEWER EASEMENT PER PB. 107, PG. 22

50'TEMPORARY SEWER EASEMENT PER PB. 107, PG. 22

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STAKE WITH APPROX PROPERTY CORNER ON IT

GENERAL NOTES:

1. "SCREENED" (LIGHT) DELINEATION SHOWN ON THE DRAWINGS INDICATES EXISTING FACILITIES. "SCREENED" INFORMATION WAS TAKEN FROM PREVIOUS CONSTRUCTION DRAWINGS, IS FOR REFERENCE ONLY, AND SHALL BE FIELD VERIFIED. "BOLD" (DARK) DELINEATION IS NEW WORK OR LOCATION OF EXISTING CONSTRUCTION TO BE MODIFIED UNDER THIS CONTRACT UNLESS OTHERWISE NOTED.
2. CONTRACTOR SHALL RELOCATE EXISTING UTILITIES WHICH ARE OWNED BY FCDWS AS REQUIRED. CONTRACTOR SHALL COORDINATE RELOCATION OF EXISTING UTILITIES OWNED BY OTHERS WITH THE UTILITY COMPANIES AND WITH THE OWNER. UNLESS OTHERWISE NOTED, ALL COSTS ASSOCIATED WITH UTILITY RELOCATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. CONTRACTOR SHALL MAINTAIN EXISTING FENCE AND/OR INSTALL NEW CHAIN LINK FENCING IN ORDER TO COMPLETELY SECURE THE SITE TO THE SATISFACTION OF THE OWNER AT THE CLOSE OF EACH WORKING DAY.
4. FOR ALL SITE GRADING, SMOOTH PARABOLIC TRANSITIONS SHALL BE MADE BETWEEN CHANGES IN SLOPE. PARABOLIC ROUNDING SHALL APPLY TO ALL CUT AND FILL SECTIONS.
5. NEW GRAVEL STAGING AREAS SHALL BE MAINTAINED BY CONTRACTOR. FOLLOWING SUBSTANTIAL COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE GRAVEL AND PROVIDE PERMANENT SEEDING AS REQUIRED.
6. ALL BURIED PRESSURE PIPING TO BE RESTRAINED JOINT.
7. AT LEAST 4 FEET OF COVER SHALL BE MAINTAINED ON TOP OF 3-INCH FORCE MAIN. DISTURBED AREA ALONG THE ROUTE OF THE FORCE MAIN SHALL BE LIMITED TO 7 FEET TOTAL WIDTH. SEE EROSION CONTROL SHEETS. (1)

SITE KEY

C-05-117-3A

40' 20' 0 40' 80'
HORIZONTAL SCALE 1"=40'

(SCALE BAR IS 4" AT FULL SCALE) 0 1/2 1 2 3 4

PLOTTED: 5/25/2023 5:32:23 PM
FILE: C:\PW_WORKING\BVW_AMERICAS\D1600148\408049-C-05-117-3A.DWG
FDT11000
FDT10000

BLACK & VEATCH
Black & Veatch Corporation
Atlanta, Georgia

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER

ANTIOCH WTP EXPANSION PHASE 3A

1	05/2023	ADDENDUM 4

REVISIONS AND RECORD OF ISSUE

DESIGNED:	GG
DETAILED:	JEG
CHECKED:	TWD
APPROVED:	GVG
DATE:	MARCH 2023
PROJECT NO.:	408049

CIVIL SITE

CIVIL

SITE PIPING PLAN QUANDRANT 5 - SEWER CONNECTION

C-05-117-3A

36 OF 144

I, ROBERT A. BOCARRO, (GSWCC LEVEL II CERTIFICATE NO. 0000079826), CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY
AUTHORIZED AGENT, UNDER MY SUPERVISION.

April 20, 2023

ROBERT A. BOCARRO, P.E. DATE

I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT CERTIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

April 20, 2023

ROBERT A. BOCARRO, P.E. DATE

I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT " MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" (MANUAL) PUBLISHED BY THE STATE SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORM WATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR100001.

April 20, 2023

SIGNATURE DATE

PRIMARY PERMITTEE:

NAME: FORSYTH COUNTY DWS; JOHN DAVIS, P.E.
ADDRESS: 110 EAST MAIN STREET, SUITE 150
CUMMING, GA 30040
PHONE: 404-694-5368

GENERAL NOTES

1. EXISTING UTILITY DATA IS PROVIDED FOR INFORMATION ONLY. ALTHOUGH THIS DATA IS SHOWN AS ACCURATELY AS POSSIBLE, THE CONTRACTOR NEEDS TO VERIFY THE ACCURACY OF THIS INFORMATION. NEITHER FORSYTH COUNTY NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY FOR THIS DATA.
2. CONTRACTOR SHALL COMPLY WITH ALL SECTIONS OF O.C.G.A SECTION 25-9-1 BEFORE BEGINNING AND DURING ALL EXCAVATION ACTIVITIES.
3. UTILITY OWNERS:

AGL ATLANTA GAS LIGHT COMPANY:	404-584-4126
GEORGIA POWER COMPANY:	404-506-4569
CITY OF CUMMING WATER AND SEWER:	770-781-2020
FORSYTH COUNTY WATER AND SEWER:	770-781-2101
AT&T:	404-216-7772
COMCAST:	770-559-6879

4. CONTRACTOR SHALL COMPLY WITH ALL SECTIONS OF OSHA REGULATION 1926.650 (SUBPART P EXCAVATIONS) AND ALL SECTIONS AND APPENDICES DURING EXCAVATION.
5. CONTRACTOR SHALL COMPLY WITH ALL SECTIONS OF OSHA REGULATION 1926.950 AND 1926.960 (SUBPART V POWER TRANSMISSION AND DISTRIBUTION) DURING OPERATIONS UNDER OR IN THE PROXIMITY TO ELECTRIAL DISTRIBUTION LINES.
6. THE CONTRACTOR SHALL ENSURE TO MAINTAIN APPROPRIATE BUFFERS WHEN WORKING AROUND ELECTRIC LINES AT ALL TIMES DURING EXCAVATION AND GRADING.
7. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STANDARD SPECIFICATIONS OF THE DEPARTMENT OF TRANSPORTATION, STATE OF GEORGIA AND ANY SUBSEQUENT SUPPLEMENTAL SPECIFICATIONS BOOK. THESE SPECIFICATIONS ALONG WITH ANY SUPPLEMENTS ARE HEREBY REFERRED TO AS THE STANDARD SPECIFICATIONS.
8. THE FOLLOWING DEFINITIONS SHALL SUPERCEDE THOSE DEFINITIONS IN THE STANDARD SPECIFICATIONS.
   DEPARTMENT: FORSYTH COUNTY DWS
   ENGINEER: BLACK & VEATCH.
9. PROJECT LIMITS TO BE CONTAINED WITHIN THE LIMITS OF CONSTRUCTION AS INDICATED ON THE PLANS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
10. ALL MATERIALS AND DEBRIS REMOVED FROM THE SITE DURING CLEARING AND GRUBBING, DEMOLITION, EXCAVATION, AND ASPHALT PAVEMENT REMOVAL SHALL BE TAKEN TO AN APPROPRIATE LANDFILL.
11. THE CONTRACTOR SHALL STRICTLY ADHERE TO DUST CONTROL REGULATIONS. ALL AREAS SUBJECT TO DUST GENERATION MUST BE PERIODICALLY WATERED TO RETARD DUST. ALL COST FOR DUST CONTROL SHALL BE INCLUDED IN THE BID PRICE.
12. THE CONTRACTOR SHALL ENSURE THAT POSITIVE DRAINAGE IS MAINTAINED AT ALL TIMES WITHIN THE PROJECT LIMITS. THIS MAY INCLUDE BUT NOT LIMITED TO PROVIDING DRAINAGE STRUCTURES AND GRADING IN ADDITION TO THOSE SHOWN ON THE DRAWINGS. NO SEPARATE PAYMENT WILL BE MADE FOR ANY COST INCURRED TO COMPLY WITH THIS REQUIREMENT.
13. CALL BEFORE YOU DIG (800) 282-7411 OR 811.

OWNER/24-HOUR CONTACT:
FORSYTH COUNTY DWS
CONTACT: JOHN DAVIS, P.E.
PHONE NUMBER: 404-694-5368

CONTRACTOR:
CONTACT:_____
PHONE NUMBER:_____

E&SC CONTRACTOR:
CONTACT:_____
PHONE NUMBER:_____

ENGINEER:
BLACK & VEATCH CORPORATION
CONTACT: ROBERT A. BOCARRO, P.E.
PHONE NUMBER: 770-754-0318

EROSION CONTROL NOTES

1. THE PROJECT INCLUDES THE CONSTRUCTION OF IMPROVEMENTS TO THE ANTIOCH WATER TREATMENT PLANT.
2. NAME, ADDRESS, AND PHONE NUMBER OF THE PROPERTY OWNER IS: FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER; 110 E MAIN ST 150, CUMMING GA 30040
3. TOTAL PROJECT AREA: 57.4 ACRES
4. TOTAL DISTURBED AREA: 0.87 ACRES (1)
5. THE RECEIVING WATERS ARE A TRIBUTARY TO BALDRIDGE CREEK
6. THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS, PERIMETER CONTROL BMPS, AND SEDIMENT BASINS IN ACCORDANCE WITH PART IV.A.5 WITHIN 7 DAYS AFTER INSTALLATION.
7. AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPS WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.
8. THE INSTALLATION OF EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES SHALL OCCUR PRIOR TO OR CONCURRENT WITH LAND DISTURBING ACTIVITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR NOTICE OF INTENT (NOI).
9. EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES SHALL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION AND SEDIMENT CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL TO TREAT THE SEDIMENT SOURCE.
10. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.
11. TOTAL WETLAND ACRES IN PROJECT AREA ARE 0.0.
12. MAINTENANCE OF ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES, WHETHER TEMPORARY OR PERMANENT SHALL BE AT ALL TIMES THE RESPONSIBILITY OF THE CONTRACTOR.
13. ALL FILL SLOPES SHALL HAVE SILT FENCE PLACED AT THE SLOPE'S TOE.
14. CONCENTRATED FLOW AREAS AND ALL SLOPES STEEPER THAN 2.5:1 WITH A HEIGHT OF TEN FEET OR GREATER SHALL BE STABILIZED WITH THE APPROPRIATE EROSION CONTROL MATTING OR BLANKET.
15. A 50-FOOT UNDISTURBED BUFFER AND 75-FOOT IMPERVIOUS SETBACK IS TO BE MAINTAINED ADJACENT TO ALL STREAMS. EXCEPT AT LOCATIONS PERPENDICULAR TO STREAM CROSSINGS.
16. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.
17. SEDIMENT STORAGE MAINTENANCE INDICATORS MUST BE INSTALLED IN SEDIMENT STORAGE STRUCTURES INDICATING THE 1/3 FULL VOLUME.
18. THE PROFESSIONAL WHO SEALS THIS PLAN CERTIFIES UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY DIRECT SUPERVISION.
19. NONEXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 80 FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.
20. EXISTING SITE CONDITIONS: EXISTING WATER TREATMENT FACILITY INCLUDING TREATMENT PROCESS UNITS, BUILDINGS AND PAVEMENTS, AS WELL AS GRASSED AND WOODED AREA. NO CRITICAL AREAS IDENTIFIED IN THIS PROJECT.

GEORGIA811 Utilities Protection Center, Inc.
Know what's below. Call before you dig.

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST
STAND ALONE CONSTRUCTION PROJECTS

SWCD:_____
PROJECT NAME: FORSYTH COUNTY ANTIOCH ROAD WATER TREATMENT PLANT PHASE III EXPANSION
ADDRESS:_____
CITY/COUNTY:_____ **DATE ON PLANS:**_____
NAME & EMAIL OF PERSON FILLING OUT CHECKLIST:_____

TO BE SHOWN ON ES&PC PLAN

1. THE APPLICABLE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN CHECKLIST ESTABLISHED BY THE COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED.
2. LEVEL II CERTIFICATION NUMBER ISSUED BY THE COMMISSION, SIGNATURE AND SEAL OF THE CERTIFIED DESIGN PROFESSIONAL.
3. LIMITS OF DISTURBANCE SHALL BE NO GREATER THAN 50 ACRES AT ANY ONE TIME WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE GAEPD DISTRICT OFFICE. IF GAEPD APPROVES THE REQUEST TO DISTURB 50 ACRES OR MORE AT ANY ONE TIME, THE PLAN MUST INCLUDE AT LEAST 4 OF THE BMPS LISTED IN APPENDIX 1 OF THIS CHECKLIST AND THE GAEPD APPROVAL LETTER. *
4. THE NAME AND PHONE NUMBER OF THE 24-HOUR CONTACT RESPONSIBLE FOR EROSION, SEDIMENTATION AND POLLUTION CONTROLS.
5. PROVIDE THE NAME, ADDRESS, EMAIL ADDRESS, AND PHONE NUMBER OF PRIMARY PERMITTEE.
6. NOTE TOTAL AND DISTURBED ACREAGES OF THE PROJECT OR PHASE UNDER CONSTRUCTION.
7. PROVIDE THE GPS LOCATION OF THE CONSTRUCTION EXIT FOR THE SITE. GIVE THE LATITUDE AND LONGITUDE IN DECIMAL DEGREES.
8. INITIAL DATE OF THE PLAN AND THE DATES OF ANY REVISIONS MADE TO THE PLAN INCLUDING THE ENTITY WHO REQUESTED THE REVISIONS.
9. DESCRIPTIONS OF THE NATURE OF CONSTRUCTION ACTIVITY AND EXISTING SITE CONDITIONS.
10. PROVIDE VICINITY MAP SHOWING SITE'S RELATION TO SURROUNDING AREAS. INCLUDE DESIGNATION OF SPECIFIC PHASE, IF NECESSARY.
11. IDENTIFY THE PROJECT RECEIVING WATERS AND DESCRIBE ALL SENSITIVE ADJACENT AREAS INCLUDING STREAMS, LAKES, RESIDENTIAL AREAS, WETLANDS, MARSHLANDS, ETC. WHICH MAY BE AFFECTED.
12. DESIGN PROFESSIONAL'S CERTIFICATION STATEMENT AND SIGNATURE THAT THE SITE WAS VISITED PRIOR TO DEVELOPMENT OF THE ES&PC PLAN AS STATED ON **PART IV PAGE 19** OF THE PERMIT.
13. DESIGN PROFESSIONAL'S CERTIFICATION STATEMENT AND SIGNATURE THAT THE PERMITTEE'S ES&PC PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BMPS AND SAMPLING TO MEET PERMIT REQUIREMENTS AS STATED ON **PART IV PAGE 19** OF THE PERMIT. *
14. CLEARLY NOTE THE STATEMENT THAT "THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPS WITHIN 7 DAYS AFTER INSTALLATION." *
15. CLEARLY NOTE THE STATEMENT THAT "NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS."
16. PROVIDE A DESCRIPTION OF ANY BUFFER ENCROACHMENTS AND INDICATE WHETHER A BUFFER VARIANCE IS REQUIRED.
17. CLEARLY NOTE THE STATEMENT THAT "AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPS WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL." *
18. CLEARLY NOTE THE STATEMENT THAT "WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT." *
19. CLEARLY NOTE STATEMENT THAT "THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.
20. CLEARLY NOTE STATEMENT THAT "EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE."
21. CLEARLY NOTE THE STATEMENT "ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING."
22. ANY CONSTRUCTION ACTIVITY WHICH DISCHARGES STORM WATER INTO AN IMPAIRED STREAM SEGMENT, OR WITHIN 1 LINEAR MILE UPSTREAM OF AND WITHIN THE SAME WATERSHED AS, ANY PORTION OF A BIOTA IMPAIRED STREAM SEGMENT MUST COMPLY WITH PART III.C. OF THE PERMIT. INCLUDE THE COMPLETED APPENDIX 1 LISTING ALL THE BMPS THAT WILL BE USED FOR THOSE AREAS OF THE SITE WHICH DISCHARGE TO THE IMPAIRED STREAM SEGMENT. *
23. IF A TMDL IMPLEMENTATION PLAN FOR SEDIMENT HAS BEEN FINALIZED FOR THE IMPAIRED STREAM SEGMENT (IDENTIFIED IN ITEM 22 ABOVE) AT LEAST SIX MONTHS PRIOR TO SUBMITTAL OF NOI, THE ES&PC PLAN MUST ADDRESS ANY SITE-SPECIFIC CONDITIONS OR REQUIREMENTS INCLUDED IN THE TMDL IMPLEMENTATION PLAN. *
24. BMPS FOR CONCRETE WASHDOWN OF TOOLS, CONCRETE MIXER CHUTES, HOPPERS AND THE REAR OF THE VEHICLES. WASHOUT OF THE DRUM AT THE CONSTRUCTION SITE IS PROHIBITED. *
25. PROVIDE BMPS FOR THE REMEDIATION OF ALL PETROLEUM SPILLS AND LEAKS.
26. DESCRIPTION OF THE MEASURES THAT WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS TO CONTROL POLLUTANTS IN STORM WATER THAT WILL OCCUR AFTER CONSTRUCTION OPERATIONS HAVE BEEN COMPLETED. *
27. DESCRIPTION OF PRACTICES TO PROVIDE COVER FOR BUILDING MATERIALS AND BUILDING PRODUCTS ON SITE. *
28. DESCRIPTION OF THE PRACTICES THAT WILL BE USED TO REDUCE THE POLLUTANTS IN STORM WATER DISCHARGES. *
29. DESCRIPTION AND CHART OR TIMELINE OF THE INTENDED SEQUENCE OF MAJOR ACTIVITIES WHICH DISTURB SOILS FOR THE MAJOR PORTIONS OF THE SITE (I.E., INITIAL PERIMETER AND SEDIMENT STORAGE BMPS, CLEARING AND GRUBBING ACTIVITIES, EXCAVATION ACTIVITIES, UTILITY ACTIVITIES, TEMPORARY AND FINAL STABILIZATION). *
30. PROVIDE COMPLETE REQUIREMENTS OF INSPECTIONS AND RECORD KEEPING BY THE PRIMARY PERMITTEE. *
31. PROVIDE COMPLETE REQUIREMENTS OF SAMPLING FREQUENCY AND REPORTING OF SAMPLING RESULTS. *
32. PROVIDE COMPLETE DETAILS FOR RETENTION OF RECORDS AS PER PART IV.F. OF THE PERMIT. *
33. DESCRIPTION OF ANALYTICAL METHODS TO BE USED TO COLLECT AND ANALYZE THE SAMPLES FROM EACH LOCATION. *
34. APPENDIX B RATIONALE FOR NTU VALUES AT ALL OUTFALL SAMPLING POINTS WHERE APPLICABLE. *
35. DELINEATE ALL SAMPLING LOCATIONS, PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES INTO WHICH STORM WATER IS DISCHARGED. *
36. A DESCRIPTION OF APPROPRIATE CONTROLS AND MEASURES THAT WILL BE IMPLEMENTED AT THE CONSTRUCTION SITE INCLUDING: (1) INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPS, (2) INTERMEDIATE GRADING AND DRAINAGE BMPS, AND (3) FINAL BMPS. FOR CONSTRUCTION SITES WHERE THERE WILL BE NO MASS GRADING AND THE SEDIMENT STORAGE REQUIREMENTS AND INITIAL PERIMETER CONTROL BMPS, INTERMEDIATE GRADING AND DRAINAGE BMPS, AND FINAL BMPS ARE THE SAME, THE PLAN MAY COMBINE ALL OF THE BMPS INTO A SINGLE PHASE. *
37. GRAPHIC SCALE AND NORTH ARROW.
38. EXISTING AND PROPOSED CONTOUR LINES WITH CONTOUR LINES DRAWN AT AN INTERVAL IN ACCORDANCE WITH THE FOLLOWING:

MAP SCALE	GROUND SLOPE	CONTOUR INTERVALS, FT.	1 INCH = 100FT OR LARGER SCALE	FLAT 0 - 2%	0.5 OR 1
	ROLLING 2 - 8%	1 OR 2		STEEP 8% +	2,5 OR 10

39. E OF ALTERNATIVE BMPS WHOSE PERFORMANCE HAS BEEN DOCUMENTED TO BE EQUIVALENT TO OR SUPERIOR TO CONVENTIONAL BMPS AS CERTIFIED BY A DESIGN PROFESSIONAL (UNLESS DISAPPROVED BY GAEPD OR THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION). PLEASE REFER TO THE ALTERNATIVE BMP GUIDANCE DOCUMENT FOUND AT WWW.GASWCC.GEORGIA.GOV.
40. USE OF ALTERNATIVE BMP FOR APPLICATION TO THE EQUIVALENT BMP LIST. PLEASE REFER TO APPENDIX A-2 OF THE MANUAL FOR EROSION & SEDIMENT CONTROL IN GEORGIA 2016 EDITION. *
41. DELINEATION OF THE APPLICABLE 25-FOOT OR 50-FOOT UNDISTURBED BUFFERS ADJACENT TO STATE WATERS AND ANY ADDITIONAL BUFFERS REQUIRED BY THE LOCAL ISSUING AUTHORITY. CLEARLY NOTE AND DELINEATE ALL AREAS OF IMPACT.
42. DELINEATION OF ON-SITE WETLANDS AND ALL STATE WATERS LOCATED ON AND WITHIN 200 FEET OF THE PROJECT SITE.
43. DELINEATION AND ACREAGE OF CONTRIBUTING DRAINAGE BASINS ON THE PROJECT SITE.
44. PROVIDE HYDROLOGY STUDY AND MAPS OF DRAINAGE BASINS FOR BOTH THE PRE- AND POST-DEVELOPED CONDITIONS. *
45. AN ESTIMATE OF THE RUNOFF COEFFICIENT OR PEAK DISCHARGE FLOW OF THE SITE PRIOR TO AND AFTER CONSTRUCTION ACTIVITIES ARE COMPLETED.
46. STORM-DRAIN PIPE AND WEIR VELOCITIES WITH APPROPRIATE OUTLET PROTECTION TO ACCOMMODATE DISCHARGES WITHOUT EROSION. IDENTIFY/DELINEATE ALL STORM WATER DISCHARGE POINTS.
47. SOIL SERIES FOR THE PROJECT SITE AND THEIR DELINEATION.
48. THE LIMITS OF DISTURBANCE FOR EACH PHASE OF CONSTRUCTION.
49. PROVIDE A MINIMUM OF 67 CUBIC YARDS OF SEDIMENT STORAGE PER ACRE DRAINED USING A TEMPORARY SEDIMENT BASIN, RETROFITTED DETENTION POND, AND/OR EXCAVATED INLET SEDIMENT TRAPS FOR EACH COMMON DRAINAGE LOCATION. SEDIMENT STORAGE VOLUME MUST BE IN PLACE PRIOR TO AND DURING ALL LAND DISTURBANCE ACTIVITIES UNTIL FINAL STABILIZATION OF THE SITE HAS BEEN ACHIEVED. A WRITTEN JUSTIFICATION EXPLAINING THE DECISION TO USE EQUIVALENT CONTROLS WHEN A SEDIMENT BASIN IS NOT ATTAINABLE MUST BE INCLUDED IN THE PLAN FOR EACH COMMON DRAINAGE LOCATION IN WHICH A SEDIMENT BASIN IS NOT PROVIDED. A WRITTEN JUSTIFICATION AS TO WHY 67 CUBIC YARDS OF STORAGE IS NOT ATTAINABLE MUST ALSO BE GIVEN. WORKSHEETS FROM THE MANUAL MUST BE INCLUDED FOR STRUCTURAL BMPS AND ALL CALCULATIONS USED BY THE DESIGN PROFESSIONAL TO OBTAIN THE REQUIRED SEDIMENT STORAGE WHEN USING EQUIVALENT CONTROLS. WHEN DISCHARGING FROM SEDIMENT BASINS AND IMPOUNDMENTS, PERMITTEES ARE REQUIRED TO UTILIZE OUTLET STRUCTURES THAT WITHDRAW WATER FROM THE SURFACE, UNLESS INFEASIBLE. IF OUTLET STRUCTURES THAT WITHDRAW WATER FROM THE SURFACE ARE NOT FEASIBLE, A WRITTEN JUSTIFICATION EXPLAINING THIS DECISION MUST BE INCLUDED IN THE PLAN.
50. LOCATION OF BEST MANAGEMENT PRACTICES THAT ARE CONSISTENT WITH, AND NO LESS STRINGENT THAN, THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. USE THE UNIFORM CODING SYMBOLS FROM THE MANUAL, CHAPTER 6, WITH LEGEND.
51. PROVIDE DETAILED DRAWINGS FOR ALL STRUCTURAL PRACTICES. SPECIFICATIONS MUST, AT A MINIMUM, MEET THE GUIDELINES SET FORTH IN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA.
52. PROVIDE VEGETATIVE PLAN, NOTING ALL TEMPORARY AND PERMANENT VEGETATIVE PRACTICES. INCLUDE SPECIES, PLANTING DATES AND SEEDING, FERTILIZER, LIME AND MULCHING RATES. VEGETATIVE PLAN SHALL BE SITE SPECIFIC FOR APPROPRIATE TIME OF YEAR THAT SEEDING WILL TAKE PLACE AND FOR THE APPROPRIATE GEOGRAPHIC REGION OF GEORGIA.

* IF USING THIS CHECKLIST FOR A PROJECT THAT IS LESS THAN 1 ACRE AND NOT PART OF A COMMON DEVELOPMENT BUT WITHIN 200 FT OF A PERENNIAL STREAM THE * CHECKLIST ITEMS WOULD BE N/A.

EFFECTIVE JANUARY 1, 2022

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{SCALE BAR IS 4" AT FULL SCALE} 0 1/2 1 2 3 4

BLACK & VEATCH
Black & Veatch Corporation
Atlanta, Georgia

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER

ANTIOCH WTP EXPANSION PHASE 3A

1	05/2023	ADDENDUM 4

REVISIONS AND RECORD OF ISSUE

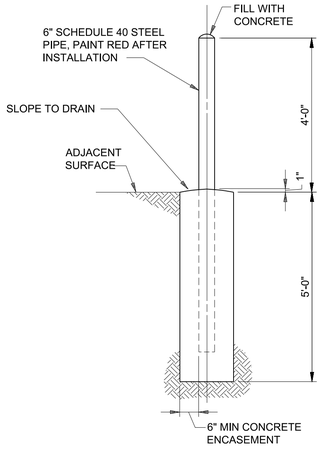
DESIGNED:	JML
DETAILED:	JEG
CHECKED:	TWD
APPROVED:	GVG
DATE:	MARCH 2023
PROJECT NO.:	408049

CIVIL SITE

CIVIL

EROSION AND SEDIMENT CONTROL NOTES 1

C-05-501-3A



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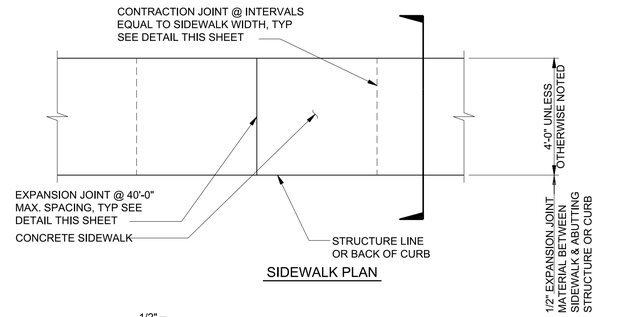
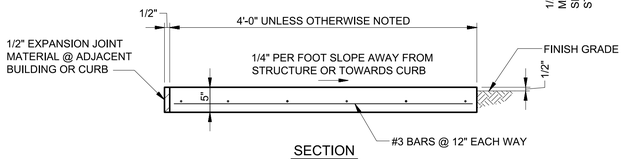


SIDEWALK PLAN



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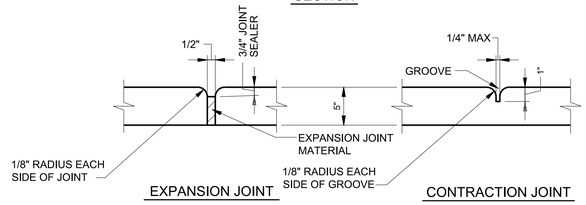
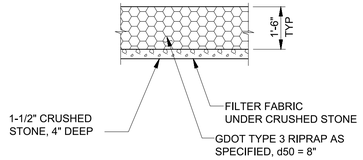


EXPANSION JOINT CONTRACTION JOINT

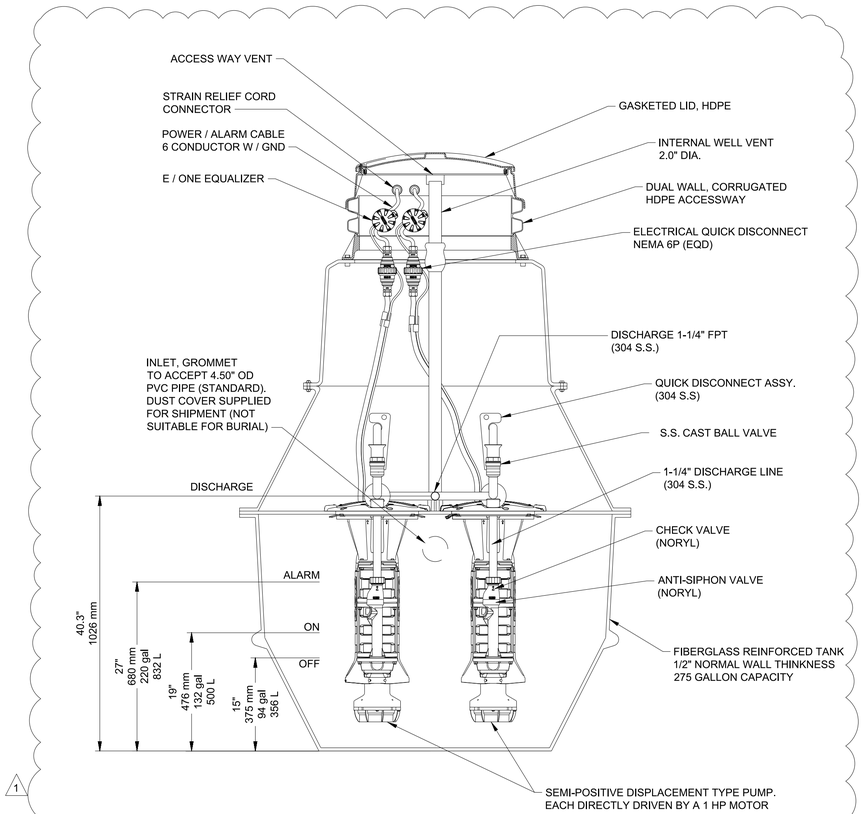
NOTE:
CONCRETE SIDEWALKS LOCATED AS A GROUND COVER BETWEEN TWO STRUCTURES SHALL SLOPE TO DRAIN FROM A HIGH POINT RIDGELINE MIDWAY IN THE LENGTH TO ENDS. MINIMUM SLOPE TO ENDS SHALL BE 1%. ALL SURFACES SHALL SLOPE TO DRAIN.

B CONCRETE SIDEWALK
NO SCALE



SECTION

F RIP RAP
3/8" = 1'-0"



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C ADMINISTRATION BUILDING GRINDER SEWER PUMP STATION
NO SCALE

(SCALE BAR IS 4" AT FULL SCALE) 0 1/2 1 2 3 4

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FD11000
FD11001
FD11004

BLACK & VEATCH
Black & Veatch Corporation
Atlanta, Georgia

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER

ANTIOCH WTP EXPANSION PHASE 3A

1	05/2023	ADDENDUM 4

REVISIONS AND RECORD OF ISSUE

DESIGNED:	JML
DETAILED:	KMC
CHECKED:	TWD
APPROVED:	GVG
DATE:	MARCH 2023
PROJECT NO.:	408049

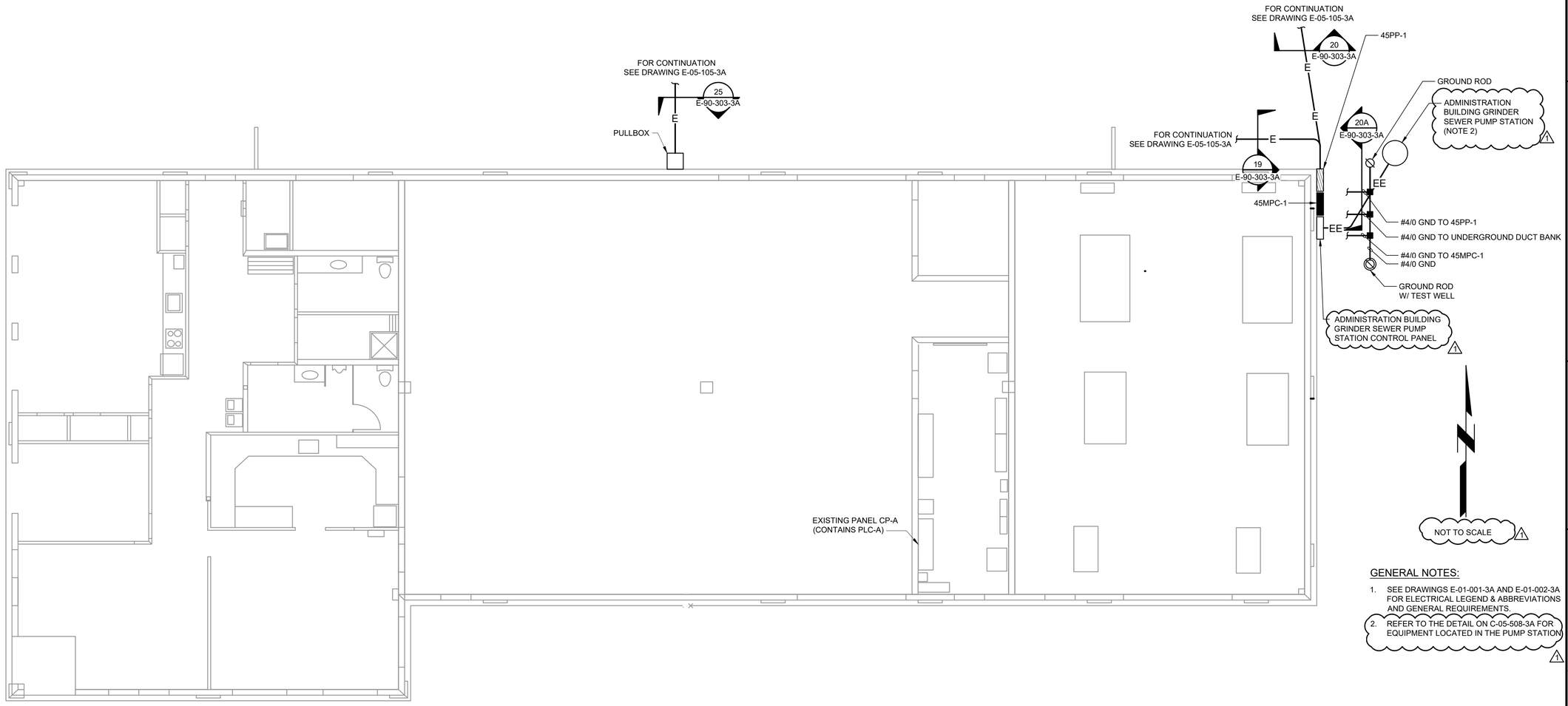
CIVIL SITE

CIVIL

MISCELLANEOUS DETAILS 2

C-05-508-3A

45 OF 144



GENERAL NOTES:

1. SEE DRAWINGS E-01-001-3A AND E-01-002-3A FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.
2. REFER TO THE DETAIL ON C-05-508-3A FOR EQUIPMENT LOCATED IN THE PUMP STATION

1

(SCALE BAR IS 4" AT FULL SCALE) 0 1/2 1 2 3 4

BLACK & VEATCH

Black & Veatch Corporation
Atlanta, Georgia

FORSYTH COUNTY
DEPARTMENT OF
WATER AND SEWER

ANTIOCH WTP
EXPANSION
PHASE 3A

1	05/2023	ADDENDUM 4

REVISIONS AND RECORD OF ISSUE

DESIGNED:	DJK
DETAILED:	CMP
CHECKED:	MAR
APPROVED:	JJ
DATE:	MARCH 2023
PROJECT NO.:	408049

ADMINISTRATION BUILDING

ELECTRICAL

ADMINISTRATION BUILDING POWER PLAN

E-60-101-3A

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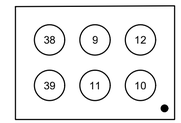

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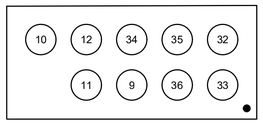

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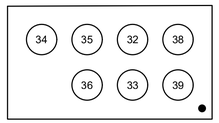

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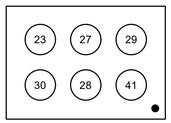

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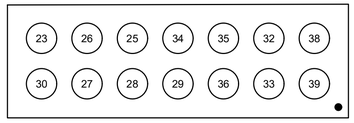

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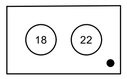

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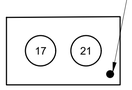

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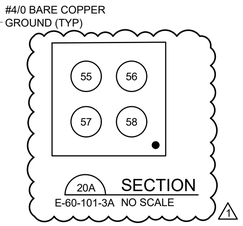

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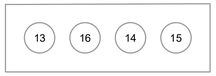

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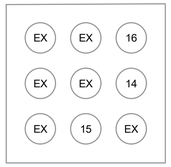

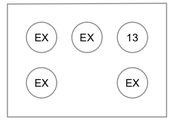

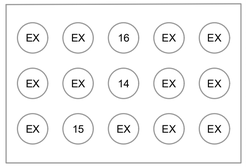

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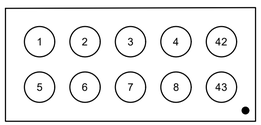

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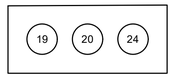

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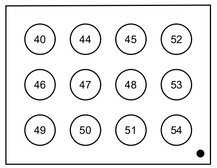

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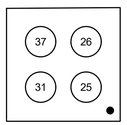

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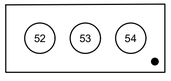

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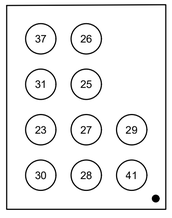

18 SECTION
E-05-103-3A NO SCALE

DUCTBANK SECTIONS AND SCHEDULE
NO SCALE

DUCT BANK SCHEDULE

COND. NO.	SIZE	CIRCUIT NUMBER	REMARKS	
1	2"	56MCC1-1A	GRAVITY THICKENER PUMP STATION TO MEMBRANE BACKWASH BASIN	P
2	2"	56MCC1-2A	GRAVITY THICKENER PUMP STATION TO MEMBRANE BACKWASH BASIN	P
3	2"	56MCC1-3A	GRAVITY THICKENER PUMP STATION TO MEMBRANE BACKWASH BASIN	P
4	2"	56MCC1-4A	GRAVITY THICKENER PUMP STATION TO MEMBRANE BACKWASH BASIN	P
5	2"	LCP50031-1,LCP50031-2,LCP50032-1,LCP50032-2	GRAVITY THICKENER PUMP STATION TO MEMBRANE BACKWASH BASIN	C
6	2"	56LP1-30,56LP1-32	GRAVITY THICKENER PUMP STATION TO MEMBRANE BACKWASH BASIN	P
7	2"	56LP1-31,56LP1-33	GRAVITY THICKENER PUMP STATION TO MEMBRANE BACKWASH BASIN	P
8	2"	PLCH-9,PLCH-10	GRAVITY THICKENER PUMP STATION TO MEMBRANE BACKWASH BASIN	C
9	2"	25PP1-6, 25PP1-7	FILTER BUILDING POWER PANEL TO SLUDGE WETWELL AFD'S	P
10	2"	25MPC1-6	FILTER BUILDING MPC TO SLUDGE WETWELL LIT'S	P
11	2"	PLCB-2, PLCB-4, PLCB-5, PLCB-6	FILTER BUILDING PLC-B TO FILTER BACKWASH RECOVERY BASIN 120V PULLBOX	-
12	2"	PLCB-1, PLCB-3	FILTER BUILDING PLC-B TO FILTER BACKWASH RECOVERY BASIN 120V PULLBOX	C
13	4"	36MVSG-1	HIGH SERVICE PUMP STATION ELECTRICAL BUILDING NO. 2 AFD-33-01-8 TO P-33-01-8	P
14	2"	AFD-33-01-8-4	P-33-01-8 MOTOR RTDS TO AFD-33-01-8	P
15	1"	AFD-33-01-8-3	P-33-01-8 VIBRATION TRANSMITTER TO CP-G	C
16	1-1/2"	AFD-33-01-8-5, AFD-33-01-8-11	P-33-01-8 TO AFD-33-01-8, P-33-01-8(VT) TO AFD-33-01-8	P
17	2"	MCC1B-1	MCC-1B TO 45PP-1	C
18	2"	45MPC1-1	45MPC-1 TO CHEMICAL STORAGE AREA EQUIPMENT LIT-40-01-2	P
19	2"	PLCA-2	PLC-A TO CHEMICAL STORAGE AREA ABOVE GROUND PULLBOX	-
20	2"	PLCA-1	PLC-A TO CHEMICAL STORAGE AREA ABOVE GROUND PULLBOX	C
21	2"	SPARE CONDUIT WITH PULLSTRING	HIGH SERVICE PUMP STATION ELECTRICAL BUILDING NO. 1 PULLBOX TO 45PP-1	-
22	2"	SPARE CONDUIT WITH PULLSTRING	45MPC-1 TO CHEMICAL STORAGE AREA	-
23	2"	SPARE CONDUIT WITH PULLSTRING	PLC-E TO MEMBRANE BACKWASH RECOVERY BASIN	-
24	2"	SPARE CONDUIT WITH PULLSTRING	PLC-A TO CHEMICAL STORAGE AREA ABOVE GROUND PULLBOX	-
25	2"	PLCE-2	PLC-E TO CP-50-04-1	C
26	2"	20LP3A-7	20LP-3A TO CP-50-04-1	P
27	2"	SPARE CONDUIT WITH PULLSTRING	MEMBRANE BUILDING 120V PULLBOX TO MEMBRANE BACKWASH RECOVERY BASIN 120V PULLBOX	-
28	2"	SPARE CONDUIT WITH PULLSTRING	MEMBRANE BUILDING 480V PULLBOX TO MEMBRANE BACKWASH RECOVERY BASIN 480V PULLBOX	-
29	2"	20PP2-2, 20PP2-3	20PP-2 TO FV-50-04-1, 20PP-2 TO FV-50-04-3	P
30	2"	SPARE CONDUIT WITH PULLSTRING	MEMBRANE BUILDING TO MEMBRANE BACKWASH RECOVERY BASIN	-
31	2"	SPARE CONDUIT WITH PULLSTRING	MH-1 TO MEMBRANE BACKWASH RECOVERY BASIN	-
32	2"	PLCE-1	PLC-E TO CP-11-06-1	C
33	2"	20LP3A-9	20LP-3A TO CP-11-06-1	P
34	2"	SPARE CONDUIT WITH PULLSTRING	MEMBRANE BUILDING 120V PULLBOX TO FILTER BACKWASH EQUALIZATION BASIN 120V PULLBOX	-
35	2"	SPARE CONDUIT WITH PULLSTRING	MEMBRANE BUILDING 480V PULLBOX TO FILTER BACKWASH EQUALIZATION BASIN 480V PULLBOX	-
36	2"	20PP1-2, 20PP1-3	20PP-1 TO FV-11-06-1, 20PP-1 TO FV-11-06-3	P
37	2"	SPARE CONDUIT WITH PULLSTRING	MH-1 TO MEMBRANE BACKWASH RECOVERY BASIN	-
38	2"	20PP1-1	20PP1 TO 25PP-1	P
39	2"	SPARE CONDUIT WITH PULLSTRING	MEMBRANE BUILDING 480V PULLBOX TO FILTER GALLERY	-
40	2"	20MCC-3-1	20MCC-3 TO M-10-03-1	P
41	2"	SPARE CONDUIT WITH PULLSTRING	MEMBRANE BUILDING 120V PULLBOX TO MEMBRANE BACKWASH RECOVERY BASIN 120V PULLBOX	-
42	2"	SPARE CONDUIT WITH PULLSTRING	GRAVITY THICKENER PUMP STATION TO MEMBRANE BACKWASH BASIN	-
43	2"	SPARE CONDUIT WITH PULLSTRING	GRAVITY THICKENER PUMP STATION TO MEMBRANE BACKWASH BASIN	-
44	2"	20MCC-3-2	20MCC-3 TO M-10-03-2	P
45	2"	20MCC-3-3	20MCC-3 TO M-10-03-3	P
46	2"	20LP3A-1, 20LP3A-3	20LP3-A TO CP-10-4-3, 20LP3-A TO CP-10-3	P
47	2"	SPARE CONDUIT WITH PULLSTRING	MEMBRANE BUILDING 480V PULLBOX TO FLOCC/SED BASIN	-
48	2"	CP-10-4-3, CP-10-3	CP-10-4-3 TO EXISTING CP-E, CP-10-3 TO EXISTING CP-E	C
49	2"	CP-10-3-3	CP-10-3 TO EXISTING CP-E	C
50	2"	SPARE CONDUIT WITH PULLSTRING	MEMBRANE BUILDING 480V PULLBOX TO FLOCC/SED BASIN	-
51	2"	SPARE CONDUIT WITH PULLSTRING	MEMBRANE BUILDING 120V PULLBOX TO FLOCC/SED BASIN	-
52	2"	PLCE-3	MEMBRANE BUILDING TO FLOW CONTROL VAULT	C
53	2"	20LP3A-11, 20LP3A-13	MEMBRANE BUILDING TO FLOW CONTROL VAULT	P
54	2"	SPARE CONDUIT WITH PULLSTRING	MEMBRANE BUILDING TO FLOW CONTROL VAULT	-
55	2"	ABSPS-1	ADMIN BLDG GRINDER PS CONTROL PANEL TO GRINDER PUMP STATION	P
56	2"	ABSPS-2	ADMIN BLDG GRINDER PS CONTROL PANEL TO GRINDER PUMP STATION	P
57	2"	ABSPS-3	ADMIN BLDG GRINDER PS CONTROL PANEL TO GRINDER PUMP STATION	C
58	2"	SPARE CONDUIT WITH PULLSTRING	ADMIN BLDG GRINDER PS CONTROL PANEL TO GRINDER PUMP STATION	-
EX	--	EXISTING CONDUIT	PREVIOUSLY UTILIZED EXISTING CONDUIT IN EXISTING DUCTBANK	-

1

GENERAL NOTES:

1. SEE DRAWINGS E-01-001-3A AND E-01-002-3A FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.
2. #4/0 BARE COPPER GROUND SHALL BE ROUTED IN DUCTBANK. GROUND SHALL BE BONDED TO GROUNDING SYSTEM AT THE END OF DUCTBANK.

(SCALE BAR IS 4" AT FULL SCALE) 0 1/2 1 2 3 4

BLACK & VEATCH
Black & Veatch Corporation
Atlanta, Georgia

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER

ANTIOCH WTP EXPANSION PHASE 3A

1	05/2023	ADDENDUM 4

REVISIONS AND RECORD OF ISSUE

DESIGNED:	DJK
DETAILED:	CMP
CHECKED:	MAR
APPROVED:	JJ
DATE:	MARCH 2023
PROJECT NO.:	408049

DETAILS

ELECTRICAL

DUCTBANK SECTIONS AND SCHEDULES

E-90-303-3A

77 OF 144

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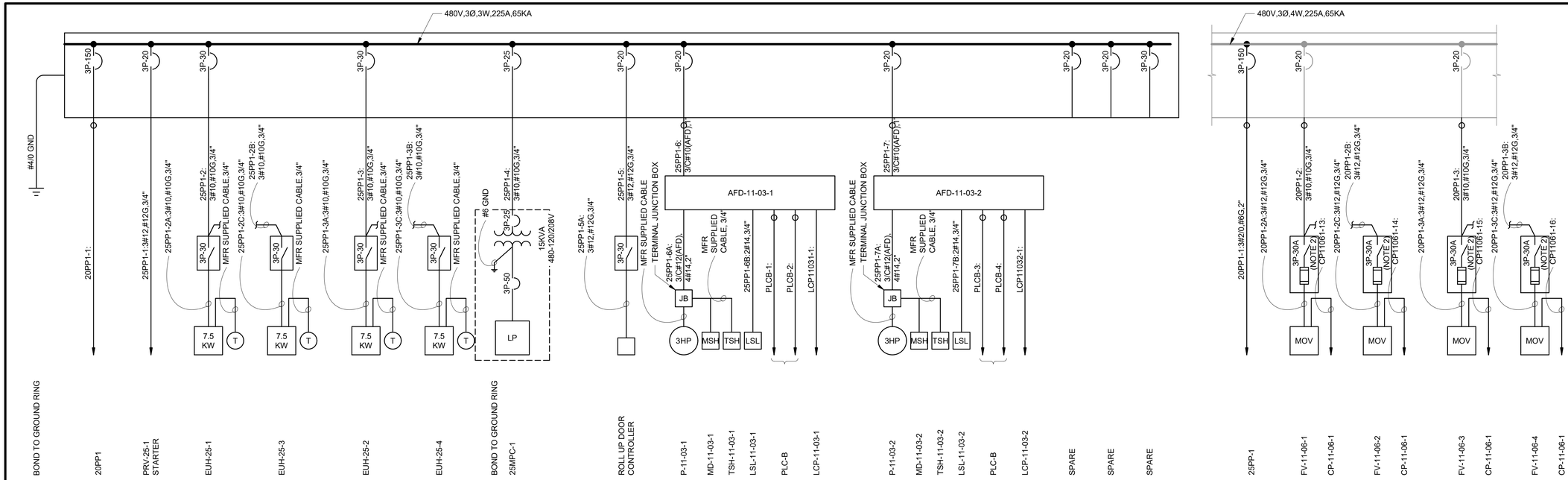
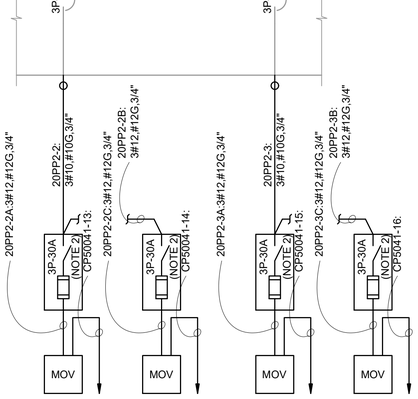
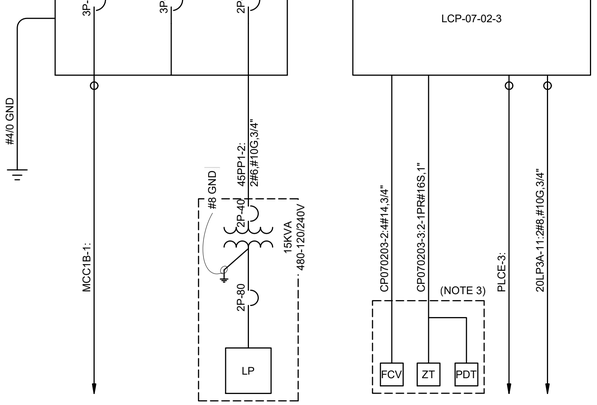


25PP-1 ONE-LINE DIAGRAM
(FILTER GALLERY)

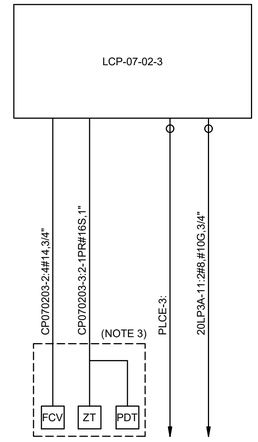
EXISTING 20PP1 PARTIAL ONE-LINE DIAGRAM
(MEMBRANE BUILDING)



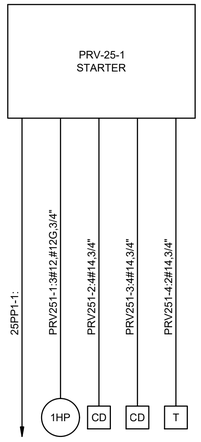
EXISTING 20PP2 PARTIAL ONE-LINE DIAGRAM
(MEMBRANE BUILDING)



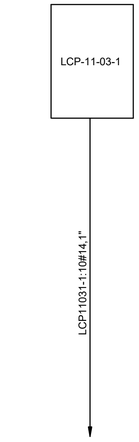
45PP1 ONE-LINE DIAGRAM
(ADMINISTRATION BUILDING)



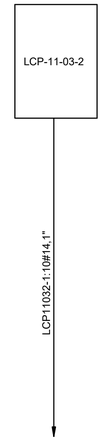
LCP-07-02-03 ONE-LINE DIAGRAM
(NEW FLOW CONTROL VAULT)



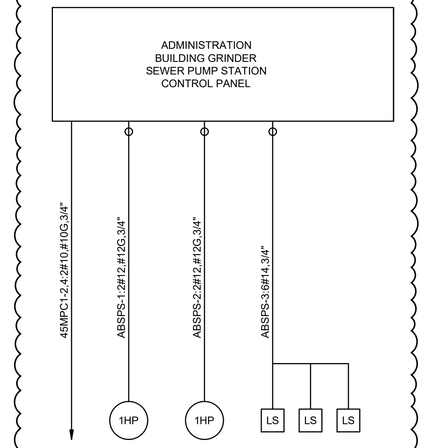
PRV-25-1 STARTER ONE-LINE DIAGRAM
(FILTER GALLERY)



LCP-11-03-1 ONE-LINE DIAGRAM
(FILTER BACKWASH RECOVERY BASIN)



LCP-11-03-2 ONE-LINE DIAGRAM
(FILTER BACKWASH RECOVERY BASIN)



ADMINISTRATION BUILDING GRINDER SEWER PUMP STATION ONE-LINE DIAGRAM
(ADMINISTRATION BUILDING)

GENERAL NOTES:

1. SEE DRAWINGS E-01-001-3A AND E-01-002-3A FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.
2. FUSE SIZE FOR MOTOR ACTUATORS SHALL BE AS RECOMMENDED BY ACTUATOR MANUFACTURER.
3. ZT-07-02-3 AND PDT-7-02-3 ARE INTEGRAL TO VALVE FCV-07-02-3.

(SCALE BAR IS 4" AT FULL SCALE) 0 1/2 1 2 3 4

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FILE: C:\PW_WORKING\BVW_AMERICAS\D1595439408049-E-90-609-3A.DWG
PT1000
D1000

BLACK & VEATCH
Black & Veatch Corporation
Atlanta, Georgia

FORSYTH COUNTY, GEORGIA

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER

ANTIOCH WTP EXPANSION PHASE 3A

1	05/2023	ADDENDUM 4
REVISIONS AND RECORD OF ISSUE		

DESIGNED:	DJK
DETAILED:	CMP
CHECKED:	MAR
APPROVED:	JJ
DATE:	MARCH 2023
PROJECT NO.:	408049

DETAILS

ELECTRICAL

MISCELLANEOUS ONE-LINE DIAGRAMS

E-90-609-3A

56 OF 144

PHASE		PANELBOARD: 45MPC-1	BUS: COPPER				MAINS: 2P-80A MAIN BREAKER		PHASE	
"L1"	"L2"	SERVICE: 120/240V, 1PH, 3W, S/N	RATING: 80A				LOCATION: ADMINISTRATION BUILDING		"L1"	"L2"
V.A.	V.A.	MOUNTING: SURFACE					PUMP STATION		V.A.	V.A.
		LOAD	P	BKR	CKT #		LOAD	P	V.A.	V.A.
150		LIT-40-01-2	1	20	1 2	20	ADMIN BLDG GRINDER SEWER PS CP	2	800	
	-	SPARE	1	20	3 4					800
-		SPARE	1	20	5 6	20	SPARE	1	-	
	-	SPARE	1	20	7 8	20	SPARE	1		-
		SPACE	1		9 10		SPACE	1		
		SPACE	1		11 12		SPACE	1		
		SPACE	1		13 14		SPACE	1		
		SPACE	1		15 16		SPACE	1		
		SPACE	1		17 18		SPACE	1		
		SPACE	1		19 20		SPACE	1		
		SPACE	1		21 22		SPACE	1		
		SPACE	1		23 24		SPACE	1		
150		TOTAL "L1"			950			TOTAL "L1"	800	
	0	TOTAL "L2"			800			TOTAL "L2"		800
		TOTAL LOAD =			1750					

1

45MPC-1 PANELBOARD SCHEDULE

NO SCALE

			PANELBOARD: 25MPC-1	BUS: COPPER				MAINS: 3P-50A MAIN BREAKER			
PHASE			SERVICE: 120/208V, 3PH, 4W, S/N	RATING: 100A				LOCATION: FILTER COMPLEX		PHASE	
"A"	"B"	"C"	MOUNTING: SURFACE							"A"	"B"	"C"
V.A.	V.A.	V.A.	LOAD	P	BKR	CKT #	BKR	P	LOAD	V.A.	V.A.	V.A.
200			LOWER LEVEL LIGHTS	1	20	1 2	20	1	LOWER LEVEL LIGHTS	250		
	125		WALKWAY LIGHTS	1	20	3 4	20	1	LOWER LEVEL RECEPTACLES		360	
		360	WALKWAY RECEPTACLES	1	20	5 6	20	1	LIT-11-03-1,LIT-11-03-2			300
500			DOOR CONTROLLER SCP-25-01	1	20	7 8	20	1	SPARE	-		
			SPACE	1		9 10		1	SPACE			
			SPACE	1		11 12		1	SPACE			
			SPACE	1		13 14		1	SPACE			
			SPACE	1		15 16		1	SPACE			
			SPACE	1		17 18		1	SPACE			
700			TOTAL "A"			950			TOTAL "A"	250		
	125		TOTAL "B"			485			TOTAL "B"		360	
		360	TOTAL "C"			660			TOTAL "C"			300
			TOTAL =			2095						

25MPC-1 PANELBOARD SCHEDULE

NO SCALE

			PANELBOARD: 56LP1	BUS: COPPER				MAINS: 3P-100A MAIN BREAKER			
PHASE			SERVICE: 120/208V, 3PH, 4W, S/N	RATING: 100A				LOCATION: THICKENED SLUDGE		PHASE	
"A"	"B"	"C"	MOUNTING: SURFACE					PUMP STATION ELECTRICAL ROOM		"A"	"B"	"C"
V.A.	V.A.	V.A.	LOAD	P	BKR	CKT #	BKR	P	LOAD	V.A.	V.A.	V.A.
700			TSPS UPPER LEVEL LIGHTING	1	20	1 2	20	1	TSPS LOWER LEVEL LIGHTS	600		
	400		TSPS UPPER LEVEL RECEPTACLES	1	20	3 4	20	1	TSPS LOWER LEVEL RECEPTACLES		500	
		500	PLC CP-H	1	20	5 6	20	1	SUMP PUMP P-56-09			500
400			LIT-55-01-1	1	20	7 8	20	1	FIT-56-02	400		
	400		FE/FIT-55-03	1	20	9 10	20	2	56-AHU-2		300	
		300	56-AHU-1	2	20	11 12	-	-	-			300
300			-	-	-	13 14	35	2	56-ACCU-1	2500		
	2500		56-ACCU-2	2	35	15 16	-	-	-		2500	
		2500	-	-	-	17 18	20	1	GRAVITY THICKENER 1 LIGHTS			400
500			CP-54-01	1	20	19 20	20	1	GRAVITY THICKENER 1 RECEPT	200		
			FUTURE GRAVITY THICKENER LIGHT	1	20	21 22	20	1	55HT-1		400	
			FUTURE GRAVITY THICKENER RECPT	1	20	23 24	20	1	55HT-2			400
400			55HT-4	1	20	25 26	20	1	55HT-3	400		
	400		TSPS EXTERIOR LIGHTS	1	20	27 28	20	1	TSPS EXTERIOR RECEPTACLES		400	
		500	SCP-56	1	20	29 30	20	1	LCP-50-03-1			150
50			LIT-50-03-1	1	20	31 32	20	1	LCP-50-03-2	150		
	50		LIT-50-03-2	1	20	33 34	20	1	SPARE			
			SPARE	1	20	35 36	20	1	SPARE			
			SPARE	1	20	37 38	20	1	SPARE			
			SPARE	1	20	39 40	20	1	SPARE			
			SPARE	1	20	41 42	20	1	SPARE			
2350			TOTAL "A"			6600			TOTAL "A"	4250		
	3750		TOTAL "B"			7850			TOTAL "B"		4100	
		3800	TOTAL "C"			5550			TOTAL "C"			1750
			TOTAL =			20000						

56LP1 PANELBOARD SCHEDULE

NO SCALE

GENERAL NOTE:

1. SEE DRAWINGS E-01-001-3A AND E-01-002-3A FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.

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FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER

ANTIOCH WTP EXPANSION PHASE 3A

1	05/2023	ADDENDUM 4

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DETAILED:	CMP
CHECKED:	MAR
APPROVED:	JJ
DATE:	MARCH 2023
PROJECT NO.:	408049

DETAILS

ELECTRICAL

PANELBOARD SCHEDULES

E-90-616-3A

PLOTTED: 5/25/2023 3:40:28 PM
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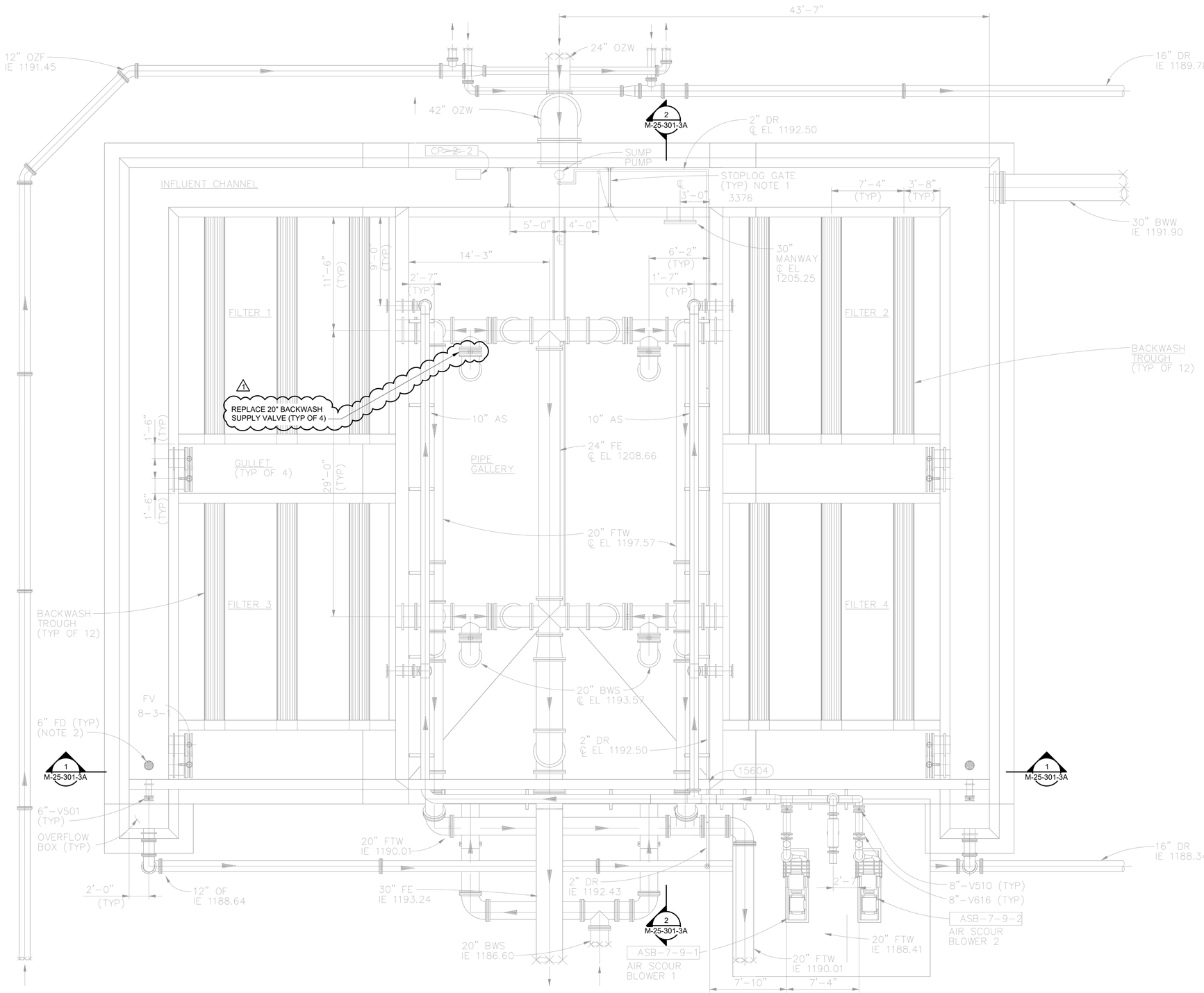
D11000
D11002

(SCALE BAR IS 4" AT FULL SCALE) 0 1/2 1 2 3 4



PLAN
3/16" = 1'-0"

NOTES:

1. EXISTING ELECTRICAL ACTUATORS TO BE REUSED.

6' 4' 2' 0 5' 10'
3/16"=1'-0"

(SCALE BAR IS 4" AT FULL SCALE) 0 1/2 1 2 3 4

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FT1100
FT1200
FT1002

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FORSYTH COUNTY
DEPARTMENT OF
WATER AND SEWER

ANTIOCH WTP
EXPANSION
PHASE 3A

1	05/2023	ADDENDUM 4

REVISIONS AND RECORD OF ISSUE

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CHECKED:	STM
APPROVED:	GVG
DATE:	MAY 2023
PROJECT NO.:	408049

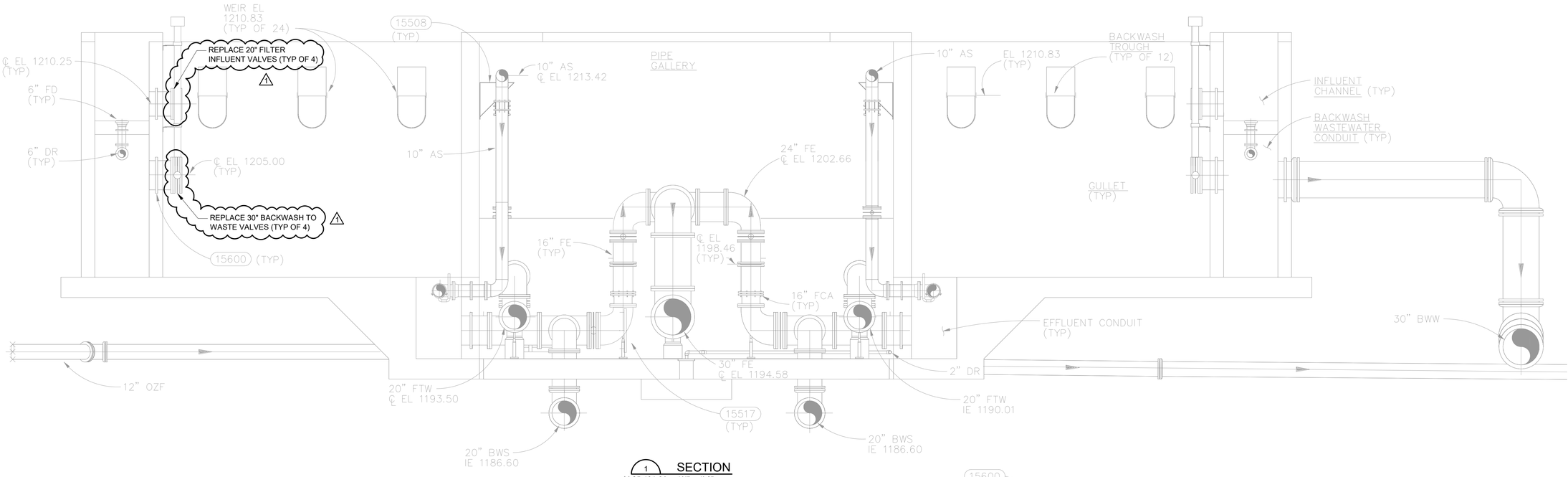
FILTER GALLERY

MECHANICAL

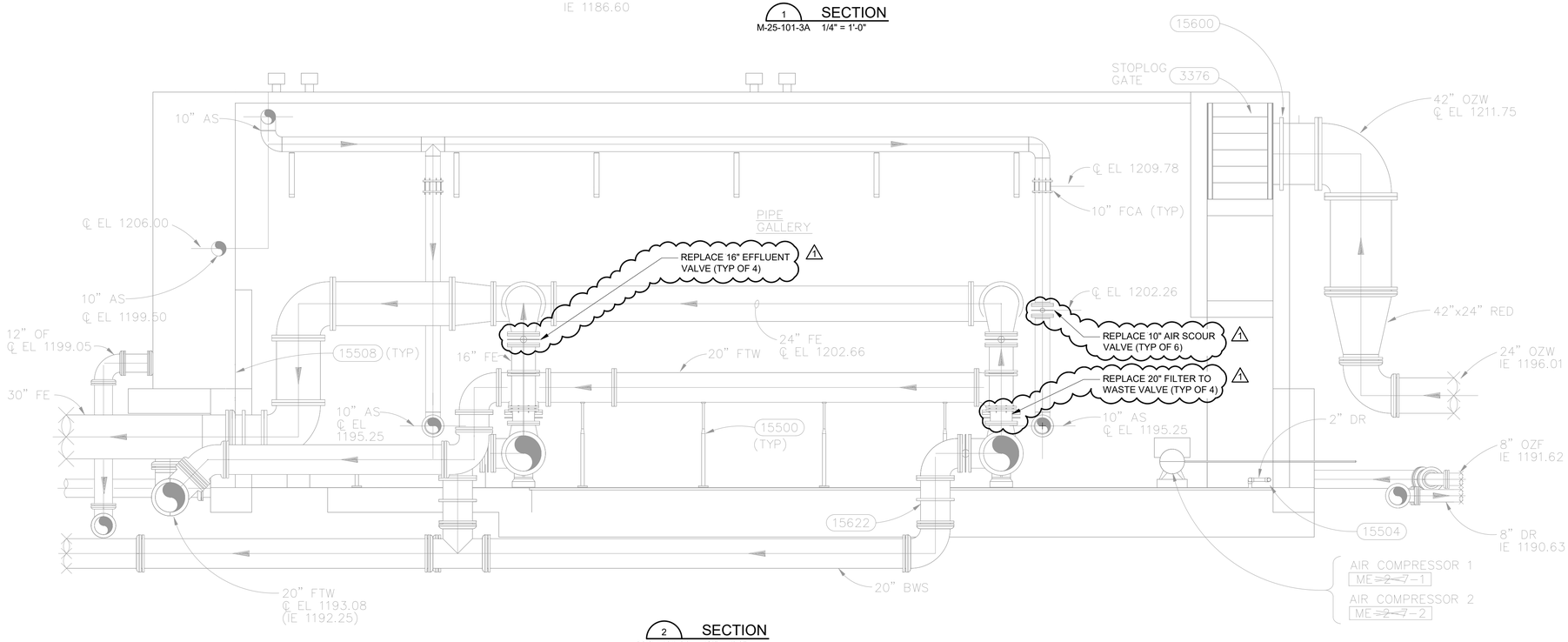
FILTER GALLERY
PLAN

M-25-101-3A

OF



1 SECTION
M-25-101-3A 1/4" = 1'-0"



2 SECTION
M-25-101-3A 1/4" = 1'-0"

NOTES:

1. EXISTING ELECTRICAL ACTUATORS TO BE REUSED.

4' 2' 0 4' 8'
1/4"=1'-0"

(SCALE BAR IS 4" AT FULL SCALE) 0 1/2 1 2 3 4

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FILE: C:\PW_WORKING\BVW_AMERICAS\D1600150\M-25-301-3A.DWG
FT1000
FD1004

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ANTIOCH WTP EXPANSION PHASE 3A

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FILTER GALLERY

MECHANICAL

FILTER GALLERY SECTIONS

M-25-301-3A

OF