



**STORMWATER POLLUTION CONTROL PLAN (SWPCP)
FOR
DURHAM MEADOWS WATER MAIN EXTENSION PROJECT
MIDDLETOWN, CT**

USACE CONTRACT NO. W912WJ19C0002

PREPARED ON BEHALF OF:
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NOTICE TO OWNER, CONTRACTORS, SUBCONTRACTORS

This document has been prepared in accordance with the State of Connecticut General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities as a preliminary Construction SWPCP document. Since the SWPCP is a living document, it will require consistent maintenance (updates) and additional information from the Permittee and contractors/subcontractors.

An updated copy of the SWPCP shall be maintained at the construction site from the date construction is initiated at the Site until the date construction at the site is completed. A project will be considered complete after the site has been stabilized for at least three months following the cessation of construction activities. A Site is not considered stabilized until there is no active erosion or sedimentation present and no disturbed areas remain exposed. The Permittee shall retain the SWPCP and all associated documentation and records for a period of at least five (5) years from the date of completion of construction. Inspection records must be retained for a period of five (5) years after the date of inspection.

A copy of the CGP and associated forms is included as an Appendix to this document.

This SWPCP is meant to address the general requirements of the permit and to present a framework for the Contractor to utilize for compliance. Site specific information contained in this report is based on GZA review of the Project Plans and Specifications and information provided by the Contractor or Owner, unless otherwise stated. Erosion and sediment controls for the project were designed by Others. Additional erosion and sediment controls beyond those shown on the plans and indicated on the SWPCP may be required to address changing needs for the Site during construction activities. The controls shown in the SWPCP by GZA are a minimum of what will be required for permit compliance. The Permittee and their Contractor are solely responsible for permit compliance; GZA takes no responsibility for permit compliance by the applicable parties.

1 INTRODUCTION

This Stormwater Pollution Control Plan (SWPCP) has been prepared on behalf of Ludlow Construction Co., Inc. by GZA GeoEnvironmental, Inc. (GZA), for the Durham Meadows Water Main Extension Project, in the City of Middletown, Connecticut; see Figure 1 for a Locus Map, Figure 2 for a Layout Plan, and the Exhibits section for the Erosion and Sediment Control Plan.

1.1 PROJECT LOCATION

South Main Street (Route 17) and Talcott Ridge Drive
Middletown, CT
Middlesex County

Latitude: 41° 30' 09" N
Longitude: 72° 40' 24" W

The Site's latitude and longitude were determined using:

- ☐ USGS topographic map (specify scale: 1:24,000)
- ☐ EPA Web site
- ☐ GPS
- ☒ Other (specify): Google Earth

Horizontal Reference Datum:

- ☐ NAD 27
- ☒ NAD 83 or WGS 84

2 SCOPE OF WORK

The work under this Contract shall consist of a water line utility construction project, including the installation of water main and associated curb stops within the right of way on City of Middletown and State of Connecticut Roads, within the City of Middletown. A new meter vault, booster station, and water storage tank will also be constructed. The work is comprised of clearing and grubbing, construction of a new access road and water tank site, shallow trench excavation approximately 6 feet deep and 5 feet wide, installation of water main pipes, fittings, and valves, backfilling, clearing, grading, hot mix asphalt paving, pavement markings, landscape restoration, and other incidental items of work as listed in the project plans and specifications and as required to complete the work.

Additional detail regarding the linear water main and other areas is presented below:

Linear Project

The entire linear project includes about 7,500 linear feet of water main and several hundred feet of curb stop.

- Route 17 (South Main Street in Middletown): Approximately 2,800 linear feet of 16-inch water main will be installed from the current terminus of the existing City of Middletown water system at the intersection of South Main Street (Route 17) and Talcott Ridge Drive extending to the Durham/City of Middletown line.
- Tank Access Driveway (Middletown): Approximately 400 feet of new access road and 1,600 feet of improvements to the existing shared driveway. Approximately 1,300 feet of 20-inch water main will be installed from the water storage tank to the cul-de-sac where the shared driveway intersects with Talcott Ridge Drive.
- Talcott Ridge Drive (Middletown): Approximately, 2,700 feet of 16-inch water main to be installed in Talcott Ridge Drive from South Main Street to the cul-de-sac where the shared driveway to the water storage tank begins.
- Watch Hill Drive (Middletown): About 250 feet of 8-inch water main will be installed from the intersection with Watch Hill Drive and Talcott Ridge Drive for the portion of Watch Hill Drive Closest to South Main Street and about 430 feet of 8-inch water main for the portion of Watch Hill Drive Closest to the cul-de-sac.

Water Storage Tank

An 800,000 gallon water storage tank will be installed on an undeveloped, vegetated lot owned by the City of Middletown on Talcott Ridge Drive. The disturbed area will be about 1.6 acres at the water storage tank site. The trees will be cut, the area cleared and grubbed, and earthwork would occur to establish the grades for the tank foundation and access road. This area of the Middletown Project overlaps with areas that CT DEEP has identified as potential wood turtle (*Glyptemys insculpta*) habitat. Additional measures will also be taken to protect the wood turtle on the project site. Water storage tank and associated features, including the driveway, will occupy about 0.3 acres.

Access Driveway to Water Storage Tank

The disturbed area will be about 0.67 acres for the access driveway improvements. The trees will be cut, the area cleared and grubbed, and earthwork will occur to establish the grades for the tank foundation and access road. This area of the Middletown Project overlaps with areas that CT DEEP has identified as potential wood turtle (*Glyptemys insculpta*) habitat. Additional measures will also be taken to protect the wood turtle on the project site.

Meter Vault

The meter vault must be located at the municipal line to enable the City of Middletown to measure the quantity of water delivered to Durham for billing purposes. The meter vault also provides access for sampling the water quality. The project includes 1,160 square feet paving, a 385 square feet structure, and 5,900 square feet of clearing. All work will take place on the downgradient side of the existing wetland and stormwater basin, and will result in zero loss of wetlands.

Booster Station

A new booster station will be installed on a wooded portion of Connecticut Department of Transportation (CTDOT) property, to allow use of the existing 12-inch water main to feed the water tank. The City of Middletown will use an approximately 11,000 square foot portion of the 6-acre CTDOT property via an easement agreement. The booster station includes a 563 square feet structure; 2,640 square feet of newly paved area; and 13,800 square feet of clearing. The work will result in zero loss of wetlands.

2.1 SEQUENCE OF MAJOR ACTIVITIES

A general sequence for the project is described in the following sections. **The intended timing of these activities should be appended to the SWPCP by the Contractor to ensure completeness of this document. A form for this purpose is provided in Appendix A.** In addition, amendments to this sequence shall also be appended to the SWPCP by the Contractor as appropriate. **To the extent possible, the project shall be phased to avoid the disturbance of over five (5) acres at any one time. The Contractor should be aware that this is a specific requirement of the CGP.** Refer to Environmental Protection Plan for additional requirements related to the project sequence.

- Mobilization.
- Installation of temporary erosion and sedimentation control measures¹.

¹ Any downgradient sediment controls must be installed and made operational by the time earth-disturbing activities in any given portion of the site have begun, or immediately following the initial earth disturbance if it is infeasible to install the controls prior to earth disturbance. All controls must be installed in accordance with good engineering practices and following the manufacturer's specifications, and any departures from the specifications must be documented in the SWPCP.

- Operational date of temporary erosion and sedimentation control measures.
- Selective demolition.
- Clearing and grubbing as needed.
- Site preparation.
- Trenching for water line installation.
- Creation of soil and vegetation stockpiles.
- Installation of water line and associated utilities.
- Backfilling.
- Paving and surfacing.
- Temporary or final stabilization of exposed soil.
- Seeding and landscaping.
- Removal of temporary erosion and sedimentation controls upon final stabilization of disturbed areas.
- Cessation of construction activities on the Site, either temporarily or permanently.

2.2 ESTIMATES OF DISTURBED AREA

TOTAL SITE AREA: 3.5 acres

DISTURBED SITE AREA: 3.5 acres

2.3 LOCUS MAP / SITE PLAN / EROSION AND SEDIMENT CONTROL PLAN

A locus map is attached as Figure 1 of this SWPCP. The Site Plan / Erosion and Sediment Control Plan is included in the Exhibits section. Erosion and Sediment Control Plans are integrated with the Project Plans and are included by reference to this document. A reduced size set showing the utility layout plans for the project with erosion and sediment controls added, as well as selected detail sheets are included as Exhibits. Due to the complexity of the project and its linear nature, it was impractical to have a single sheet, but BMPs are included

throughout the plan set and detail sheets. The Site Plan / Erosion and Sediment Control Plan illustrates drainage patterns and approximate extent of post-grading slopes, areas and limits of soil disturbance, locations of major structural and non-structural controls, locations of stabilization practices, areas which will be vegetated following construction, locations of stormwater discharges to surface waters (both during and post-construction and including monitored outfalls), and identifies surface waters, impaired waters and TMDLs, high quality waters, and inland, tidal, and fresh-tidal wetlands.



3 SITE DESCRIPTION

3.1 RECEIVING WATERS AND WETLANDS

3.1.1 Receiving Waters

The Project Site is within the subregional drainage basins for Sumner Brook and the Coginchaug River. The first surface water(s) receiving discharge of stormwater from the Site include:

- Wetlands tributary to Long Hill Brook (tributary to Sumner Brook)
- Wetlands tributary to Laurel Brook (tributary to Coginchaug River)

The Coginchaug River is impaired and is included within the Mattabesset River Regional Basin E.coli TMDL and the CT Statewide Bacteria TMDL.

Sumner Brook is impaired. There are no TMDL's for Sumner Brook.

3.1.2 Wetlands

Wetland field surveys were conducted by an AECOM Certified Professional Soil Scientist, as documented in Appendix C of the Basis of Design Report – Durham Waterline Remedial Design, Durham Meadows Superfund Site, May 2018 (BOD Report). AECOM identified any wetlands and watercourses observed within 150 feet of the project route where access could be attained. A total of three (3) wetlands and two (2) watercourses were delineated along the project route in Middletown. Copies of the wetland maps from the BOD Report are provided in the Exhibits section of this document.

Wetland – W10 and Streams – MDS1 and MDS2 are located on the Middletown/Durham town line. Wetland 10 is located on the proposed Meter Station site. The NRCS maps this area as a somewhat excessively drained Hartford sandy loam; however the area has been deeply excavated possibly to serve as a detention/retention pond for stormwater from the adjacent residential subdivision.

Wetland – W1 demarcates wetlands associated with a small hillside seep containing three small intermittent watercourses which eventually form into one main intermittent stream. This intermittent watercourse flows down slope in a northeasterly direction, crossing the existing access route/gravel driveway out to the Tank Site, and into a larger wetland system which serves as headwaters to Long Hill Brook. The NRCS maps much of this area as well drained Wethersfield loam, which is consistent with findings in

upland areas adjacent to this hillside seep. Soils in the lower section are mapped as extremely stony, poorly drained Wilbraham silt loam and the very poorly drained Menlo muck soils. Observations were more consistent with the Wilbraham silt loam mapping unit, located at the upper end of this wetland system. The soils are derived from a reddish parent material and tended to have a hue of 5YR and 7.5YR, which is typical of soils found in this area.

Wetland – SMW1 is located on the proposed Water Booster Station site directly across from the end of Talcott Ridge Road. The NRCS maps indicate a moderately well drained Ellington silt loam soil present on this parcel however; field indicators suggest poorly drained conditions throughout much of the central portion of the site. The primary source of hydrology appears to be from one stormwater culvert located along South Main Street that empties into this area.

Two unflagged wetlands were identified by AECOM at the Durham/Middletown/Middlefield town line.

3.1.3 Floodplains and Riparian Buffers

The proposed water main alignment does not cross Special Flood Hazard Area Zone AE (area subject to flooding by the 1% annual chance flood), as indicated by the Flood Insurance Rate Map (FIRM) for Middlesex County, Connecticut (FEMA, effective date August 28, 2008).

3.2 THREATENED AND ENDANGERED SPECIES

AECOM corresponded with Connecticut DEEP regarding the Natural Diversity Data Base (NDDB) on several occasions during the project design to identify habitat mapping updates in the project areas as necessary. Based on the latest correspondence dated March 8, 2016, March 12, 2016 and July 28th, 2017 for work areas in Middletown and Durham, NDDB identified portions of Maple Avenue, Old Cemetery Road and small areas on Talcott Lane and Main Street (SR-17) that are located in environmentally sensitive areas. In addition, a species of special concern (Wood Turtle, *Glyptemys insculpta*) is indicated in the several areas within the project. In Middletown, these areas include:

- off the access driveway to the Cherry Hill Tank off Talcott Ridge Drive,

The letters and attachments noted above are included in Appendix D.

Based on the NDDB response, the following BMPs shall be used in the construction of the project to the extent possible: Recommendations for protection of these rare species habitats include the following:

- Silt fencing shall be installed around work areas prior to construction where applicable to exclude Wood Turtles from the work area. The use of erosion control products that are embedded with netting shall not be used since these can snare turtles.
- To protect wood turtles, silt fencing shall be used around stockpiles of dirt to exclude them from nesting. Nesting season is in early spring and late summer.
- Vehicles and machinery shall not be parked in turtle habitat. Turtle habitat includes wetlands and undisturbed forest floor.
- Any turtles discovered shall be moved to an appropriate area as outlined in the NDDDB recommendations.
- A subsequent NDDDB request shall be submitted if construction has not begun on this project by July 28th, 2019.
- Special care shall be taken for work conducted during early morning and evening hours so as not to harm basking or foraging individuals.

All construction shall be limited to the smallest practicable area to minimize impacts to the habitats of fauna which utilize the area for nesting and feeding including those mentioned above.

3.3 HISTORIC PROPERTIES

A historical and archaeological evaluation was performed to assess potential impacts on cultural resources within the Middletown Project area, as required by the Section 106 of the National Historic Preservation Act (NHPA). A historical effects evaluation was conducted in 2015 and 2016 to identify historically significant architectural resources and to analyze the effects of the project on those resources. A Section 106 Finding Documentation Report, which identified the resources along with measures to mitigate potential impacts, was submitted to the Connecticut State Historic Preservation Officer (CT SHPO) in March 2016.

A Phase 1A Archaeological Assessment was completed to determine the potential for encountering National Register-eligible archaeological resources in areas where subsurface disturbance will occur as a result of project actions. Proposed locations within the Middletown Project area were identified for further evaluation. The report was submitted to the CT SHPO in April 2016, and CT SHPO concurrence was received on May 3, 2016. A Phase 1B Archaeological reconnaissance Survey, which involved a shovel test pit survey, was conducted between November 2015 and January 2018. A report summarizing the results was submitted to the CT SHPO in January 2018 for review and approved by the CTSHPO on May 2, 2018. The report concluded that the project will have No Effect on NRHP eligible archaeological resources. The CT SHPO approval letter is included in Appendix E of the Basis of Design Report (AECOM, May 2018).

3.4 EXISTING SOILS

Based on a review of the USDA Soil Survey of Middlesex County, Connecticut, onsite soils are primarily sandy loams and loams, as shown in Appendix E.

3.5 AQUIFER PROTECTION AREAS

There are no Aquifer Protection Areas within the project area in Middletown.

4 CONTROLS

Controls shall be in accordance with the project plans and specifications and the City of Middletown Erosion and Sedimentation Control Guidelines, compliance agreement and the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*, as amended (the Guidelines), the *Stormwater Quality Manual*, or the DOT Qualified Products List (http://www.ct.gov/dot/lib/dot/documents/dresearch/conndot_qpl.pdf).

4.1 SITE MANAGEMENT

4.1.1 Minimize Soil Compaction

In areas of the Site where final vegetative stabilization will occur or where infiltration practices will be installed, vehicle and equipment use shall be restricted to the extent practicable to avoid over compacting soil. Should over-compaction occur in these areas, techniques to condition the soils to support vegetative growth shall be applied prior to seeding or planting areas.

4.1.2 Dewatering Wastewaters

The discharge of turbid groundwater or accumulated stormwater that is removed from excavations, trenches, foundations, vaults, or other similar points of accumulation is prohibited, unless such waters are first effectively managed by appropriate controls in accordance with the Guidelines. Discharge of dewatering wastewaters directly to drainage systems, wetlands, watercourses, or water bodies is prohibited.

Dewatering wastewaters discharged to surface waters after treatment shall be discharged in a manner that minimizes the discoloration of the receiving waters and no discharge of dewatering wastewater(s) shall contain or cause a visible oil sheen, floating solids, or foaming in the receiving water.

Operational and structural measures shall be used to ensure that dewatering wastewaters will not cause scouring or erosion or contain suspended solids in amounts that could reasonably be expected to cause pollution of surface waters of the State. Such measures may include, but are not limited to, sediment basins or traps, sediment socks, dewatering tanks, tube settlers, weir tanks, and/or filtration systems that are designed to remove sediment. Dewatering measures shall be installed on upland soils.

Dewatering wastewaters shall be discharged to a sediment trap with a suitable velocity dissipation device, as shown on the Erosion and Sediment Control Details Plan, included in the Exhibits.

4.2 EROSION AND SEDIMENTATION CONTROLS

The primary activities occurring onsite are clearing and grubbing, shallow trench excavation approximately 6 feet deep and 5 feet wide, installation of water main pipes, fittings, and valves, backfilling, clearing, grading, hot mix asphalt paving, pavement markings, landscape restoration, and other incidental items of work as listed in the project plans and specifications and as required to complete the work. Controls for these activities are addressed in the following sections based on information provided by the project designer in the project plans and specifications. GZA has not modified the controls and was not involved in the design process. GZA was contracted to prepare a SWPCP based on the controls designed by others. These controls, their implementation and specific requirements will also be discussed in the project plans and specifications.

Erosion and sedimentation measures shall be in place prior to commencement of construction activities and shall be maintained until all disturbed areas have been permanently stabilized. Stockpiling of construction materials within 100 ft of waterways is prohibited.

The Contractor is responsible for inspecting, maintaining, modifying, or introducing structural controls such that sediment shall be prevented from migrating off of the Site into adjoining properties or nearby waterbodies. Temporary excavations, embankments, stockpiles and other soil disturbing activities shall be controlled in such a manner as to protect adjacent areas. The Contractor is responsible for the installation, maintenance, repair, and ultimate removal of these controls, with the exception of any permanent erosion control measures (e.g., erosion control matting) which will remain in place after the conclusion of the project. The Contractor is also responsible for the ultimate stabilization of disturbed areas associated with these controls.

Should additional or modified erosion control and stabilization measures be necessary or desirable to control the transport of pollutants from the Project Site via stormwater, **the Contractor shall provide, install, maintain and inspect additional controls as needed.** For additional information on stormwater pollution controls for construction activities, the Contractor is directed to the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* (the Guidelines), as amended. GZA takes no responsibility for the selection, design, or application of such controls.

4.2.1 Stabilization Practices

In general, stabilization practices may include but are not limited to:

- Temporary seeding,
- Permanent seeding,
- Mulching,
- Geotextiles,
- Sod stabilization,

- Vegetative buffer strips,
- Protection of trees,
- Preservation of mature vegetation, and
- Other vegetative and non-structural measures as may be identified by the Guidelines.

Temporary Stabilization: Areas that will remain disturbed but inactive for at least thirty days shall receive temporary seeding or soil protection within seven (7) days in accordance with the Guidelines. Areas that will remain disturbed beyond the seeding season as identified in the Guidelines, shall receive long-term, non- vegetative stabilization and protection sufficient to protect those portions of the Site through the winter. All material stockpiles areas shall be protected with sediment control fence or hay bales.

Long term and winter stabilization will conform to the provisions of the Best Management Practice (BMP), CT DOT Standards Specifications and Guidelines.

Permanent Stabilization: Where construction activities have permanently ceased or when final grades are reached in any portion of the Site, stabilization and protection practices as specified in Chapter 5 of the Guidelines shall be implemented within seven (7) days.

Areas to be graded with slopes steeper than 3 Horizontal to 1 Vertical (3H:1V) and higher than 15 feet shall be graded with appropriate reverse slope benches, except when engineered slope stabilization structures or measures are included or a detailed soil mechanics analysis has been conducted to verify stability. Engineered analyses and measures must be designed by a CT licensed Professional Engineer with experience in geotechnical engineering or soil mechanics.

Once final stabilization of any portion of the Site is achieved, the Contractor may mark this area as “final stabilized” on the S&ECP and no further SWPCP or inspection requirements will apply to that portion of the Site, other than the requirements found in the CGP and repeated in Section 5 of this SWPCP.

Disturbed portions of the Site shall be stabilized by restoring surfaces to match pre-construction condition, except where new structures, paving, or landscaped areas is being installed. Temporary erosion control matting shall be provided on all slopes steeper than 5H:1V.

All post-construction stormwater structures shall be cleaned of construction sediment and remaining silt fence shall be removed upon stabilization of the Site.

4.2.2 Structural Controls

Structural practices to divert flows away from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from the Site may include but are not limited to:

- Earth dikes (diversions),
- Drainage swales,
- Sediment traps,
- Check dams,
- Subsurface drains,
- Pipe slope drains,
- Level spreaders,
- Storm drain inlet protection,
- Outlet protection,
- Reinforced soils retained systems,
- Gabions, and
- Temporary or permanent sediment basins and chambers.

Structural measures shall be installed on upland soils.

The primary structural control BMP(s) shall be erosion control barrier (silt fence) located upgradient of wetland resource areas as shown on the Project plans included in the Exhibits section, and compost silt socks, sediment filter bags, and sediment traps. In conjunction with the silt fence, all existing and new catch basins shall be protected. Catch basins shall have “Dandy Sacks” or other equivalent erosion control measure installed before construction starts. “Dandy Sacks” or equivalent shall remain in place until the area draining to the catch basin is completely paved or otherwise stabilized. They shall be maintained periodically, as noted in regular inspections of the Site.

The Contractor is responsible for inspecting, maintaining, modifying, or introducing structural controls such that all sediment shall be prevented from migrating off of the Site onto adjoining properties or into nearby waterbodies. Any modification, removal or addition of structural controls must be marked on the Erosion and Sediment Control Plan by the Contractor. The structural controls shall be implemented to divert flows from exposed soils, retain flows, or limit runoff from exposed areas.

Perimeter Controls: Sediment controls, such as filter berms, silt socks, silt fences, staked straw bale barriers, and temporary diversion dikes shall be installed along the perimeter areas of the site that will receive stormwater runoff from earth disturbing activities. Controls shall be maintained by removing sediment before it has accumulated to one-half of the above-ground height of the perimeter control.

Stabilized Construction Entrance/Exit: A temporary stabilized construction entrance shall be installed where applicable on the project prior to all points that exit onto paved roads so that sediment removal occurs prior to vehicle exit. The purpose of the construction entrance is to remove soil attached to vehicle tires and minimize its transport and deposition onto public road surfaces. The construction entrance shall

consist of turf mats or be composed of a 6-inch thick (minimum) bed of crushed stone that extends a minimum length of 50 feet and a minimum width of 25 feet. The crushed stone bed shall be replenished as necessary to retain proper function and shall be removed at the conclusion of the project.

Catch Basin Protection: Catch basin protection shall be completed prior to commencing construction activities. Existing and new catch basins shall be protected by installation of “Dandy Sacks” or equivalent into each catch basin. The bags shall remain in place until the area draining to the catch basin is completely paved or otherwise stabilized. The bags shall be maintained and emptied as needed, based on sediment loading observed during routine inspection.

Silt Fence: Silt fence is a synthetic permeable mesh fabric, typically incorporating wooden support stakes at intervals sufficient to support the fence itself, and any water and sediment retained by the fence. The fence, although porous, retains the sediment laden water long enough to promote settlement of suspended solids. The retained water slowly filters through the mesh fabric and discharges downstream, leaving the majority of sediment trapped on the upstream side of the silt fence.

Silt fence shall be placed at the limits of the work as indicated on the Erosion and Sediment Control Plan. Typically, they shall be installed adjacent to resource areas, where soil will be exposed due to construction activities, as depicted on the plans. It shall be placed in a sturdy, upright position and anchored/supported to withstand the forces of the elements and construction activities. The fence shall be installed as described in the project plans and specifications, in a manner that will prevent runoff from passing over, under, or around the fencing.

Silt fence shall meet the specifications described for Geotextiles in the ConnDot Qualified Products List:
(http://www.ct.gov/dot/LIB/dot/documents/dresearch/conndot_qpl.pdf).

Maintenance of the silt fence structures is critical. Any noted deficiencies, such as punctures, gaps, or failures shall be remediated immediately and accumulated sediments shall be removed and properly disposed in a timely manner, as detailed in Section 5.

Straw Bale Barrier: Straw bales shall be provided as a temporary structural practice to minimize erosion and sediment runoff. Bales shall be properly placed to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g., tree and stump removal, grading, excavation, etc.), and in each independent runoff area. Bales shall be placed as work progresses and shall be removed/replaced/relocated as needed for work to progress in the drainage area. Straw bales shall be installed as required by the Contractor's construction methods. The bales shall be installed as described in the project plans and specifications, in a manner that will prevent runoff from passing over, under, or

around the bales. Final removal of straw bale barriers shall be upon approval by the Contracting Officer. Rows of bales of straw shall be provided as follows:

- a. Along the downhill perimeter edge of all areas disturbed.
- b. Along the top of the slope or top bank of drainage ditches, channels, swales, etc. that traverse disturbed areas.
- c. Along the toe of all cut slopes and fill slopes of the construction areas.
- d. Perpendicular to the flow in the bottom of existing drainage ditches, channels, swales, etc., that traverse disturbed areas or carry runoff from disturbed areas.
- e. Perpendicular to the flow in the bottom of new drainage ditches, channels, and swales.
- f. At the entrance to culverts that receive runoff from disturbed areas.

Compost Filter Log (i.e., Silt Sock, Filter Sock): Filter logs are erosion and sediment control barriers that allow runoff water to penetrate it and continue to flow while filtering sediment and pollutants from the water. Compost filter logs shall be installed on contours perpendicular to sheet or concentrated flow.

Compost filter logs shall be placed as indicated on the project plans. Typically, they shall be installed adjacent to resource areas, where soil will be exposed due to construction activities, as depicted on the plans. The filter logs shall be tamped down to ensure proper soil contact and then anchored using untreated hardwood stakes at a maximum 5' apart. For slopes longer than 50' with a 3H:1V ratio, additional logs or larger diameter logs may be required.

Maintenance of the compost filter log structures is critical. Any noted deficiencies, such as punctures, gaps, or failures shall be remediated immediately and accumulated sediments shall be removed and properly disposed in a timely manner, as detailed in Section 5.

Sediment Traps: For points of discharge from disturbed areas with a total contributing drainage area of between two (2) and five (5) acres, a temporary sediment trap must be designed and installed according to the Guidelines. Temporary sediment traps are depressions constructed down slope of construction activity and located such that storm water runoff from uplands is diverted through the traps.

Maintenance of the temporary sediment traps is critical. Any noted deficiencies or failures shall be remediated immediately and accumulated sediments shall be removed of and properly disposed of in a timely manner, as detailed in Section 5.

4.3 POST-CONSTRUCTION STORM WATER MANAGEMENT

4.3.1 Storm Drainage System

Areas disturbed by water main installation will be restored to match existing materials and grade. Installation of the water storage tank, booster station, and meter vault will result in new impervious cover, as follows:

<u>Location</u>	<u>New Impervious Cover (square feet)</u>
Water storage tank, including driveway	±13,000
Booster station, including driveway	±3,200
Water meter vault	±1,600
Total	±17,800

Some of the stormwater runoff generated at the water storage tank site will flow to vegetated areas and infiltrate. The driveway to the water storage tank site will include catch basins to collect runoff and flows from the tank underdrain, which will discharge via a 24-inch diameter, flared end outfall at the low point of the driveway.

Stormwater runoff generated at the proposed water meter vault, booster station, and associated paved driveways will sheet flow to vegetated areas and infiltrate. Some portions of each driveway may drain to South Main Street.

4.4 GOOD HOUSEKEEPING BMPS

4.4.1 Storage, Handling, and Disposal of Construction Products, Materials, and Wastes

Diesel Fuel, Oil, Hydraulic Fluids, Petroleum Products, and Other Chemicals: All chemical and petroleum product containers stored on the Site (excluding those contained within vehicles and equipment) shall be provided with impermeable containment which will hold at least 110% of the volume of the largest container, or 10% of the total volume of all containers in the area, whichever is larger, without overflow from the containment area. All chemicals and their containers shall be stored under a roofed area except for those chemicals stored in containers of 100 gallon capacity or more, in which case a roof is not required. Double-walled tanks satisfy this requirement.

Hazardous or Toxic Wastes: Hazardous or toxic wastes including, but not limited to, paints, solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids shall be separated from construction and domestic waste and stored in sealed containers constructed of suitable materials to prevent leakage and corrosion and labeled in accordance with applicable Resource Conservation and Recovery Act (RCRA) requirements and applicable Federal, State, Tribal, and Local requirements. Containers shall be stored under cover or within appropriately sized secondary containment and spill kits shall be readily available. Comply with the

manufacturer's recommended disposal method and applicable Federal, State, Tribal, and Local disposal requirements. Spills shall be cleaned up immediately in accordance with the Spill Prevention and Response Plan presented in Section 4.4.7 of this SWPCP.

Construction and Domestic Waste: All waste materials shall be collected and stored in a manner that will prevent materials from entering watercourses, wetlands, or other off site areas. Waste containers of sufficient size and number to contain wastes shall be provided. Wastes shall be placed in designated waste containers on a daily basis. Material shall be regularly collected and disposed of off site in a manner consistent with applicable Federal, State and Local regulations. Waste materials for this project may consist of material packaging, earthen materials, granular materials, and any surplus materials.

Sanitary Waste: During construction, all sanitary waste shall be collected in portable sanitary units, which shall be positioned so that they are secure and will not be tipped or knocked over. These units shall be emptied as necessary by a qualified contractor and disposed of in accordance with all State and Local regulations.

4.4.2 Off-Site Vehicle Tracking and Dust Control

Vehicles shall be inspected for mud, dirt, or debris prior to exiting the Site and precautions shall be taken as necessary to prevent tracking of excess materials from the Site. Vehicle use shall be restricted to designated exit points. Anti-tracking pads or turf mats shall be installed at designated exit points to provide sediment removal prior to vehicle exit. Additional controls to remove sediment from vehicle tires, such as wheel washing, rumble strips, and rattle plates shall be used when necessary.

Where sediment track out has occurred, the deposited sediment must be removed by the end of the same work day by sweeping, shoveling, or vacuuming. The streets and construction sites shall be cleaned and swept on a daily basis to the satisfaction of the Town of Middletown and CTDOT. Hosing or sweeping sediment into any surface water, storm drain structure, or stormwater conveyance is prohibited, unless the storm drain or stormwater conveyance is connected to a sediment basin, sediment trap, or other sediment control.

Dump trucks hauling material to or from the Site shall be covered with a tarpaulin. Wet dust suppression shall be used, in accordance with section 22a-174-18(b) of the Connecticut General Statutes, for any construction activity that causes airborne particulates. No discharge of dust control water shall contain or cause a visible oil sheen, floating solids, visible discoloration, or foaming in the receiving water.

4.4.3 Discharge of Solid Materials to Waters of the U.S.

All waters of the U.S. (as defined at 40 CFR Section 122.2) and State of CT (as defined by section 22a-38 of the Connecticut General Statutes) located on site or adjacent shall be protected from discharge of solid materials, except those as authorized by a permit issued under Section 404 of the Clean Water Act. Solid materials may include solid waste, building materials, fill, sewage, sediment, or any other solid substance. Structural BMPs located upgradient of waters of the U.S., such as silt fence and straw bales, sediment basins, and deep sump catch basins may act to trap or block solid materials from entering waters of the U.S. Proper waste disposal and sanitary waste collection, as described in Section 4.4.1 shall also minimize the discharge of solid materials to waters of the U.S. The Contractor is responsible for preventing any discharge of solid materials to waters of the U.S.

4.4.4 Vehicle/Equipment Maintenance Area

Discharges of fuels, oils, or other chemicals used in vehicle equipment operation and maintenance are prohibited. Vehicle or construction equipment refueling is prohibited within 100 feet of any wetland, watercourse, or water body. Routine maintenance of vehicles and equipment shall not be conducted onsite.

If vehicle fueling or emergency maintenance of equipment (limited maintenance required to restore equipment functionality that cannot otherwise be performed off-site) is required to be completed onsite, a designated area shall be established in a controlled and covered area, when possible, **and marked on the Erosion and Sediment Control Plan by the Contractor**. The area shall be located away from surface waters and stormwater inlets or conveyances, and/or secondary containment shall be provided (e.g., spill berms, decks, spill containment pallets). Drip pans and absorbents shall be placed under or around leaky vehicles.

The fueling and maintenance area shall have a spill kit that is located in a visible and accessible location. Examples of typical items which should be included in a spill kit are provided in this document. Spills or contaminated surfaces shall be cleaned up immediately, using dry clean up measures where possible, and the source of the spill shall be eliminated. Surfaces shall not be cleaned by hosing the area down.

Recycle oil and oily wastes shall be disposed in accordance with applicable Federal, State, Tribal, and Local requirements. If applicable, the Contractor shall comply with the Spill Prevention Control and Countermeasures (SPCC) requirements in 40 CFR 112 and Section 311 of the Clean Water Act.

4.4.5 Vehicle/Equipment Washing Area

Vehicle wash water is an allowable non-storm water discharge under the Construction General Permit, when detergents, soaps, or solvents are not used. Non-storm water discharges should be eliminated or reduced to the extent feasible. Discharges of wash

water can be eliminated through infiltration. **Vehicle washing using detergents, soaps, or solvents is not permitted on Site.** Detergent-free wash water discharges should only be directed to areas that are stabilized to minimize erosion, and should not be discharged to disturbed areas. Discharges with a sediment load shall be directed to pass through a sediment collection or filtering structural control prior to entering the receiving water body.

If vehicle and equipment washing is to be completed onsite, a designated area shall be established in a contained area, **and marked on the Erosion and Sediment Control Plan by the Contractor.** The area shall be located away from surface waters and stormwater inlets or conveyances.

4.4.6 Concrete Truck Washout Area & Washing of Applicators & Containers used for Paint, Concrete, or Other Materials

4.4.7 The washout of concrete, and washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials is prohibited onsite. Spill Prevention and Response Plan

The locations of material storage areas (i.e., for chemicals and other liquids) shall be noted on the Erosion and Sediment Control Plan by the Contractor.

The following good housekeeping and material management practices shall be followed to reduce the risk of spills or other accidental exposure of hazardous materials to storm water runoff:

- Store quantities of materials required for the project and not more,
- Store materials onsite in a neat, orderly manner in appropriate labeled containers,
- Store materials indoors or under cover,
- Follow manufacturers' recommendations for proper use and disposal of materials,
- Monitor all onsite vehicles for leaks and perform preventive maintenance to reduce the potential for leaks,
- Conduct vehicle fueling and maintenance activities in a controlled or covered area or off-site, when possible, and
- Work applied fertilizer into the soil to limit exposure to storm water and store partially used bags of fertilizer in sealable plastic bins.
- Use drip pans or absorbents under or around leaky vehicles.

- Manufacturers' recommended methods for spill cleanup shall be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Adequate supplies of spill kit materials and equipment shall be kept in the hazardous material storage area and any onsite fueling and maintenance areas. Spill kit equipment and materials shall include but not be limited to: spill pads, absorbent booms, brooms, dust pans, mops, rags, gloves, goggles, speedi-dri, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.

If an emergency spill or release occurs, site personnel shall immediately report the spill or release to the Contractor's Site Health and Safety Officer (SHSO), the Resident Engineer, and/or site management and evacuate the area. All employees shall receive Awareness Level training as part of their hazard communication training. Only employees trained at the First Responder Operations Level of 29 CFR 1910.120(q) will be authorized to respond in a defensive manner to emergency spills or releases of fuel and other materials.

If a spill occurs, the SHSO and/or site management shall be contacted and the SHSO and/or site management with assistance from appropriately trained personnel will contain the spill. If necessary the SHSO and/or site management will contact an emergency response contractor and will also notify the Engineer and all other authorities and agencies in accordance with State and Local regulations. Absorptive materials and other supplies will be used as needed to clean up and prevent the spill from spreading. The source of the spill shall be eliminated immediately. Water shall not be used to wash the spill down. Recycle oil and oily wastes shall be disposed in accordance with applicable Federal, State, Tribal, and Local requirements.

Any discharge, spillage, uncontrolled loss, seepage or filtration of oil or petroleum or chemical liquids or solid, liquid or gaseous products or hazardous wastes, shall be immediately reported to the Connecticut Department of Energy and Environmental Protection (DEEP), Emergency Response Unit, 860-424-3338 or toll free 1-866-DEP-SPIL (1-866-337-7745), 24 hours/day. Should these numbers become unavailable for any reason, call 860-424-3333. Information that shall be reported includes:

- the location;
- the quantity and type of substance, material or waste;
- the date and the cause of the incident;
- the name and address of the owner; and
- the name and address of the person making the report and his relationship to the owner.

A report to the local fire department is also recommended (911 throughout Connecticut).

The National Response Center (NRC) must be notified at 800-424-8802 where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 occurs during a 24-hour period. A description of the release, the circumstances leading to the release, and the date of the release must be provided within 7 calendar days of the knowledge of the release.

Additional information regarding Spill Control is included in the Environmental Protection Plan prepared by Ludlow Construction Company, Inc.

4.4.8 Training

Training of staff and subcontractors in the basics of erosion and sediment control, good housekeeping and pollution prevention will reinforce proper implementation of the SWPCP. It is the responsibility of the Contractor to ensure that site personnel understand the requirements of the SWPCP and their specific responsibilities.

Personnel must be trained to understand the following if related to the scope of their job duties:

- The location of all stormwater controls on the Site required by this SWPCP, and how they are to be maintained,
- The proper procedures to follow with respect to the SWPCP's pollution prevention requirements, and
- When and how to conduct inspections, record applicable findings, and take corrective actions.

Any training conducted should be documented in the SWPCP. Include dates, number of attendees, subjects covered, and length of training.

5 MAINTENANCE AND INSPECTION

5.1 INSPECTION SCHEDULE

5.1.1 Plan Implementation Inspections

The Site shall be inspected at least once and no more than three times during the first 90 days following commencement of the construction activity on the Site to confirm compliance with the CGP and proper initial implementation of all control measures designated in the SWPCP for the Site for the initial phase of construction.

5.1.2 Routine Inspections During Construction

All areas disturbed by construction that have not undergone temporary or final stabilization shall be formally inspected at least once per week and within 24 hours of the end of a storm that generates a discharge, using the form included in Appendix B.

For storms that end on a weekend, holiday or other time after which normal working hours will not commence within 24 hours, an inspection is required within 24 hours only for storms that equal or exceed 0.5 inches. For storms of less than 0.5 inches, an inspection shall occur immediately upon the start of subsequent normal working hours.

A rain gauge shall be maintained on-site to document rainfall amounts.

5.1.3 Stabilized Area Inspections

All areas that have been temporarily or finally stabilized shall be inspected at least once per month, continuing for three months following final stabilization, at a minimum.

5.1.4 Final Stabilization Inspection

The Site shall be inspected to confirm final stabilization after the Site has been stabilized for at least three months.

5.2 INSPECTION PROCEDURES

5.2.1 Personnel

Personnel performing inspections shall meet the requirements of a Qualified Inspector as defined in Section 2 of the CGP. The person(s) responsible for conducting inspections and their qualifications shall be indicated in Appendix B.

5.2.2 Items to be Inspected

Routine Inspections must include all areas of the Site disturbed by construction activities. Inspectors must look for evidence of, or the potential for, pollutants entering the stormwater conveyance system or surface waters. All BMPs, erosion and sedimentation controls, and entrance/egress points must also be included in the inspection. More specific requirements are listed in the Table at the end of this section. Sample inspection forms are included as Appendix B. The Contractor is responsible for making sure that all inspection information required by the Construction General Permit is collected, maintained, and responded to, as per Permit terms. The completed inspection forms should be maintained with the SWPCP.

5.2.3 Record Keeping

A written report summarizing the scope of the inspection, the name(s) and qualifications of inspection personnel, the date and time of the inspection, weather conditions including precipitation information, major observations relative to erosion and sediment controls and the implementation of the SWPCP, a description of the stormwater discharge(s) from the Site, and any water quality monitoring performed during the inspection and actions taken shall be completed within 24 hours of the inspection. This report shall be signed by the Inspector and the Permittee. Sample forms for this reporting process are included in Appendix B. Inspection records shall be retained as part of the SWPCP for at least five years after the date of inspection. Report certification shall comply with permit conditions, such as those included in Section 5.(i) of the CGP.

5.3 MAINTENANCE

5.3.1 General

Routine maintenance procedures should be initiated immediately after the need for maintenance is recognized. The Contractor shall utilize/enforce good housekeeping practices to minimize the possibilities of spills or leaks of potential pollutants. Hazardous materials shall be handled with the utmost care in accordance with all regulations and the recommendations of the manufacturer. **Section 4.4 contains further details about good housekeeping BMPs.**

5.3.2 Maintenance of Erosion Controls

Erosion controls shall be maintained in accordance with the Guidelines, and as noted in the Table at the end of this section.

When installation of a new erosion/sediment control or a significant repair is needed, work must be completed and operational in accordance with the timelines described in Section 5.4 of this SWPCP.

Inspection and Maintenance Procedures

<u>Item</u>	<u>Inspection Procedure</u>	<u>Maintenance Procedure</u>
General	Disturbed areas shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Construction areas and perimeter of the Site shall be inspected for any evidence of debris that may blow or wash off site, and for debris that has blown or washed off site. Construction areas shall be inspected for any spills or unsafe storage of materials that could pollute off site waters. Identify any locations where new or modified stormwater controls are necessary.	Any debris blowing or flowing off the Site shall be immediately cleaned up. Any unsafe storage practices noted in the inspection shall be immediately remedied.
Perimeter Controls (Silt fence)	Silt fence shall be inspected to ensure that fence line is intact with no breaks or tears, and that the bottom of the fabric is securely buried in the ground. Areas where fence is excessively sagging or where support posts are broken or uprooted shall be noted. Depth of sediment behind the fence shall be noted.	Sediment shall be removed when it reaches one-half of the height of the silt fence. Care shall be taken to avoid damaging the fence during cleanout. Any areas of damaged or torn fabric, broken posts or undermined fence shall be repaired.
Compost filter logs/Sediment Logs	Compost logs shall be inspected to ensure that the logs are intact and remain snugly butted to each other and firmly embedded in the ground. Depth of sediment behind the logs shall be noted.	Any broken, excessively tilted or undermined logs shall be promptly replaced. Sediment shall be removed when it builds up behind the logs to over one half of the height of the logs.

<u>Item</u>	<u>Inspection Procedure</u>	<u>Maintenance Procedure</u>
Discharge points	Identify all points of the property from which there is a discharge. All discharge points shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Discharge points shall also be inspected to ensure that erosion protection measures at the discharge are functioning. If a discharge is occurring, observe and document the visual quality and characteristics of the discharge, including color, odor, floating, settled, or suspended solids, foam, and oil sheen.	Any sediment or debris accumulated at discharge points shall be removed and properly disposed of in accordance with applicable regulations.
Vehicle entrances/ exits	Locations where vehicles enter or exit the Site shall be inspected for evidence of off-site sediment tracking.	Any material tracked onto roadways shall be removed daily by sweeping. Crushed stone shall be added to stabilized construction entrances as necessary to maintain a firm surface free of ruts and mud holes.
Material storage areas / Soil stockpile areas	Areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, conditions that could lead to spills, leaks, or pollutants entering the drainage system.	Any material storage areas found to be releasing pollutants to the drainage system or to areas offsite shall be modified to prevent the release of pollutants. Modifications may include, but are not limited to, covering material storage areas to reduce exposure to precipitation, installing secondary containment around storage containers, or installing erosion and sediment controls downgradient of storage areas.

<u>Item</u>	<u>Inspection Procedure</u>	<u>Maintenance Procedure</u>
Vehicle/ Equipment Maintenance Area	Areas used for vehicle/equipment maintenance shall be inspected for evidence of, or the potential for, conditions that could lead to spills, leaks, or pollutants entering the drainage system.	Any maintenance areas found to be releasing pollutants to the drainage system or to areas offsite shall be modified to prevent the release of pollutants. Modifications may include, but are not limited to, covering maintenance areas to reduce exposure to precipitation, installing secondary containment around the area, or installing erosion and sediment controls downgradient of maintenance areas.
Vehicle/ Equipment Washing Area	Areas used for vehicle/equipment washing shall be inspected for evidence of, or the potential for, conditions that could lead to spills, leaks, or pollutants entering the drainage system. No detergents shall be used onsite.	A washout depression found to not be performing its function of preventing vehicle/equipment washings from entering the drainage system or surface waters shall be discontinued, modified, or repaired as necessary.
Concrete Truck Washout Area	Area used for concrete truck washout shall be inspected for evidence of, or the potential for, conditions that could lead to spills, leaks, or concrete washings entering the drainage system or surface waters.	A washout depression found to not be performing its function of preventing concrete washings from entering the drainage system or surface waters shall be discontinued, modified, or repaired as necessary.
Waste Storage Areas	Waste storage areas shall be inspected for evidence of, or the potential for, conditions that could lead to spills, leaks, or wastes entering the drainage system or surface waters.	Any waste storage areas found to be releasing pollutants to the drainage system or to areas offsite shall be modified to prevent the release of pollutants. Modifications may include, but are not limited to, covering waste storage areas to reduce exposure to precipitation, installing secondary containment around the area, or installing erosion and sediment controls downgradient of the areas.

<u>Item</u>	<u>Inspection Procedure</u>	<u>Maintenance Procedure</u>
Swales/ Drainage ways/ Flowing Surface Waters within or immediately adjacent to the property	Check for signs of visible erosion & sedimentation that are attributable to site discharges.	Any accumulated sediment or debris shall be removed and properly disposed of in accordance with applicable regulations. Corrective actions to remove the source of sediment shall be taken. Any discharges causing erosion shall be removed or modified using velocity dissipation controls.
Stabilization Measures	Check that stabilization measures are intact and functioning as intended. Inspect areas of vegetation growth and note if re-seeding, watering, or fertilization is required. Geotextiles or other non-vegetative measures shall be inspected to ensure that the measures are secure, that there are no gaps, and erosion is not occurring beneath the measures.	Stabilization measures shall be maintained, corrected or replaced as necessary if not functioning effectively.
Straw bales	Straw bale lines shall be inspected to ensure that bales are intact and remain snugly butted to each other and firmly embedded in the ground. Depth of sediment behind the bales shall be noted.	Any broken, excessively tilted or undermined straw bales shall be promptly replaced. When sediment builds up behind the straw bales to over one half of the height of the bales, the sediment shall be removed or a second layer of straw bales added.
Catch basin protection	Protective measures shall be inspected to ensure that sediment is not entering the catch basins. Catch basin sumps shall be monitored for sediment deposition. "Dandy Sacks" or equivalent shall be inspected to ensure that no clogging has occurred.	Any damage to "Dandy Sacks" or equivalent, or other protective measure shall be repaired immediately. Clogged "Dandy Sacks" or equivalent shall be replaced. Any sediment accumulated in the catch basin sumps shall be removed when it accumulates to one half of the sump depth.

<u>Item</u>	<u>Inspection Procedure</u>	<u>Maintenance Procedure</u>
Temporary Sediment Settling Basin	Basin bottom and crushed stone filter shall be monitored for sediment deposition. If present, embankment, emergency spillway, and outlet shall be inspected for erosion damage. Embankment shall also be inspected for settlement, seepage, slumping or piping. Area shall be inspected for trash and debris.	Sediment shall be removed when the basin becomes half full. Any erosion damage, settlement, seepage, slumping or piping shall be repaired immediately. Trash and debris shall be removed. Gravel shall be cleaned or replaced when sediment pool does not drain properly.



5.4 CORRECTIVE ACTIONS

Corrective actions include actions taken to bring the Site into compliance with the terms and conditions of the SWPCP and the CGP.

As soon as possible after a condition requiring a corrective action is found, interim measures shall be implemented to minimize or prevent the discharge of pollutants, until a permanent solution is installed and made operational.

Non-engineered corrective actions (as identified in the Guidelines) shall be implemented on site within 24 hours and incorporated into a revised SWPCP within three (3) calendar days of the date of inspection. Engineered corrective actions (as identified in the Guidelines) shall be implemented on Site within seven (7) days and incorporated into a revised SWPCP within ten (10) calendar days of the date of inspection.

A Corrective Action Log form is included in Appendix B to document actions taken to bring the Site back into compliance. The Corrective Action Log form identifies non-engineered and engineered corrective actions. The Corrective Action Log form must be signed and certified in accordance with CGP certification requirements.

5.4.1 Revisions to Stormwater Pollution Prevention Plan

The SWPCP must be amended in response to the following conditions:

- If the actions required by the SWPCP fail to prevent pollution or fail to otherwise comply with any other provision of the CGP,
- Whenever there is a change in contractors or subcontractors at the site, and/or
- Whenever there is a change in design, construction, operation, or maintenance at the Site which has the potential for discharge of pollutants to waters of the state and which has not otherwise been addressed in the SWPCP.



Legend

— Proposed Water Line

— Town

0 1,000 2,000 4,000

Feet



PROJECT LOCATION MAP

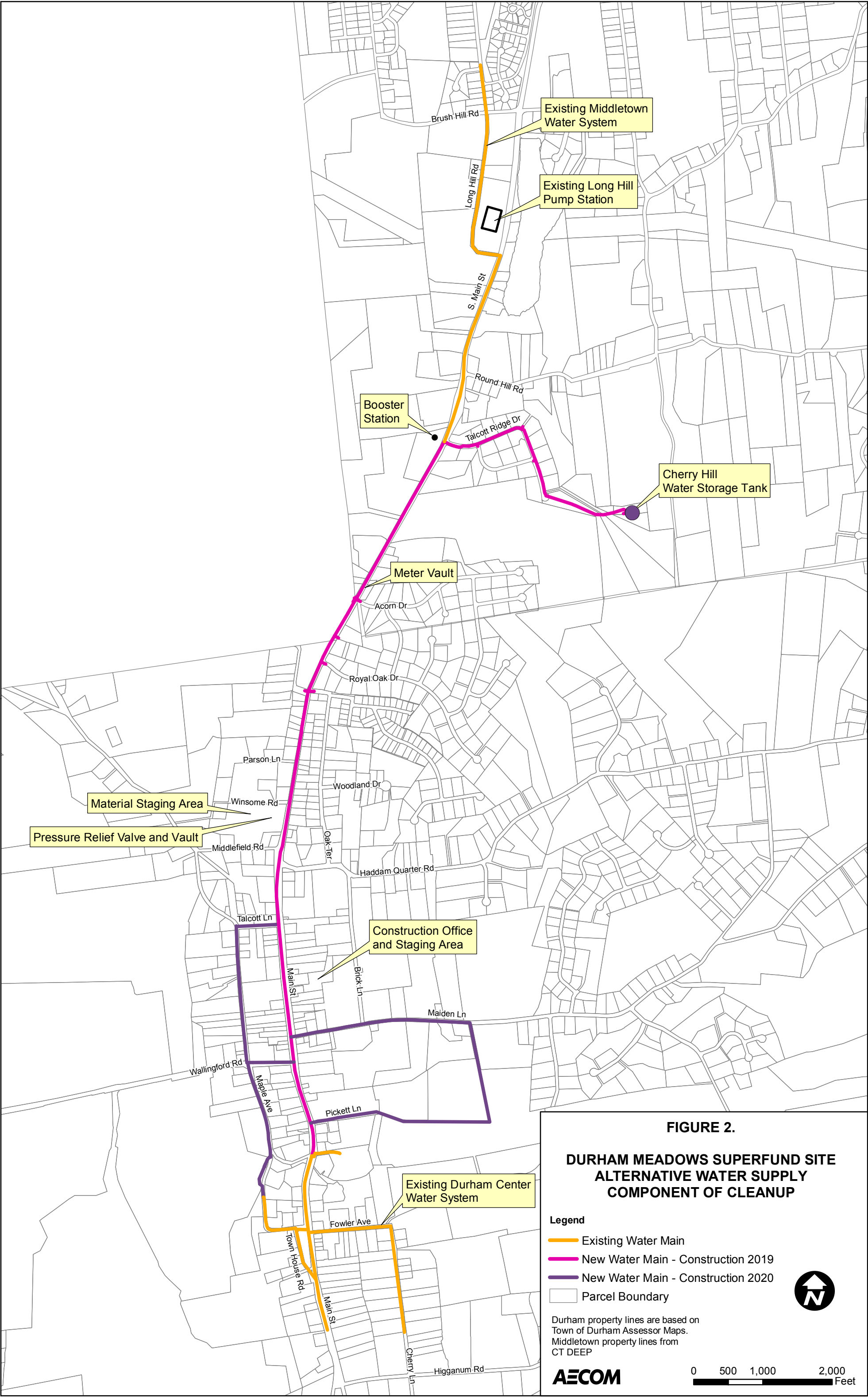
Durham Meadows Waterline RD
Middletown and Durham, Connecticut

SCALE	DATE	PROJECT NO.
1:24,000	5/19	60275749

AECOM

Figure Number

1



APPENDIX A REQUIRED SWPCP DOCUMENTATION

(ATTACH ADDITIONAL PAGES AS NECESSARY IN ORDER TO FILL OUT AS COMPLETELY AS POSSIBLE.)

This section contains forms for the recording of documentation that must be included with this SWPCP, maintained and updated as appropriate.



CONTRACTOR'S AND SUBCONTRACTOR'S CERTIFICATION

All contractors and subcontractors that will perform actions on the Site that have the potential to cause pollution of the waters of the State or are responsible for implementing the measures identified in this SWPCP must sign this certification statement. This includes all contractors responsible for individual lots within subdivisions, regardless of lot size or disturbed area. All certifications must be added to and maintained with this SWPCP. (COPY FORM TEMPLATE SO THAT EACH CONTRACTOR CAN FILL OUT AND SIGN.)

SITE: Durham Meadows Water Main Extension Project, Middletown, CT

COMPANY NAME: Ludlow Construction Co. Inc.

ADDRESS:

19 Carmelina's Circle
Ludlow, MA 01056

BUSINESS PHONE:

413-583-2522

"I certify under penalty of the law that I have read and understand the terms and conditions of the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities. I understand that as a contractor or subcontractor at the site, I am authorized by this general permit, and must comply with the terms and conditions of this general permit, including but not limited to the requirements of the Stormwater Pollution Control Plan prepared for the site."

SIGNATURE:

of

Name & Title:

Michael J. Pio

Date:

7-17-19

Michael J. Pio, Project Manager



CONTRACTOR'S AND SUBCONTRACTOR'S CERTIFICATION

All contractors and subcontractors that will perform actions on the Site that have the potential to cause pollution of the waters of the State or are responsible for implementing the measures identified in this SWPCP must sign this certification statement. This includes all contractors responsible for individual lots within subdivisions, regardless of lot size or disturbed area. All certifications must be added to and maintained with this SWPCP. (COPY FORM TEMPLATE SO THAT EACH CONTRACTOR CAN FILL OUT AND SIGN.)

SITE: Durham Meadows Water Main Extension Project, Middletown, CT

COMPANY NAME: _____

ADDRESS: _____

BUSINESS PHONE: _____

"I certify under penalty of the law that I have read and understand the terms and conditions of the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities. I understand that as a contractor or subcontractor at the site, I am authorized by this general permit, and must comply with the terms and conditions of this general permit, including but not limited to the requirements of the Stormwater Pollution Control Plan prepared for the site."

SIGNATURE: _____ **Date:** _____

of

Name & Title: _____



SEQUENCE OF MAJOR ACTIVITIES

The general proposed sequencing of major activities is described in Section 2.1. Refer to Exhibit 3 for detailed construction schedule, with intended timing of major activities, and the specific locations of the Site Activities. The table below provides a listing of the major types of construction and anticipated erosion and sediment control measures to be installed as part of the work. Contractor shall update the table below with any changes or modifications to the nature of the work or erosion and sediment controls to be installed.

Work Activity	Description of Elements of Construction	Temporary E&S Controls
Water Main Installation	Install turtle barriers per Turtle Protection Plan, install temporary E&S controls, saw cut pavement, excavate trench, install water main and associated curb stops, valves, hydrants, etc., backfill, stabilize (pave) and remove dispose of E&S controls	perimeter controls (silt fence, straw wattles, filter logs) catch basin / inlet protection street sweeping, dust control
Water Service Installation	Install turtle barriers per Turtle Protection Plan, install temporary E&S Controls, saw cut pavement or strip and stockpile topsoil, excavate trench, install water line, backfill, stabilize (pave or seeding), and remove E&S controls	perimeter controls (silt fence, straw wattles, filter logs) catch basin / inlet protection street sweeping, dust control
Stream Crossings	Install turtle barriers per Turtle Protection Plan, install temporary E&S Controls, install water diversion and excavation dewatering systems, install support of excavation, excavate trench or jacking/receiving pits, install water line, backfill trench or jacking/receiving pits, remove support of excavation and dewatering system(s), restore streambed and/or landscaped areas, remove water diversion, remove temporary E&S controls	perimeter controls (silt fence, straw wattles, filter logs) stabilized construction entrance straw wattles straw bales filter logs coffer dam/water diversion
Water Tank Access Road	Install turtle barriers per Turtle Protection Plan, install temporary E&S Controls, install temporary construction entrance, clear and grub, grade access road, excavate trench install water line, backfill trench restore/stabilize landscaped areas, pave road, remove temporary E&S controls	perimeter controls (silt fence, straw wattles, filter logs) stabilized construction entrance silt fence straw bales filter logs street sweeping, dust control



STORMWATER POLLUTION CONTROL PLAN
DURHAM MEADOWS WATER MAIN CONSTRUCTION PROJECT

Work Activity	Description of Elements of Construction	Temporary E&S Controls
Water Tank & Valve Vault	Install turtle barriers per Turtle Protection Plan, install temporary E&S Controls, install temporary construction entrance, clear and grub tank site, construct water tank and valve vault, restore/stabilize landscaped areas, pave road, remove temporary E&S controls.	perimeter controls (silt fence, straw wattles, filter logs) stabilized construction entrance straw wattles straw bales filter logs street sweeping
Water Meter / Booster Station	Install turtle barriers per Turtle Protection Plan, install temporary E&S Controls, install temporary construction entrance, clear and grub tank site, construct water tank and valve vault, restore/stabilize landscaped areas, pave road, remove temporary E&S controls.	perimeter controls (silt fence, straw wattles, filter logs) stabilized construction entrance straw wattles straw bales filter logs street sweeping



APPENDIX B TEMPLATE INSPECTION AND MAINTENANCE REPORTS

(COPY REPORT TEMPLATE AND FILL OUT AT LEAST ONCE EVERY SEVEN
CALENDAR DAYS AS PART OF YOUR ROUTINE INSPECTION ACTIVITIES. MAINTAIN
ALL INSPECTION AND MAINTENANCE REPORTS HERE.)

Stormwater Construction Site Inspection Report

Purpose

This Stormwater Construction Site Inspection Report is designed to assist you in preparing inspection reports in accordance with Section 5 of the SWPCP.

Overview of Inspection Requirements

Areas That Need to Be Inspected

During each inspection, you must inspect the following areas of your site:

- Cleared, graded, or excavated areas of the site;
- Stormwater controls (e.g., perimeter controls, sediment basins, inlets, exit points etc.) and pollution prevention practices (e.g., pollution prevention practices for vehicle fueling/maintenance and washing, construction product storage, handling, and disposal, etc.) at the site;
- Material, waste, or borrow areas covered by the permit, and equipment storage and maintenance areas;
- Areas where stormwater flows within the site;
- Stormwater discharge points; and
- Areas where stabilization has been implemented.

What to Check For During Your Inspection

During your site inspection, you are required to check:

- Whether stormwater controls or pollution prevention practices require maintenance or corrective action, or whether new or modified controls are required;
- For the presence of conditions that could lead to spills, leaks, or other pollutant accumulations and discharges;
- Whether there are visible signs of erosion and sediment accumulation at points of discharge and to the channels and streambanks that are in the immediate vicinity of the discharge;
- If a stormwater discharge is occurring at the time of the inspection, whether there are obvious, visual signs of pollutant discharges; and
- If any permit violations have occurred on the site.

Instructions for Using This Template

The following tips for using this template will help you ensure that the minimum permit requirements are met:

- **Complete all required text fields.** Fill out all text fields. (Note: Where you do not need the number of rows provided in the template form for your inspection, you may leave those rows blank. Or, if you need more space to document your findings, you may add an additional sheet.)
- **Use your site map to document inspection findings.** Where you are asked for location information, reference the point on your SWPCP site map that corresponds to the requested location on the inspection form. Using the site map as a tool in this way will help you conduct efficient inspections, will assist you in evaluating problems found, and will ensure proper documentation.
- **Sign and certify each inspection report.** Each inspection report must be signed and certified by the inspector and permittee to be considered complete.
- **Include the inspection form with your SWPCP.** Once your form is complete, include a copy of the inspection form in your SWPCP.
- **Retain copies of all inspection reports with your records.** You must also retain in your records copies of all inspection reports. These reports must be retained for at least 5 years from the date of inspection.

Corrective Action Needed?

Answer "yes" if during your inspection you found any of the following conditions to be present: (1) a required E&S control was never installed, was installed incorrectly, or not in accordance with the Guidelines; (2) you become aware that the inadequacy of the E&S control has led to an exceedance of an applicable water quality standard; or (3) Corrective action for an E&S control is required as a result of a permit violation found during an inspection. If you answer "yes", you must implement the corrective action on site within seven (7)

**STORMWATER POLLUTION CONTROL PLAN
DURHAM MEADOWS WATER MAIN EXTENSION PROJECT**

days and incorporate it into the SWPCP within ten (10) days of the inspection. Note: You should answer "yes" if work to fix the problem from a previous inspection is still ongoing.

Notes

For each E&S control and the area immediately surrounding it, note whether the control is properly installed and whether it appears to be working to minimize sediment discharge. Describe any problem conditions you observed such as the following, and why you think they occurred as well as actions (e.g., repairs, maintenance, or corrective action) you will take or have taken to fix the problem:

1. Failure to install or to properly install a required E&S control
2. Damage or destruction to an E&S control caused by vehicles, equipment, or personnel, a storm event, or other event
3. Mud or sediment deposits found downslope from E&S controls
4. Sediment tracked out onto paved areas by vehicles leaving construction site
5. Noticeable erosion at discharge outlets or at adjacent streambanks or channels
6. Erosion of the site's sloped areas (e.g., formation of rills or gullies)
7. E&S control is no longer working due to lack of maintenance

If repairs, maintenance, or corrective action is required, briefly note the reason. If repairs, maintenance, or corrective action have been completed, make a note of the date it was completed and what was done.



CONSTRUCTION SITE INSPECTION REPORT

Durham Meadows Water Main Extension Project

Location:

Middletown, CT

USACE 404 Permit:

GZA Project No:

15.0166765.00

TYPE OF INSPECTION:

- ☐ Weekly ☐ Storm Event⁺ ☐ Reduced Frequency⁺⁺
☐ Other:

Date: _____ Time: _____ ⁺Within 24 hrs. of the end of a storm that generates a discharge

+Storm event info (approx): Start date/time: _____ Duration: _____ Amount of rainfall (inches): _____

++Once per month for stabilized areas.

Inspector name(s), title(s) and qualifications:

Inspector contact information:

Weather conditions (time of inspection & future outlook):

CONSTRUCTION SITE SEQUENCING AND DISTURBANCE

Describe inspection location:

Present phase of construction:

Disturbed area and ongoing work (acreage & description):

INSPECT DRAINAGE SYSTEM AND RECEIVING WATERS

Describe locations of sediment accumulation, if present; and note maintenance/repairs needed.

SURFACE WATER QUALITY

Storm water discharge from the site at the time of inspection? ☐ YES ☐ NO

Note location(s) below, and describe discharge:

Location:	Description:	Visible signs of erosion or sediment accumulation?
		<input type="checkbox"/> YES <input type="checkbox"/> NO
		<input type="checkbox"/> YES <input type="checkbox"/> NO
		<input type="checkbox"/> YES <input type="checkbox"/> NO
		<input type="checkbox"/> YES <input type="checkbox"/> NO

PROJECT TEAM

PROPERTY OWNER

Attn: _____
Phone: _____
Email: _____

CONTRACTOR

Attn: _____
Phone: _____
Email: _____
Cell: _____

ENVIRONMENTAL CONSULTANT

Attn: _____
Phone: _____
Email: _____

OTHER

Attn: _____
Phone: _____
Email: _____

SUBCONTRACTOR

Attn: _____
Phone: _____
Email: _____

OTHER

Attn: _____
Phone: _____
Email: _____

TEMPORARY EROSION AND SEDIMENTATION CONTROLS (TESC)

Installed and functioning per the SWPCP? ☐ YES ☐ NO ☐ N/A

If not, explain necessary repairs or other maintenance to be taken for each of the following categories. Detail what needs to be done, in what location, and what has been corrected since the last monitoring inspection.

- ☐ Erosion prevention (stabilize exposed soils):
- ☐ Runoff control (direct storm water):
- ☐ Sediment control (manage sediment/sediment-laden storm water):
- ☐ Concrete truck or other washout areas:
- ☐ Construction entrances:

Are any corrective actions required?* ☐ YES ☐ NO If so, please describe:

** Note: The permit differentiates between conditions requiring repairs and maintenance, and those requiring corrective action. Corrective actions are triggered only for specific, more serious conditions and require a corrective action form be filled out. Please refer to Part 5 of the CGP for additional information.*

PERMANENT EROSION AND SEDIMENTATION CONTROLS (PESC)

Disturbed areas must have a uniform perennial vegetative cover with 85% density, or equivalent physical stabilization, to be considered permanently stabilized (per the SWPCP).

Installed and functioning per the SWPCP? ☐ YES ☐ NO ☐ N/A

If not, explain what was not performed correctly (construction/stabilization). Detail what/where needs to be corrected, and what has been corrected since the last monitoring inspection.

SUMMARY

In the judgement of the Qualified Inspector, the Site is: ☐ In compliance ☐ Out of compliance

with the terms and conditions of the SWPCP and General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities.

IF THE SITE IS OUT OF COMPLIANCE, PROCEED TO THE CORRECTIVE ACTION LOG FORM.

CERTIFICATION:

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the General Statutes, pursuant to Section 53a-157b of the General Statutes, and in accordance with any other applicable statute."

Inspector: SIGNATURE: _____ PRINTED NAME: _____ TITLE: _____ AFFILIATION: _____ ADDRESS: _____ PHONE: _____ DATE: _____	Permittee or his/her authorized representative: SIGNATURE: _____ PRINTED NAME: _____ TITLE: _____ AFFILIATION: _____ ADDRESS: _____ PHONE: _____ DATE: _____
---	--

Corrective Action Log Form

Purpose

This Corrective Action Log Form is designed to assist you in preparing corrective action reports.

Instructions for Using This Log Form

- **Complete all required text fields.** Fill out all text fields. (Note: Where you do not need the number of rows provided in the corrective action report form, you leave those rows blank. Or, if you need more space to document your findings, you may add an additional sheet.)
- **Include the corrective action report form with your SWPCP.** Once your form is complete, make sure to include a copy of the corrective action report form in your SWPCP.
- **Retain copies of all corrective action reports with your records.** You must retain copies of your corrective action reports in your records. These reports must be retained for at least 5 years from the date construction is completed.

Name of Project

Enter the name for the project.

Today's Date

Enter the date you completed this form.

Date/Time Problem First Discovered

Specify the date on which the triggering condition was first discovered. Also specify the time of the discovery.

Name/Contact Information

Provide the individual's name, title, and contact information as directed in the form.

Description of the Site Condition

Provide a summary description of the condition you found that triggered corrective action and the specific location where it was found. Be as specific as possible about the location; it is recommended that you refer to a precise point on your site map. If you have already provided this explanation in an inspection report, you can refer to that report.

Deadline for Completing Corrective Action

This deadline is fixed in CGP Section 5.(b)(4)(B)(iii). For all projects, the deadline is either: (1) within 24 hours from the date you discovered the problem for non-engineered corrective actions, or (2) within seven (7) days for engineered corrective actions. Non-engineered and engineered corrective actions are defined within the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control and are listed on the back of the Corrective Action Log Form.



CORRECTIVE ACTION LOG FORM

Durham Meadows Water Main Extension Project

Date: _____ Time: _____

Location:

Middletown, CT

GZA Project No:

15.0166765.00

Inspector name(s), title(s) and qualifications:

Inspector contact information:

Provide a brief description of the problem, and date/time problem first discovered:	Recommended control (see below):	Date control was implemented:

Deadline for completing corrective action:

Non-engineered corrective actions (as identified in the Guidelines) shall be implemented on site within 24 hours and incorporated into a revised SWPCP within three (3) calendar days of the date of inspection unless another schedule is specified in the Guidelines.

Engineered corrective actions (as identified in the Guidelines) shall be implemented on site within seven (7) days and incorporated into a revised SWPCP within ten (10) days of the date of inspection unless another schedule is specified in the Guidelines or is approved by DEEP.

Select control(s) from the following list:

Engineered controls

1. Land Grading
2. Permanent TRM
3. Retaining Walls
4. Riprap
5. Gabions
6. Permanent Slope Drain
7. Channel Grade Stabilization Structure
8. Temporary Lined Chute
9. Temporary Pipe Slope Drain
10. Vegetated Waterway
11. Temporary Lined Channel
12. Permanent Lined Waterway
13. Temporary Stream Crossing
14. Temporary Diversion
15. Permanent Diversion
16. Subsurface Drain
17. Detention Basin
18. Level Spreader
19. Outlet Protection
20. Stone Check Dam
21. Temporary Sediment Basin
22. Dewatering of Earth Materials

Non-engineered controls

23. Topsoiling
24. Surface Roughening
25. Dust Control
26. Temporary Seeding
27. Permanent Seeding
28. Sodding
29. Landscape Planting
30. Temporary Soil Protection
31. Mulching
32. Temporary Erosion Control Blanket
33. Stone Slope Protection
34. Temporary Fill Berm
35. Water Bar
36. Temporary Sediment Trap
37. Hay Bale Barrier
38. Silt Fence
39. Turbidity Curtain
40. Vegetative Filter
41. Construction Entrance
42. Pump Intake and Outlet Protection
43. Pumping Settling Basin
44. Portable Sediment Tank

**APPENDIX C GENERAL PERMIT FOR THE DISCHARGE OF
STORMWATER AND DEWATERING WASTEWATERS
FROM CONSTRUCTION ACTIVITIES**

**APPENDIX D ENDANGERED AND THREATENED SPECIES
DOCUMENTATION**



Connecticut Department of
**ENERGY &
ENVIRONMENTAL
PROTECTION**

July 28, 2017

Mr. Sean Maxwell
AECOM, Inc.
250 Apollo Drive
Chelmsford, MA 01824
sean.maxwell@aecom.com

Project: Durham Meadows Waterline Remediation Meter Vault and Waterline along route 17 and Acorn Drive in Middletown and Middlefield, Connecticut
NDDDB Determination No.: 201705726

Dear Sean,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map provided for the proposed Durham Meadows Waterline Remediation Meter Vault and Waterline along route 17 and Acorn Drive in Middletown and Middlefield, Connecticut. According to our information there are extant populations of State Special Concern *Glyptemys insculpta* (wood turtle) in the area where this work will occur. Thank you for including in your NDDDB review application materials the protection strategies that will be in place for this turtle. You have indicated that you will implement the following conservation protocols:

Recommended Box Turtle Protection Strategies:

If any work will occur when these turtles are active (April 1st to September 30th) the following protection strategies will be implemented in order to protect these turtles:

- Silt fencing will be installed around the work area prior to construction, please avoid erosion control products that are embedded with netting as these can be fatal to wildlife;
- Where possible, you will avoid installing sediment and erosion control materials from late August through September and from March through mid-May. These two time periods are when amphibians and reptiles are most active, moving to and from wetlands to breed;
- After silt fencing is installed and prior to construction, a sweep of the work area will be conducted to look for turtles;
- Workers will be apprised of the possible presence of turtles, and provided a description of the species (http://www.ct.gov/dep/cwp/view.asp?a=2723&q=473472&depNav_GID=1655);
- Any turtles that are discovered will be moved, unharmed, to an area immediately outside of the fenced area, and position in the same direction that it was walking;
- No vehicles or heavy machinery will be parked in any turtle habitat;

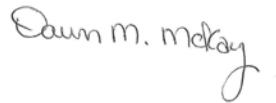
- Work conducted during early morning and evening hours will occur with special care not to harm basking or foraging individuals; and
- All silt fencing will be removed after work is completed and soils are stable so that reptile and amphibian movement between uplands and wetlands is not restricted.
- Stockpiles of soil will be cordoned off with silt fencing so turtles do not attempt to try and nest in them.

Thank you for implementing these protection measures for this turtle. Please re-submit an NDDDB Request for Review if the scope of work changes or if work has not begun on this project by July 28, 2019.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits.

Please contact me if you have further questions at (860) 424-3592, or dawn.mckay@ct.gov . Thank you for consulting the Natural Diversity Data Base.

Sincerely,

A handwritten signature in cursive script that reads "Dawn M. McKay".

Dawn M. McKay
Environmental Analyst 3



Connecticut Department of

**ENERGY &
ENVIRONMENTAL
PROTECTION**

March 12, 2016

Mr. Sean Maxwell
AECOM, Inc.
250 Apollo Drive
Chelmsford, MA 01824
sean.maxwell@aecom.com

Project: Durham Meadows Water System in Street Rights-of-Way and Two Stream Crossings at Allyn Brook and Hersig Brook in Durham, Connecticut
NDDB Determination No.: 201601369

Dear Sean,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map provided for the proposed Durham Meadows Water System in street rights-of-way and two stream crossings at Allyn Brook and Hersig Brook in Durham, Connecticut. According to our information there are extant populations of State Special Concern *Cottus cognatus* (slimy sculpin) and *Glyptemys insculpta* (wood turtle) in much of the area where this work will occur. We also have several wetland dependent species in the Allyn Brook Crossing area and special care should be taken if work will occur during April through October to minimize impacts and utilize best management practices to prevent sedimentation and soil erosion.

Slimy Sculpin

Please be advised that a DEEP Fisheries Biologist will review the permit applications you may submit to DEEP regulatory programs to determine if your project could adversely affect slimy sculpin. DEEP Fisheries Biologists are routinely involved in pre-application consultations with regulatory staff and applicants in order to identify potential fisheries issues and work with applicants to mitigate negative effects, including to endangered species. If you have not already talked with a Fisheries Biologist about your project, you may contact the Permit Analyst assigned to process your application for further information, including the contact information for the Fisheries Biologist assigned to review your application.

Wood Turtle: Habitat destruction, degradation or alteration and fragmentation all threaten Wood Turtle populations. Turtles are also particularly vulnerable to any activity that consistently reduces adult survivorship. Disturbances to stream and riparian habitats and activities that change the hydrology of the stream, the physical habitat itself and water quality are all potentially detrimental activities for the Wood Turtle. Although Wood Turtles are found within forested areas, they prefer areas that do not have a fully closed canopy cover. The greatest concern during projects occurring in wood turtle habitat are turtles being run over and crushed by mechanized equipment. Reducing the frequency that motorized vehicles enter Wood Turtle habitat would be beneficial in minimizing direct mortality of adults.

Recommended Box Turtle Protection Strategies:

If any work will occur when these turtles are active (April 1st to September 30th) I recommend the additional following protection strategies in order to protect these turtles:

- Silt fencing should be installed around the work area prior to construction, please avoid erosion control products that are embedded with netting as these can be fatal to wildlife;

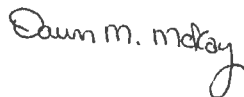
- Where possible, AVOID installing sediment and erosion control materials from late August through September and from March through mid-May. These two time periods are when amphibians and reptiles are most active, moving to and from wetlands to breed;
- After silt fencing is installed and prior to construction, a sweep of the work area should be conducted to look for turtles;
- Workers should be apprised of the possible presence of turtles, and provided a description of the species (http://www.ct.gov/dep/cwp/view.asp?a=2723&q=473472&depNav_GID=1655);
- Any turtles that are discovered should be moved, unharmed, to an area immediately outside of the fenced area, and position in the same direction that it was walking;
- No vehicles or heavy machinery should be parked in any turtle habitat;
- Work conducted during early morning and evening hours should occur with special care not to harm basking or foraging individuals; and
- All silt fencing should be removed after work is completed and soils are stable so that reptile and amphibian movement between uplands and wetlands is not restricted.
- Stockpiles of soil should be cordoned off with silt fencing so turtles do not attempt to try and nest in them.
- Use native plantings if possible. Any plantings should be composed of species native to northeastern United States and appropriate for use in riparian habitat.

Thank you for implementing these protection measures for this turtle. I have attached fact sheets for this turtle so that you may educate project workers. Please re-submit an NDDB Request for Review if the scope of work changes or if work has not begun on this project by March 12, 2017.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits.

Please contact me if you have further questions at (860) 424-3592, or dawn.mckay@ct.gov . Thank you for consulting the Natural Diversity Data Base.

Sincerely,



Dawn M. McKay
Environmental Analyst 3



Connecticut Department of
**ENERGY &
ENVIRONMENTAL
PROTECTION**

March 8, 2016

Mr. Sean Maxwell
AECOM, Inc.
250 Apollo Drive
Chelmsford, MA 01824
sean.maxwell@aecom.com

Project: Durham Meadows Waterline Remediation with Water System and Tank Installation off Talcott Ridge Drive in Middletown, Connecticut
NDDB Determination No.: 201601361

Dear Sean,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map provided for the proposed Durham Meadows Waterline Remediation with Water System and Tank Installation off Talcott Ridge Drive in Middletown, Connecticut. According to our information there are extant populations of State Special Concern *Glyptemys insculpta* (wood turtle) in much of the area where this work will occur. We also have several wetland dependent species in the Allyn Brook Crossing area and special care should be taken if work will occur during April through October to minimize impacts and utilize best management practices to prevent sedimentation and soil erosion.

Wood Turtle: Habitat destruction, degradation or alteration and fragmentation all threaten Wood Turtle populations. Turtles are also particularly vulnerable to any activity that consistently reduces adult survivorship. Disturbances to stream and riparian habitats and activities that change the hydrology of the stream, the physical habitat itself and water quality are all potentially detrimental activities for the Wood Turtle. Although Wood Turtles are found within forested areas, they prefer areas that do not have a fully closed canopy cover. The greatest concern during projects occurring in wood turtle habitat are turtles being run over and crushed by mechanized equipment. Reducing the frequency that motorized vehicles enter Wood Turtle habitat would be beneficial in minimizing direct mortality of adults.

Recommended Protection Strategies:

If any work will occur when these turtles are active (April 1st to September 30th) I recommend the additional following protection strategies in order to protect these turtles:

- Silt fencing should be installed around the work area prior to construction, please avoid erosion control products that are embedded with netting as these can be fatal to wildlife;
- Where possible, AVOID installing sediment and erosion control materials from late August through September and from March through mid-May. These two time periods are when amphibians and reptiles are most active, moving to and from wetlands to breed;
- After silt fencing is installed and prior to construction, a sweep of the work area should be conducted to look for turtles;

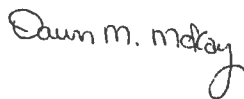
- Workers should be apprised of the possible presence of turtles, and provided a description of the species (http://www.ct.gov/dep/cwp/view.asp?a=2723&q=473472&depNav_GID=1655);
- Any turtles that are discovered should be moved, unharmed, to an area immediately outside of the fenced area, and position in the same direction that it was walking;
- No vehicles or heavy machinery should be parked in any turtle habitat;
- Work conducted during early morning and evening hours should occur with special care not to harm basking or foraging individuals; and
- All silt fencing should be removed after work is completed and soils are stable so that reptile and amphibian movement between uplands and wetlands is not restricted.
- Stockpiles of soil should be cordoned off with silt fencing so turtles do not attempt to try and nest in them.
- Use native plantings if possible. Any plantings should be composed of species native to northeastern United States and appropriate for use in riparian habitat.

Thank you for implementing these protection measures for this turtle. I have attached fact sheets for this turtle so that you may educate project workers. Please re-submit an NDDB Request for Review if the scope of work changes or if work has not begun on this project by March 8, 2017.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits.

Please contact me if you have further questions at (860) 424-3592, or dawn.mckay@ct.gov . Thank you for consulting the Natural Diversity Data Base.

Sincerely,



Dawn M. McKay
Environmental Analyst 3

WILDLIFE IN CONNECTICUT

STATE SPECIES OF SPECIAL CONCERN

Wood Turtle

Glyptemys insculpta

Background

Wood turtles may be found throughout Connecticut, but they have become increasingly rare due to their complex habitat needs. Wood turtles also have become more scarce in Fairfield County due to the fragmentation of suitable habitat by urban development.

Range

Wood turtles can be found across the northeastern United States into parts of Canada. They range from Nova Scotia through New England, south into northern Virginia, and west through the Great Lakes region into Minnesota.

Description

The scientific name of the wood turtle, *Glyptemys insculpta*, refers to the deeply sculptured or chiseled pattern found on the carapace (top shell). This part of the shell is dark brown or black and may have an array of faint yellow lines radiating from the center of each chiseled, pyramid-like segment due to tannins and minerals accumulating between ridges. These segments of the carapace, as well as those of the plastron (bottom shell), are called scutes. The carapace also is keeled, with a noticeable ridge running from front to back. The plastron is yellow with large dark blotches in the outer corners of each scute. The black or dark brown head and upper limbs are contrasted by brighter pigments ranging from red and orange to a pale yellow on the throat and limb undersides. Orange hues are most typical for New England's wood turtles. The hind feet are only slightly webbed, and the tail is long and thick at the base. Adults weigh approximately 1.5 to 2.5 pounds and reach a length of 5 to 9 inches.



© PAUL J. FUSCO

Habitat and Diet

Wood turtles use aquatic and terrestrial habitats at different times of the year. Their habitats include rivers and large streams, riparian forests (adjacent to rivers), wetlands, hayfields, and other early successional habitats. Terrestrial habitat that is usually within 1,000 feet of a suitable stream or river is most likely used. Preferred stream conditions include moderate flow, sandy or gravelly bottoms, and muddy banks.

Wood turtles are omnivorous and opportunistic. They are not picky eaters and will readily consume slugs, worms, tadpoles, insects, algae, wild fruits, leaves, grass, moss, and carrion.

Life History

From late spring to early fall, wood turtles can be found roaming their aquatic or terrestrial habitats. However, once temperatures drop in autumn, the turtles retreat to rivers and large streams for hibernation. The winter

is spent underwater, often tucked away below undercut riverbanks within exposed tree roots. Dissolved oxygen is extracted from the water, allowing the turtle to remain submerged entirely until the arrival of spring. Once warmer weather sets in, the turtles will become increasingly more active, eventually leaving the water to begin foraging for food and searching for mates. Travel up or down stream is most likely, as turtles seldom stray very far from their riparian habitats.

Females nest in spring to early summer, depositing anywhere from 4 to 12 eggs into a nest dug out of soft soil, typically in sandy deposits along stream banks or other areas of loose soil. The eggs hatch in late summer or fall and the young turtles may either emerge or remain in the nest for winter hibernation. As soon as the young turtles hatch, they are on their own and receive no care from the adults.

Turtle eggs and hatchlings are heavily preyed upon by a wide variety of predators, ranging from raccoons to birds and snakes. High rates of nest predation and hatchling mortality, paired with the lengthy amount of time it takes for wood turtles to reach sexual maturity, present a challenge to maintaining sustainable populations. Wood turtles live upwards of 40 to 60 years, possibly more.

Conservation Concerns

Loss and fragmentation of habitat are the greatest threats to wood turtles. Many remaining populations in Connecticut are low in numbers and isolated from one another by human-dominated landscapes. Turtles forced to venture farther and farther from appropriate habitat

to find mates and nesting sites are more likely to be run over by cars, attacked by predators, or collected by people as pets.

Other sources of mortality include entanglements in litter and debris left behind by people, as well as strikes from mowing equipment used to maintain hayfields and other early successional habitats.

The wood turtle is imperiled throughout a large portion of its range and was placed under international trade regulatory protection through the Convention on International Trade in Endangered Species (CITES) in 1992. Wood turtles also have been included on the International Union for Conservation of Nature's (IUCN) Red List as a vulnerable species since 1996. They are listed as a species of special concern in Connecticut and protected by the Connecticut Endangered Species Act.

How You Can Help

- *Conserve riparian habitat. Maintaining a buffer strip of natural vegetation (minimum of 100 feet) along the banks of streams and rivers will protect wood turtle habitat and also help improve the water quality of the stream system. Stream banks that are manicured (cleared of natural shrubby and herbaceous vegetation) or armored by rip rap or stone walls will not be used by wood turtles or most other wildlife species.*
- *Do not litter. Wood turtles and other wildlife may accidentally ingest or become entangled in garbage and die.*
- *Leave turtles in the wild. They should never be kept as pets. Whether collected singly or for the pet trade, turtles that are removed from the wild are no longer able to be a reproducing member of a population. Every turtle removed reduces the ability of the population to maintain itself.*
- *Never release a captive turtle into the wild. It probably would not survive, may not be native to the area, and could introduce diseases to wild populations.*
- *As you drive, watch out for turtles crossing the road. Turtles found crossing roads in June and July are often pregnant females. They should **not** be collected but can be helped on their way. Without creating a traffic hazard or compromising safety, drivers are encouraged to avoid running over turtles that are crossing roads. Also, still keeping safety precautions in mind, you may elect to pick up turtles from the road and move them onto the side in the direction they are headed. Never relocate a turtle to another area that is far from where you found it.*
- *Learn more about turtles and their conservation concerns, and educate others.*
- *If you see a wood turtle, leave it in the wild, take a photograph, record the location where it was seen, and contact the Connecticut Department of Environmental Protection (DEP) Wildlife Division at dep.wildlife@ct.gov, or call 860-424-3011 to report your observation.*



Natural Diversity Data Base Areas

DURHAM, CT

September 2015

- State and Federal Listed Species
& Significant Natural Communities
- Town Boundary

NOTE: This map shows general locations of State and Federal Listed Species and Significant Natural Communities. Information on listed species is collected and compiled by the Natural Diversity Data Base (NDDDB) from a number of data sources. Exact locations of species have been buffered to produce the general locations. Exact locations of species and communities occur somewhere in the shaded areas, not necessarily in the center. A new mapping format is being employed that more accurately models important riparian and aquatic areas and eliminates the need for the upstream/downstream searches required in previous versions.

This map is intended for use as a preliminary screening tool for conducting a Natural Diversity Data Base Review Request. To use the map, locate the project boundaries and any additional affected areas. If the project is within a shaded area there may be a potential conflict with a listed species. For more information, complete a Request for Natural Diversity Data Base State Listed Species Review form (DEP-APP-007), and submit it to the NDDDB along with the required maps and information. More detailed instructions are provided with the request form on our website.

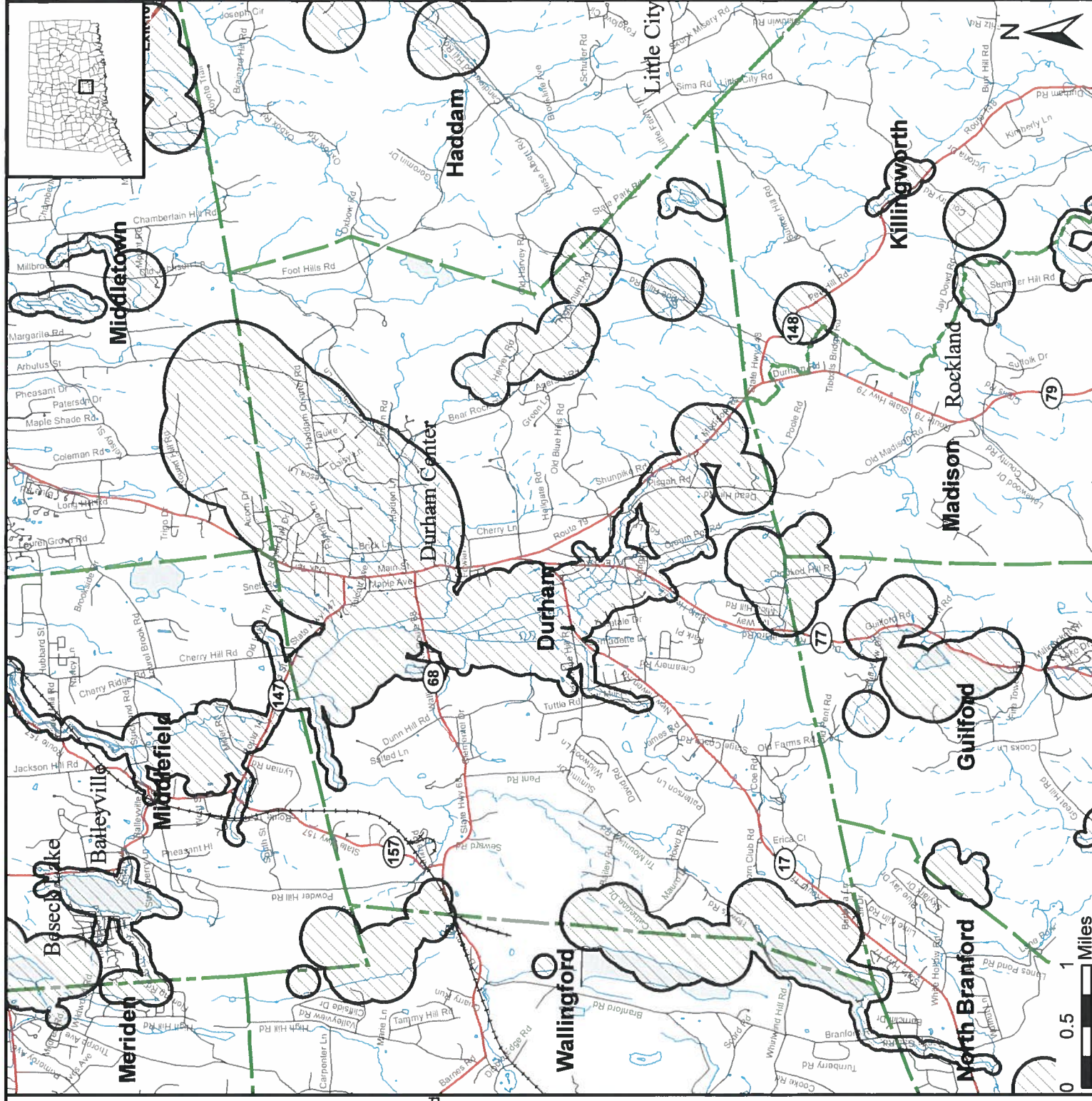
www.ct.gov/deep/nddbrequest

Use the CTECO Interactive Map Viewers at www.cteco.uconn.edu to more precisely search for and locate a site and to view aerial imagery with NDDDB Areas.

QUESTIONS: Department of Energy and Environmental Protection (DEEP)
79 Elm St., Hartford CT 06106
Phone (860) 424-3011

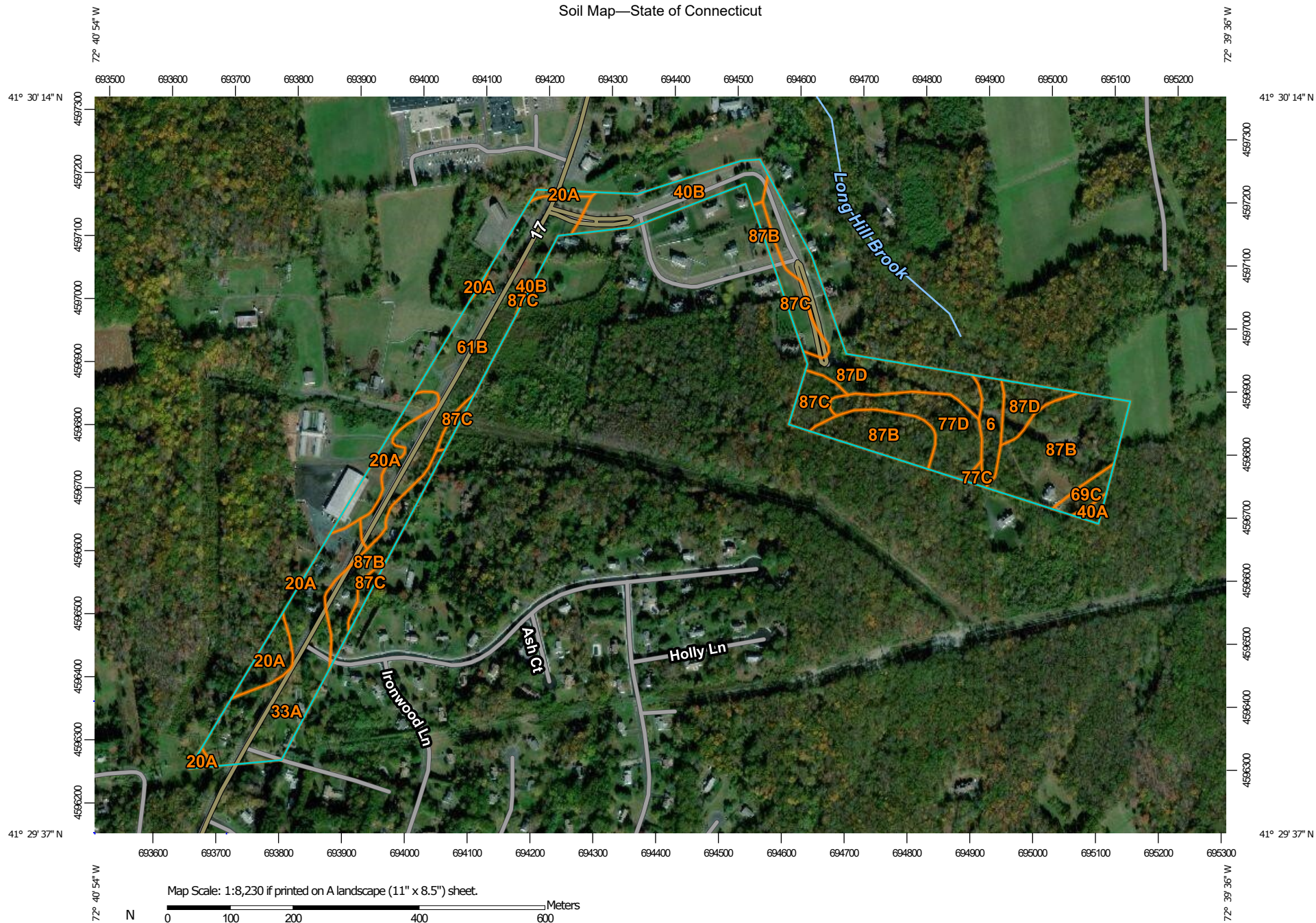


Connecticut Department of
Energy & Environmental Protection
Bureau of Natural Resources
Wildlife Division



APPENDIX E SOILS MAP

Soil Map—State of Connecticut



Map Scale: 1:8,230 if printed on A landscape (11" x 8.5") sheet.

0 100 200 400 600 Meters

0 400 800 1600 2400 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge ticks: UTM Zone 18N WGS84




**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

6/7/2019
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut

Survey Area Data: Version 18, Dec 6, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Oct 30, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
6	Wilbraham and Menlo soils, 0 to 8 percent slopes, extremely stony	1.3	2.5%
20A	Ellington silt loam, 0 to 5 percent slopes	3.4	6.5%
33A	Hartford sandy loam, 0 to 3 percent slopes	7.8	14.8%
40A	Ludlow silt loam, 0 to 3 percent slopes	0.3	0.5%
40B	Ludlow silt loam, 3 to 8 percent slopes	3.6	6.9%
61B	Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony	9.7	18.5%
69C	Yalesville fine sandy loam, 8 to 15 percent slopes	0.7	1.4%
77C	Cheshire-Holyoke complex, 3 to 15 percent slopes, very rocky	0.2	0.3%
77D	Cheshire-Holyoke complex, 15 to 35 percent slopes, very rocky	3.4	6.5%
87B	Wethersfield loam, 3 to 8 percent slopes	11.7	22.3%
87C	Wethersfield loam, 8 to 15 percent slopes	3.5	6.7%
87D	Wethersfield loam, 15 to 25 percent slopes	7.0	13.2%
Totals for Area of Interest		52.7	100.0%

APPENDIX F LIMITATIONS

LIMITATIONS

USE OF PLAN

1. GZA GeoEnvironmental, Inc. (GZA) prepared this Plan on behalf of, and for the exclusive use of, our Client for the stated purpose(s) and location(s) identified in the Plan. However, GZA acknowledges and agrees that the Plan may be conveyed to other parties associated with the implementation of the Plan. Use of this Plan, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not expressly identified in the Plan, for any use, without our written permission, shall be at the party's sole risk, and without any liability to GZA.
2. This Plan has been prepared for the exclusive use of LUDLOW CONSTRUCTION CO., INC. for specific application to the Durham Meadows Water Main Extension Project located in Middletown, CT, in accordance with generally accepted engineering practices. The Site is defined as the Project or Facility to which this Plan applies.

STANDARD OF CARE

3. The information contained in this Plan was prepared in accordance with practices and standard of care typically exercised by members of our profession at the time of our services and under conditions similar to those we encountered while performing our services. No warranty, express or implied, is made.
4. Any observations described in this Plan were made under the conditions stated herein. Any conclusions presented in this Plan were based solely upon the services described, and not on scientific tasks or procedures beyond the scope of described services or the time and budgetary constraints imposed by Client.
5. In preparing this Plan, GZA relied upon certain information made available by public agencies, the Client, and/or Others, and on information contained in the files of state and/or local agencies available to GZA at the time of the services. Although there may have been some degree of overlap in the information provided by these various sources, GZA did not attempt to independently verify the accuracy or completeness of this information.
6. Observations made of the Site and of structures on the Site are indicated within the Plan. Where access to portions of the Site or to structures on the Site was unavailable or limited, GZA renders no opinion on its condition.
7. GZA prepared this Plan based on information made available to GZA and observations made while preparing the Plan. Site conditions are subject to change, so conditions at any given time could differ from the conditions described in the Plan.

ADDITIONAL INFORMATION

8. In the event that the Client or others authorized to use this Plan obtain information on issues at the Site not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this evaluation, may modify this Plan.



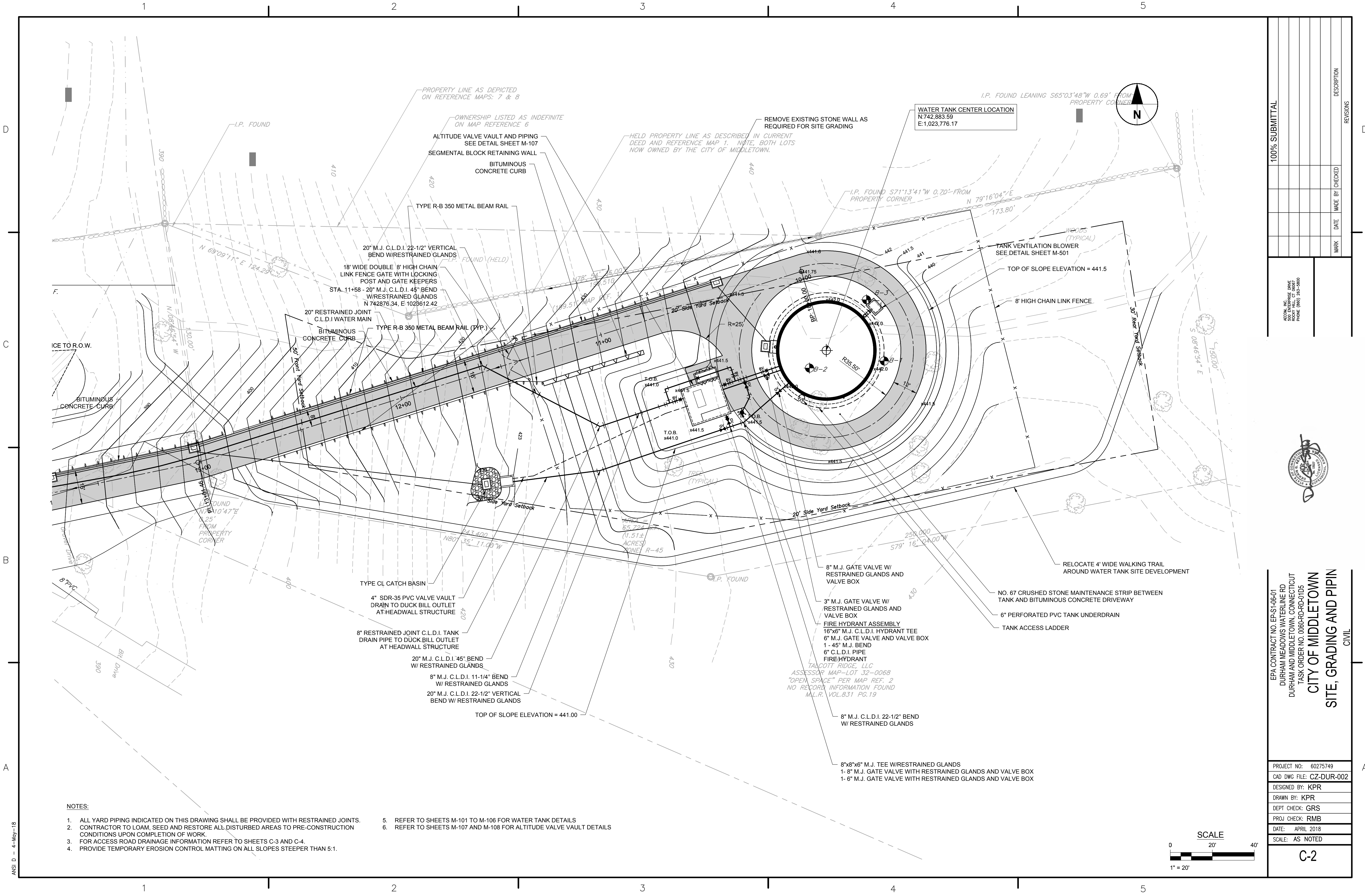
EXHIBITS

SITE PLAN / EROSION AND SEDIMENT CONTROL PLAN

The Erosion and Sediment Control Plan was prepared by Others. Various site management practices shall be decided by the Contractor during construction and are likely to change during the course of construction. **The following list of items must be added to or updated on the Erosion and Sediment Control Plan(s) by the Contractor on site, if applicable.** Changes on site during the course of construction must also be updated on the Erosion and Sediment Control Plans. The following list is not intended to be all inclusive and the Contractor is directed to the Construction General Permit (CGP) for more information.

The Contractor shall indicate on the Erosion and Sediment Control Plan the areas that have reached final stabilization.

- ☐ Materials/equipment storage areas including stockpiles;
- ☐ Area(s) of soil disturbance (note phasing);
- ☐ Locations of major structural controls (BMPs) and stabilization practices (both temporary and permanent);
- ☐ Locations where vehicles will exit onto paved roads and stabilized construction entrance(s)/exit(s);
- ☐ Locations of storm water and dewatering discharges to a surface water;
- ☐ Areas that have reached final stabilization;
- ☐ Locations of portable toilets;
- ☐ Locations of fuel tanks;
- ☐ Limits of staging areas;
- ☐ Waste storage areas (dumpsters, chemical and other liquid storage areas, etc.);
- ☐ Designated area for onsite vehicle/equipment maintenance;
- ☐ Designated area for onsite vehicle/equipment washout;
- ☐ Designated area for onsite concrete truck washout;
- ☐ Designated area for onsite washout and cleanout of any chemicals or construction materials; and
- ☐ Updates regarding controls used to reduce pollutants from construction or waste materials expected to be stored on site.



NOTES:

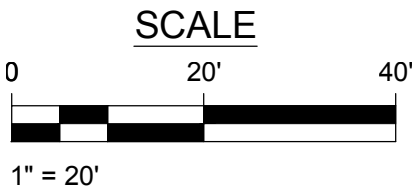
1. ALL YARD PIPING INDICATED ON THIS DRAWING SHALL BE PROVIDED WITH RESTRAINED JOINTS.

2. CONTRACTOR TO LOAM, SEED AND RESTORE ALL DISTURBED AREAS TO PRE-CONSTRUCTION CONDITIONS UPON COMPLETION OF WORK.

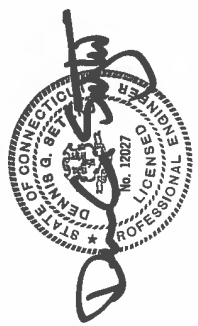
3. FOR ACCESS ROAD DRAINAGE INFORMATION REFER TO SHEETS C-3 AND C-4.

4. PROVIDE TEMPORARY EROSION CONTROL MATTING ON ALL SLOPES STEEPER THAN 5:1.
5. REFER TO SHEETS M-101 TO M-106 FOR WATER TANK DETAILS.

6. REFER TO SHEETS M-107 AND M-108 FOR ALTITUDE VALVE VAULT DETAILS.



100% SUBMITTAL				REVISIONS	
MARK	DATE	MADE BY	CHECKED	DESCRIPTION	
ACSON, INC. 500 ENTERPRISE DRIVE MIDDLETOWN, CT 06457 PHONE (860) 243-5800					



EPA CONTRACT NO. EP-S1-06-01 DURHAM MEADOWS WATERLINE RD DURHAM AND MIDDLETOWN, CONNECTICUT TASK ORDER NO. 0060-RD-RD-01D5 CITY OF MIDDLETOWN SITE, GRADING AND PIPIN CIVIL	
PROJECT NO:	60275749
CAD DWG FILE:	CZ-DUR-002
DESIGNED BY:	KPR
DRAWN BY:	KPR
DEPT CHECK:	GRS
PROJ CHECK:	RMB
DATE:	APRIL 2018
SCALE:	AS NOTED
C-2	

1. CONTRACTOR SHALL MAINTAIN EMERGENCY ACCESS TO ALL PROPERTIES AT ALL TIMES
2. CONTRACTOR SHALL PROVIDE, AS A MINIMUM, ONE WAY TRAFFIC ACCESS TO ALL PROPERTIES DURING WORKING HOURS.
3. CONTRACTOR SHALL BACKFILL ALL OPEN EXCAVATIONS AND MAINTAIN DRIVEWAY ACCESS FOR VEHICLES AND PEDESTRIANS DURING NON-WORKING HOURS, NIGHTS, WEEKENDS, AND HOLIDAYS.
4. ALL PORTIONS OF HARDWOOD TREES REMOVED GREATER THAN 4-INCHES IN DIAMETER SHALL BE CUT INTO 10 FOOT LENGTHS AND DELIVERED TO A LOCATION ON THE ADJACENT PRIVATE OWNERS LAND AS DIRECTED BY THE CONTRACTING OFFICERS REPRESENTATIVE. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND DISPOSING OF ALL OTHER BRUSH, STUMPS, WOOD, ROOTS, AND OTHER CLEARED VEGETATION NOT RETAINED BY THE PROPERTY OWNERS.
5. RESIDENTS WITHIN 500 FEET OF THE WATER TANK AND ACCESS DRIVEWAY SHALL BE NOTIFIED 24 HOURS IN ADVANCE OF ALL PLANNED ACTIVITIES THAT WILL GENERATE LOUD NOISES OR LARGE VIBRATIONS.



HORIZONTAL

VERTICAL

SCALES

0 40' 80'

1" = 40'

0 10' 20'

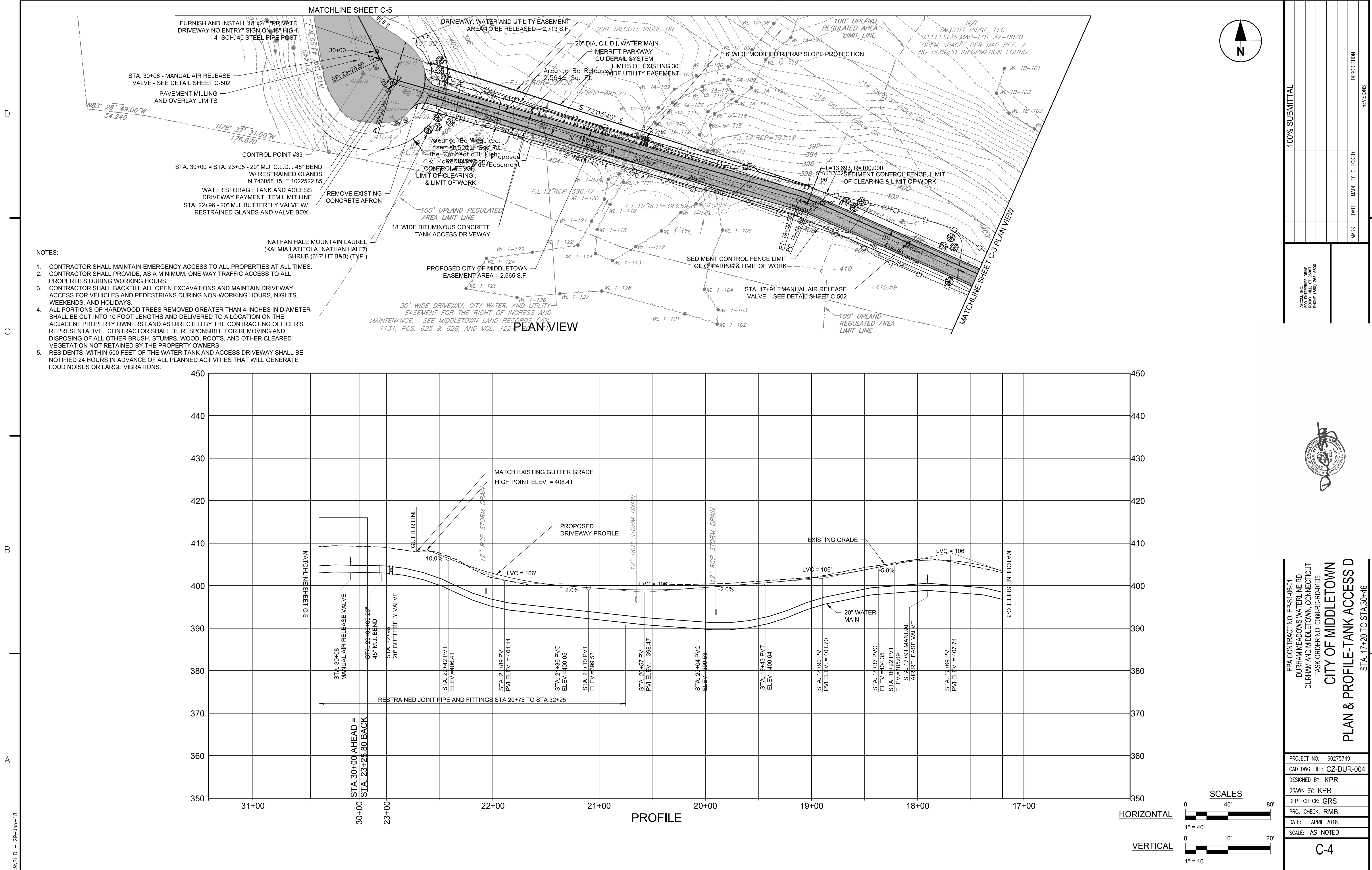
1" = 10'

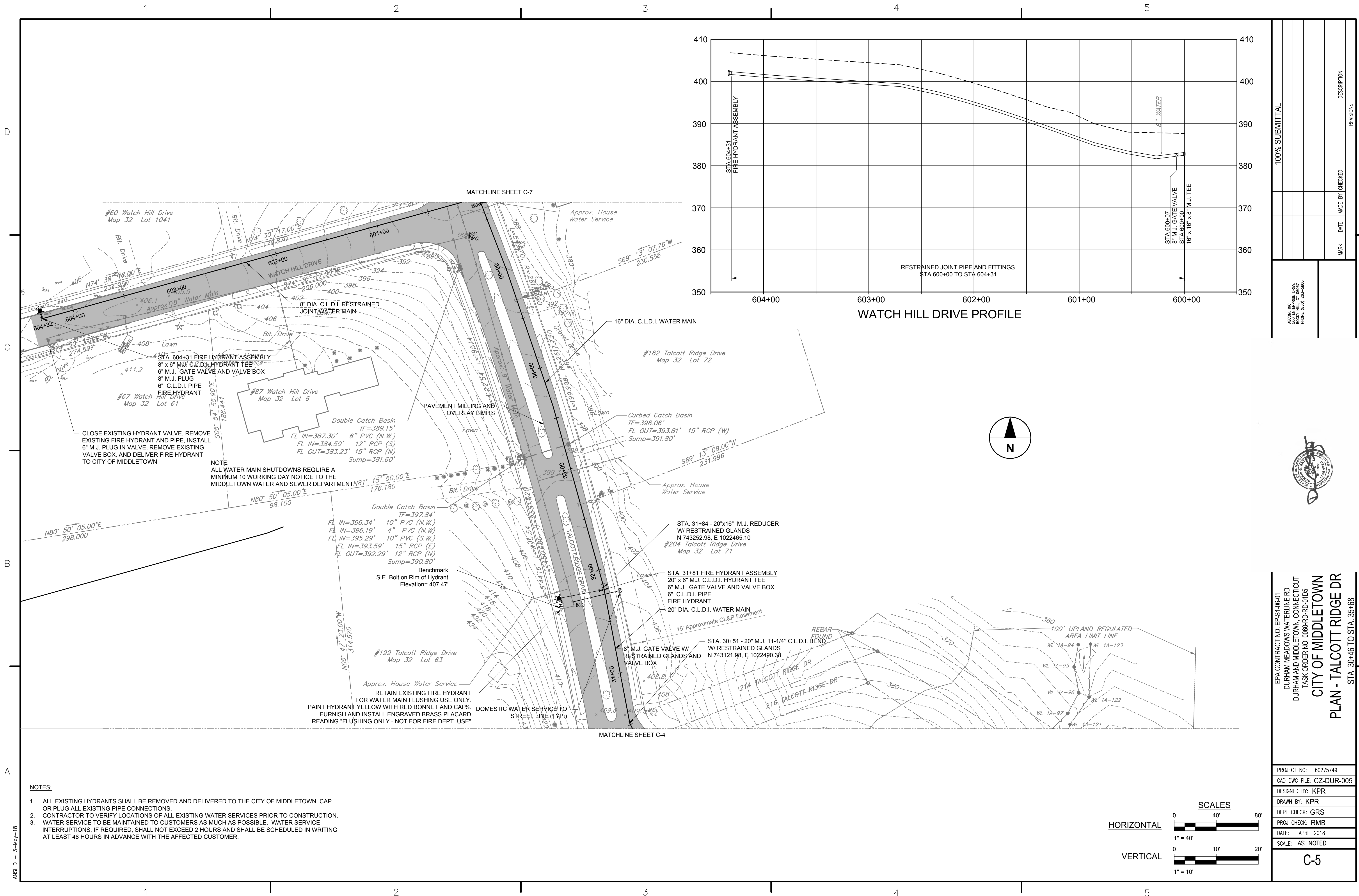
[illegible]

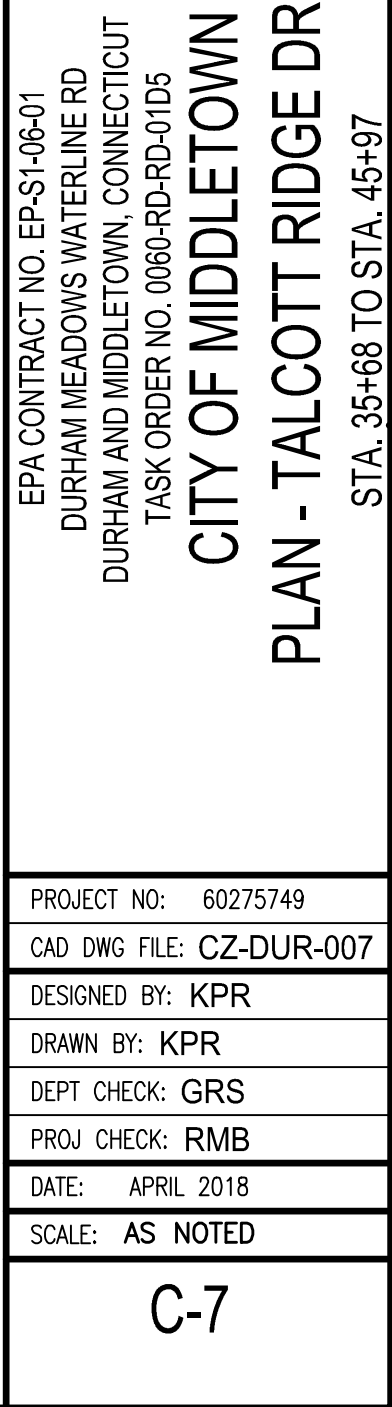
EPA CONTRACT NO. EP-S146-01
DURHAM/MEADOWS WATERLINE RD
DURHAM AND MIDDLETOWN, CONNECTICUT
TASK ORDER NO. 0060-RD-RD-01D5
CITY OF MIDDLETOWN
PLAN & PROFILE-TANK ACCESS D
STA. 10+00 TP STA. 17+20

PROJECT NO:	60275749
CAD DWG FILE:	CZ-DUR-003
DESIGNED BY:	KPR
DRAWN BY:	KPR
DEPT CHECK:	GRS
PROJ CHECK:	RMB
DATE:	APRIL 2018
SCALE:	AS NOTED

C-3







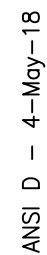
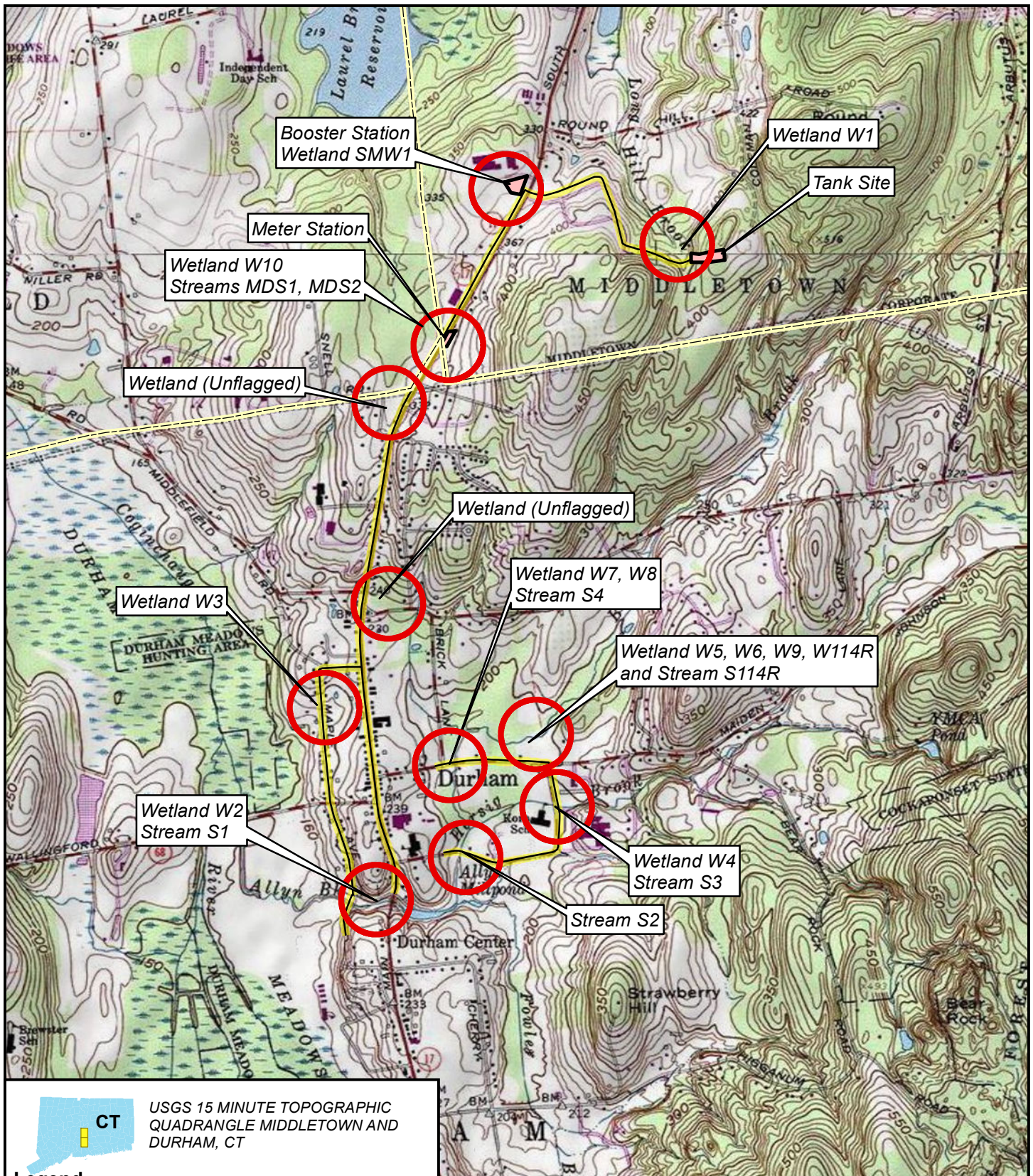


EXHIBIT 2



CT

USGS 15 MINUTE TOPOGRAPHIC QUADRANGLE MIDDLETOWN AND DURHAM, CT

Legend

- Proposed Water Line
- Poorly Drained and Very Poorly Drained Soils
- Alluvial and Floodplain Soils
- Town

0 1,000 2,000 4,000

Feet

SITE LOCUS

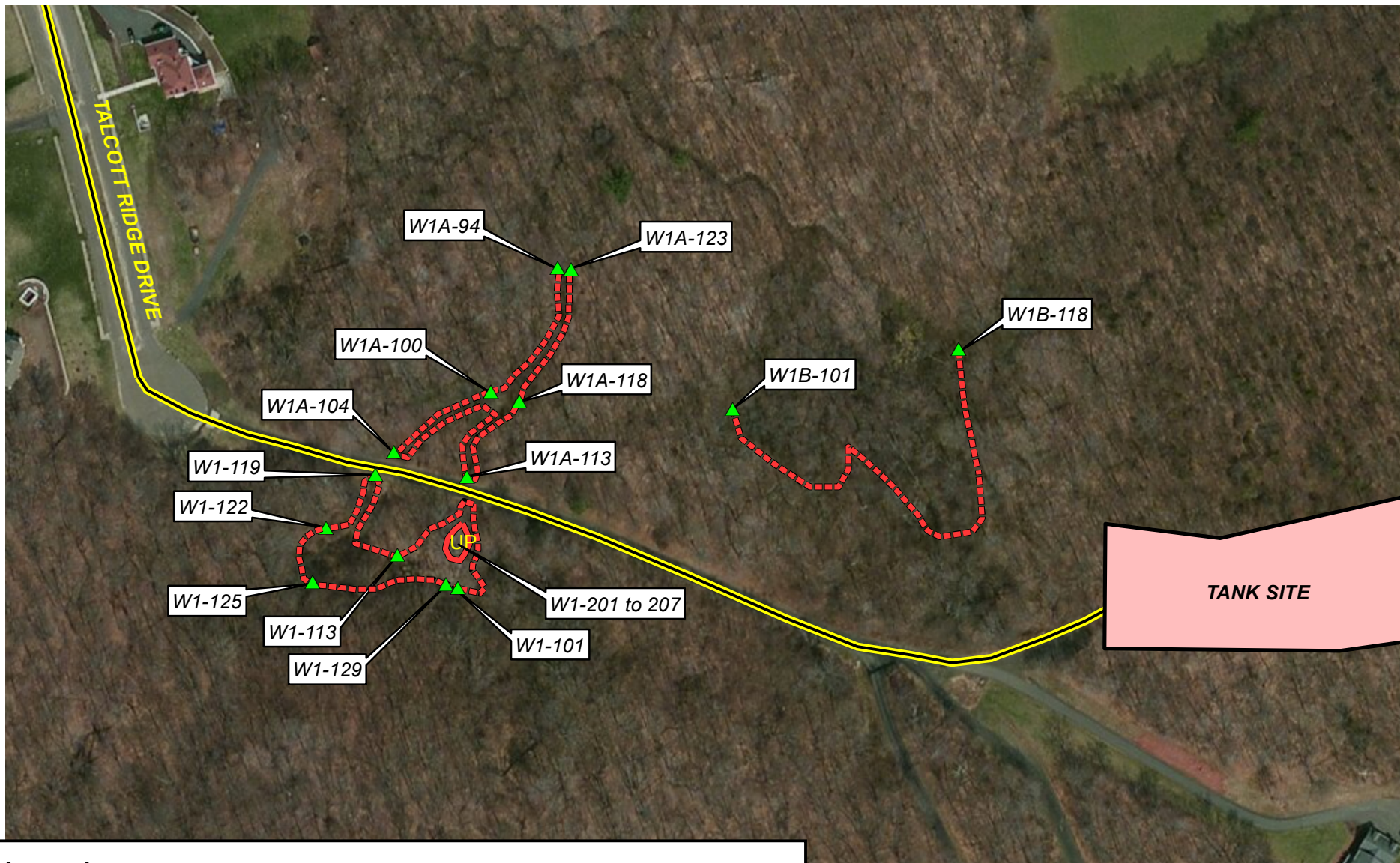
Durham Meadows Waterline RD
Middletown and Durham, Connecticut

AECOM

Figure Number

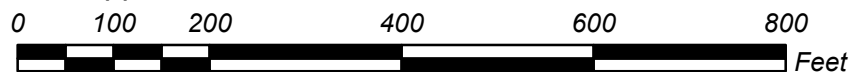
1

SCALE	DATE	PROJECT NO.
1:24,000	07/17	60275749



Legend

- Tank Site Parcel
- Proposed Water Line
- Approximate Wetland Boundaries



Approximate Wetland Boundaries

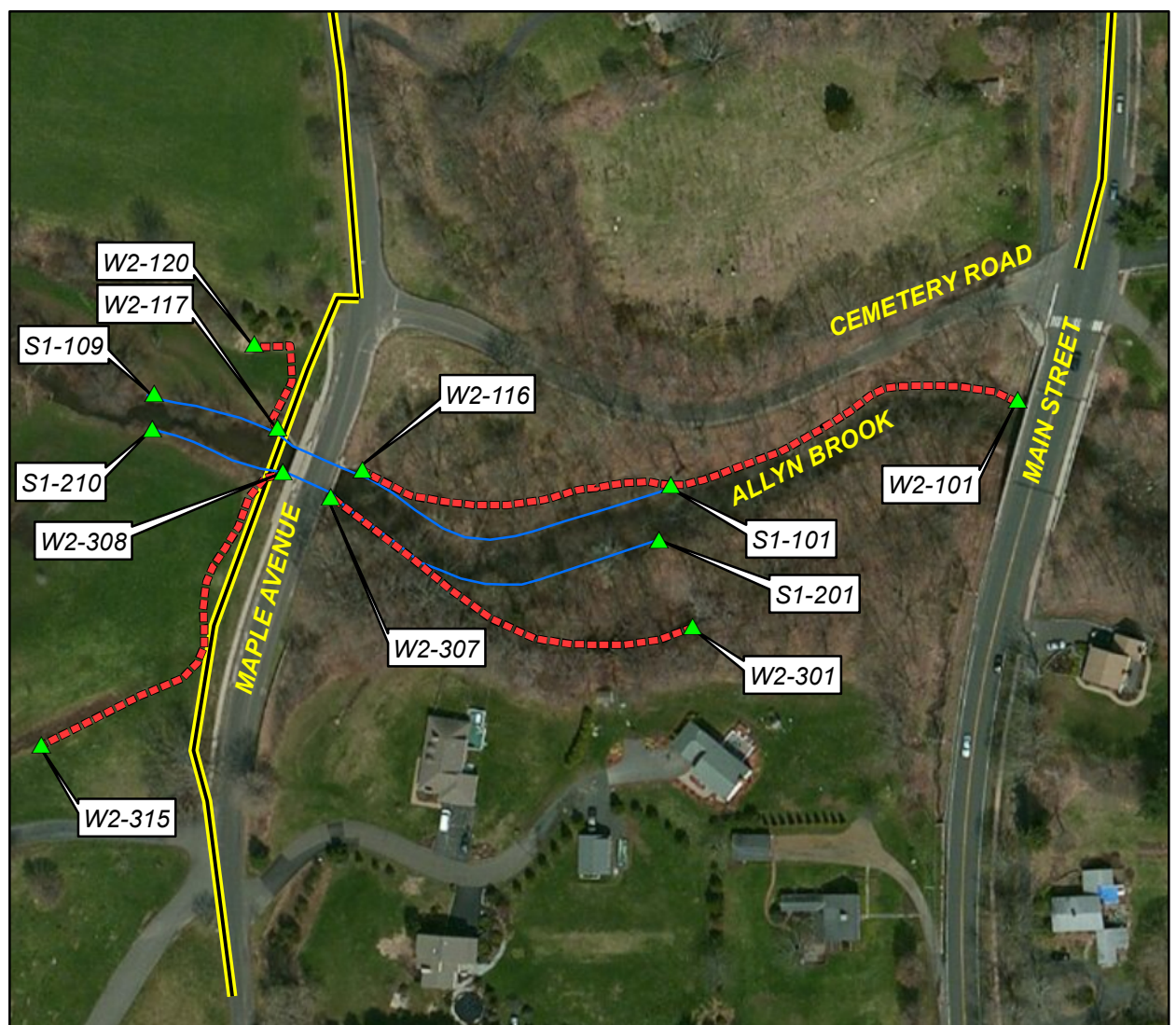
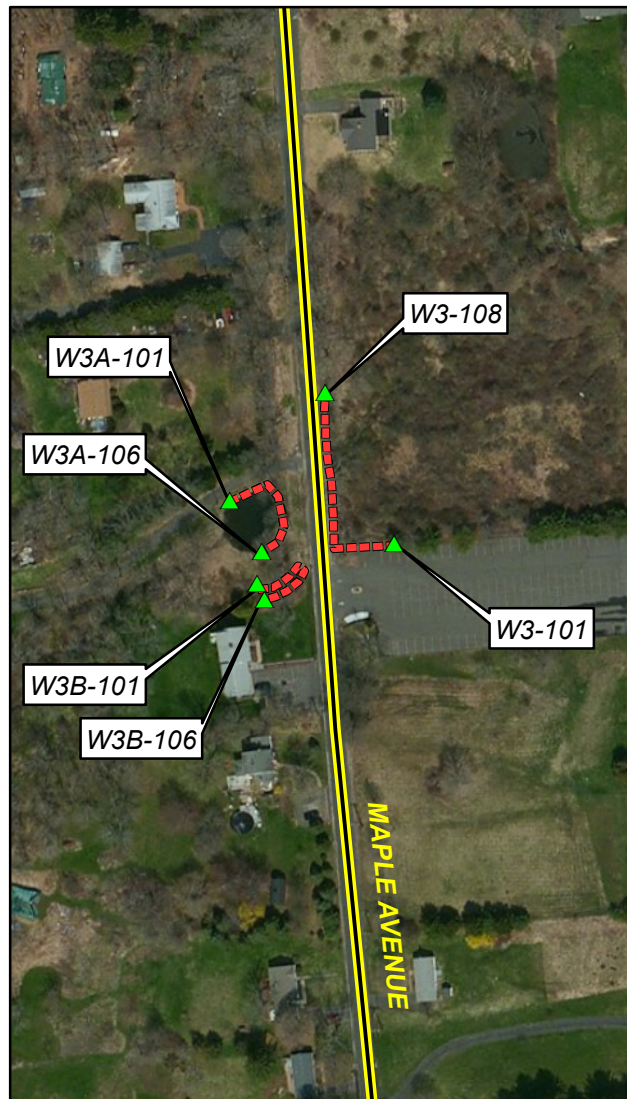
Durham Meadows Waterline RD
Middletown and Durham, Connecticut

SCALE	DATE	PROJECT NO.
1:1800	11/14	60275749

AECOM

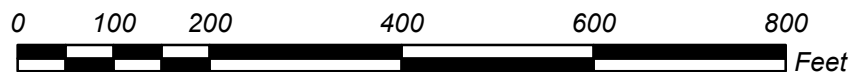
Figure Number

2



Legend

- Proposed Water Line
- - - Approximate Wetland Boundaries
- Approximate Top of Bank Line



Approximate Wetland Boundaries

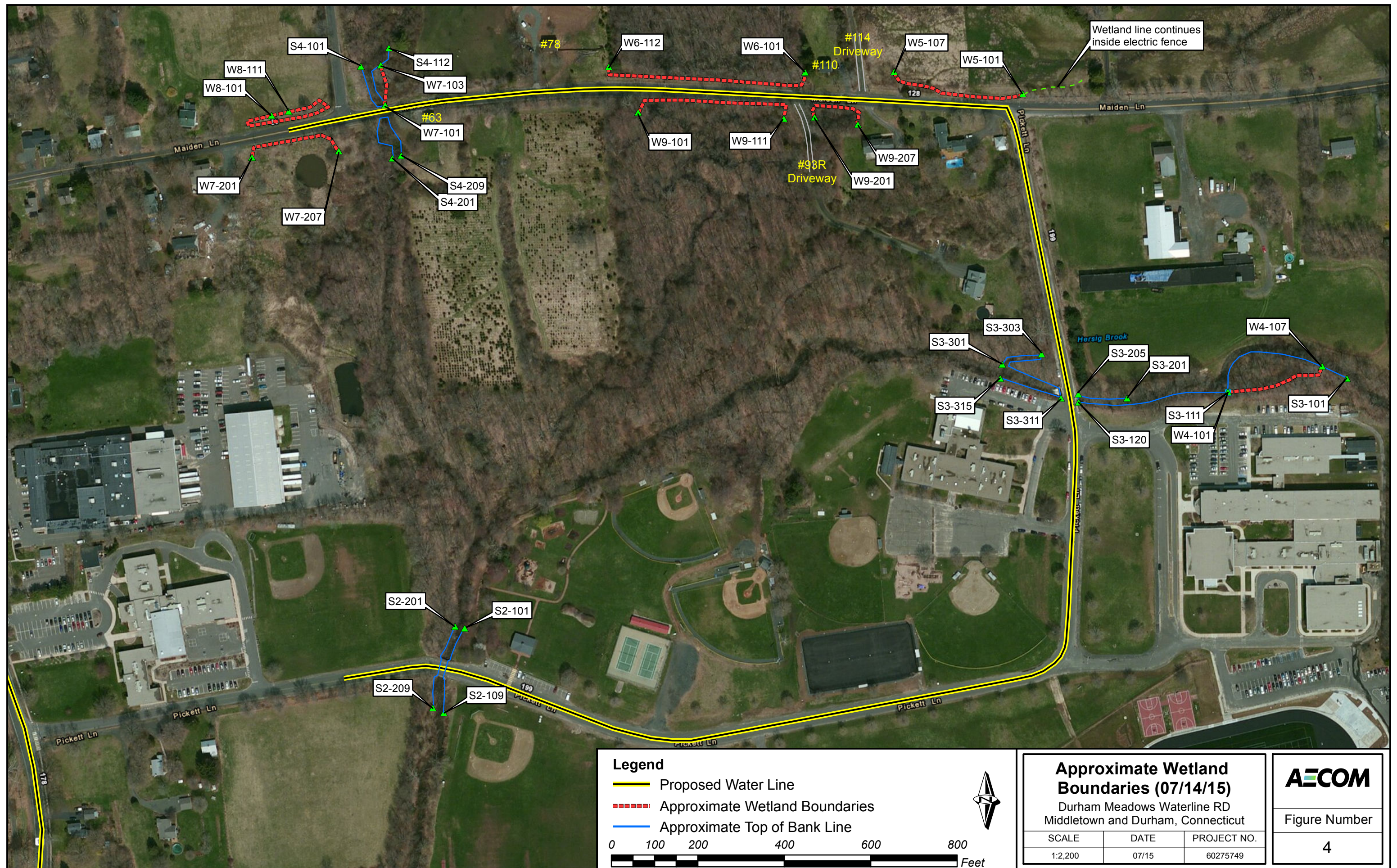
Durham Meadows Waterline RD
Middletown and Durham, Connecticut

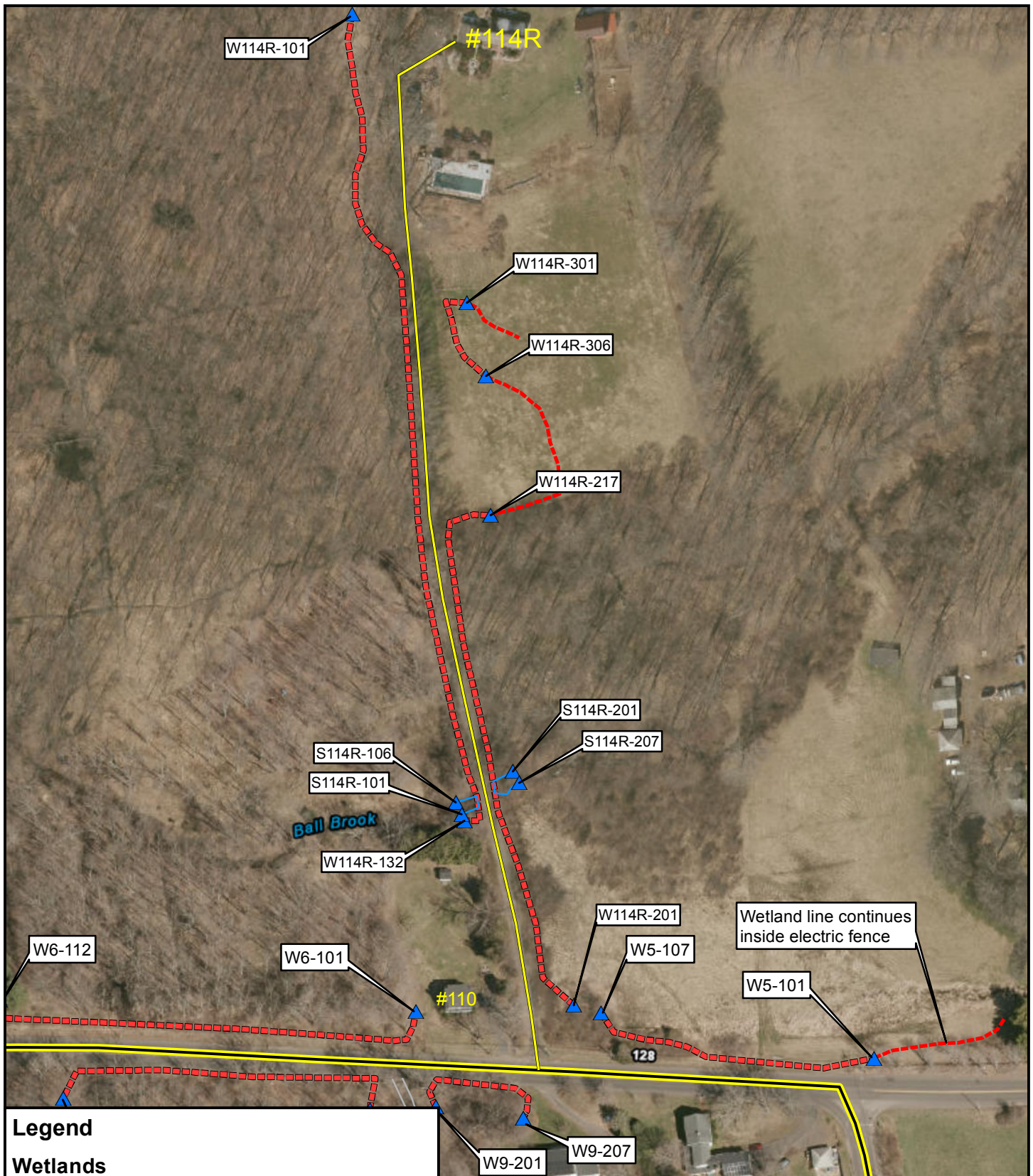
SCALE	DATE	PROJECT NO.
1:1800	11/14	60275749

AECOM

Figure Number

3





Legend

Wetlands

- Approx Wetland - Photo Interpreted
- Approx Wetland - Field Delineated
- Watercourse
- ▲ Wetland Flags
- Proposed Water Line
- Proposed Service Line

Approximate Wetland Boundaries (07/13/17)

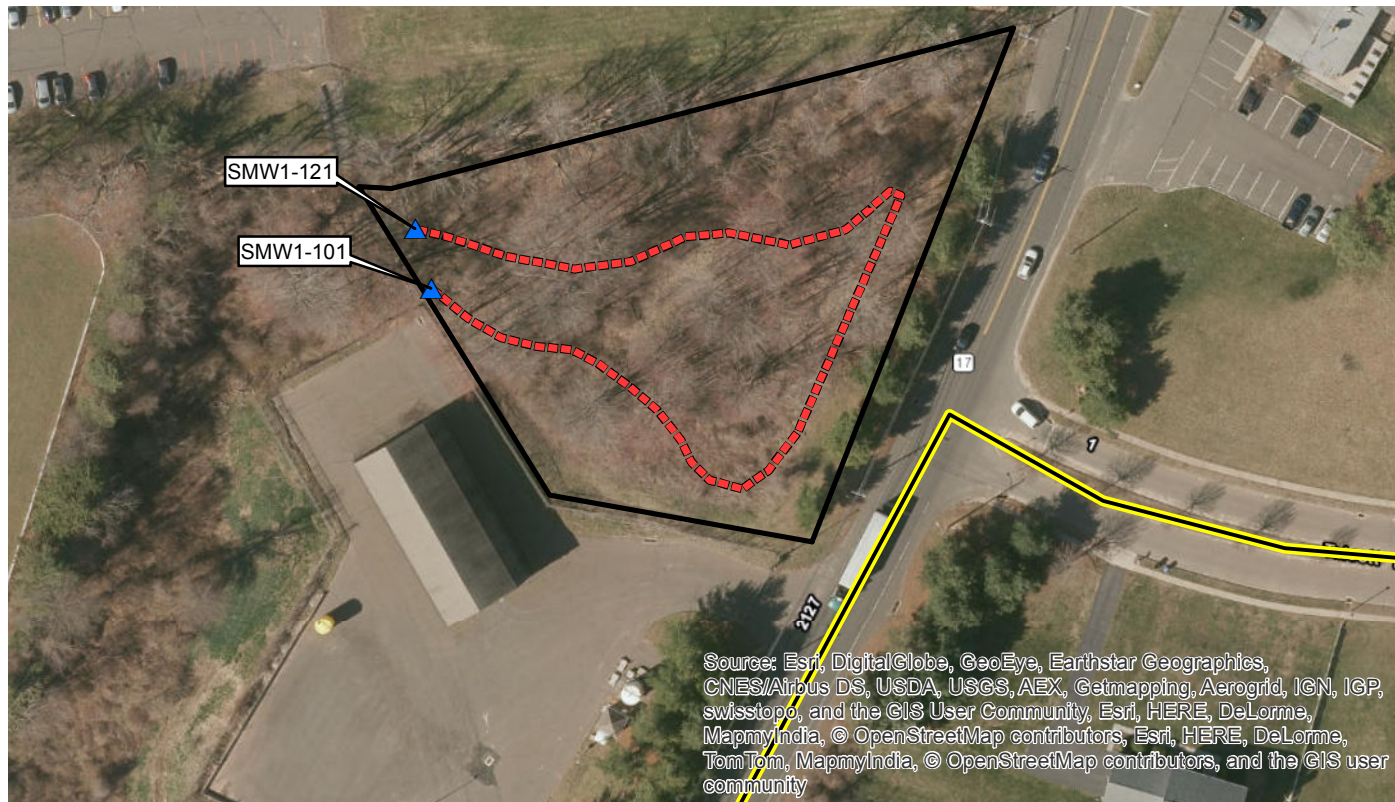
Durham Meadows Waterline RD
Middletown and Durham, Connecticut

SCALE	DATE	PROJECT NO.
1:1,800	07/17	60275749

AECOM

Figure Number

5



Legend

Wetlands

- - - Approx Wetland - Photo Interpreted
- - - Approx Wetland - Field Delineated
- Watercourse
- ▲ Wetland Flags
- Approx Property Boundaries
- Proposed Water Line

Approximate Wetland Boundaries (07/13/17)

Durham Meadows Waterline RD
Middletown and Durham, Connecticut

SCALE	DATE	PROJECT NO.
1:1,200	07/17	60275749

AECOM

Figure Number

6

DD6.18.18 Durham Meadows Waterline - UP03							Ludlow - All Activities					PAGE 5 OF 9 PAGES																					
Activity ID	Activity Description	Orig. Dur.	Total Float	Early Start	Early Finish	Late Start	Late Finish	Calendar	Remaining Duration	Physical % Complete	2019				2020				2021				2022										
A4640	Procure Automatic Transfer Switch	30	268	15-Aug-19	13-Sep-19	09-May-20	07-Jun-20	Cure, Milestone, & Submittal - 7D/Wk	30	0%	N	J	J	A	S	N	D	J	F	A	J	J	A	S	N	D	J	F	A	J	J	A	S
16450 - Grounding and Bonding for Electrical Systems																																	
A4460	P&S Grounding & Bonding Shop Drawings	30	293	16-Jun-19	15-Jul-19	04-Apr-20	03-May-20	Cure, Milestone, & Submittal - 7D/Wk	30	0%	P&S Grounding & Bonding Shop Drawings																						
A4470	R&A Grounding & Bonding Shop Drawings	30	293	16-Jul-19	14-Aug-19	04-May-20	02-Jun-20	Cure, Milestone, & Submittal - 7D/Wk	30	0%	R&A Grounding & Bonding Shop Drawings																						
16601 - Lightning Protection																																	
A4480	P&S Lightning Protection Shop Drawings	30	293	16-Jun-19	15-Jul-19	04-Apr-20	03-May-20	Cure, Milestone, & Submittal - 7D/Wk	30	0%	P&S Lightning Protection Shop Drawings																						
A4490	R&A Lightning Protection Shop Drawings	30	293	16-Jul-19	14-Aug-19	04-May-20	02-Jun-20	Cure, Milestone, & Submittal - 7D/Wk	30	0%	R&A Lightning Protection Shop Drawings																						
16900 - Electrical Controls and Miscellaneous Electrical Equipment																																	
A4500	P&S Electrical Controls & Equipment Shop Drawings	30	298	16-Jun-19	15-Jul-19	09-Apr-20	08-May-20	Cure, Milestone, & Submittal - 7D/Wk	30	0%	P&S Electrical Controls & Equipment Shop Drawings																						
A4510	R&A Electrical Controls & Equipment Shop Drawings	30	298	16-Jul-19	14-Aug-19	09-May-20	07-Jun-20	Cure, Milestone, & Submittal - 7D/Wk	30	0%	R&A Electrical Controls & Equipment Shop Drawings																						
Construction																																	
Start-up																																	
A7720	P&S Permits Project Wide	30	7	18-Feb-19 A	26-Jun-19	23-Jun-19	03-Jul-19	Cure, Milestone, & Submittal - 7D/Wk	11	80%	P&S Permits Project Wide																						
A1120	Mobilization Period	10	18	17-Jun-19	28-Jun-19	12-Jul-19	26-Jul-19	Out of Roadway Work - Days	10	0%	Mobilization Period																						
A4650	Establish Engineers Field Office	5	18	17-Jun-19	21-Jun-19	12-Jul-19	19-Jul-19	Out of Roadway Work - Days	5	0%	Establish Engineers Field Office																						
A4680	Perform Vibration Monitoring Survey	5	28	17-Jun-19	21-Jun-19	29-Jul-19	02-Aug-19	Out of Roadway Work - Days	5	0%	Perform Vibration Monitoring Survey																						
A7730	Issuance of Permits & Police Detail - Project Wide	30	7	27-Jun-19	26-Jul-19	04-Jul-19	02-Aug-19	Cure, Milestone, & Submittal - 7D/Wk	30	0%	Issuance of Permits & Police Detail - Project Wide																						
A1140	Install E&S Controls	5	4	15-Jul-19	22-Jul-19	22-Jul-19	26-Jul-19	Out of Roadway Work - Days	5	0%	Install E&S Controls																						
A1160	Establish Laydown Yard	5	4	23-Jul-19	29-Jul-19	29-Jul-19	02-Aug-19	Out of Roadway Work - Days	5	0%	Establish Laydown Yard																						
A4660	Perform Test Pits as Needed - Project Wide	3	6	23-Jul-19	25-Jul-19	31-Jul-19	02-Aug-19	Out of Roadway Work - Days	3	0%	Perform Test Pits as Needed - Project Wide																						
A5280	Tree Clearing - Tank Access	10	56	15-Aug-19	29-Aug-19	15-Nov-19	29-Nov-19	Out of Roadway Work - Days	10	0%	Tree Clearing - Tank Access																						
A7550	Establish Water Treatment System Area	5	111	24-Apr-20	30-Apr-20	15-Oct-20	22-Oct-20	Out of Roadway Work - Days	5	0%	Establish Water Treatment System Area																						
Route 17 South Main Street																																	
Rte 17 - Sta 100+00 to 209+25																																	
A4670	Sta. 100+00 to 105+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	6	5	29-Jul-19	08-Aug-19	03-Aug-19	15-Aug-19	In Roadway Work - Nights	6	0%	Sta. 100+00 to 105+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A4700	Sta. 105+00 to 110+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	5	08-Aug-19	15-Aug-19	15-Aug-19	22-Aug-19	In Roadway Work - Nights	5	0%	Sta. 105+00 to 110+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A5100	Sta. 205+00 to 209+25 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	55	08-Aug-19	15-Aug-19	09-Nov-19	20-Nov-19	In Roadway Work - Nights	5	0%	Sta. 205+00 to 209+25 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A4720	Sta. 110+00 to 115+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	5	15-Aug-19	22-Aug-19	22-Aug-19	29-Aug-19	In Roadway Work - Nights	5	0%	Sta. 110+00 to 115+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A5080	Sta. 200+00 to 205+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	55	15-Aug-19	22-Aug-19	20-Nov-19	27-Nov-19	In Roadway Work - Nights	5	0%	Sta. 200+00 to 205+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A4740	Sta. 115+00 to 120+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	5	22-Aug-19	29-Aug-19	29-Aug-19	06-Sep-19	In Roadway Work - Nights	5	0%	Sta. 115+00 to 120+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A5060	Sta. 195+00 to 200+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	55	22-Aug-19	29-Aug-19	27-Nov-19	09-Apr-20	In Roadway Work - Nights	5	0%	Sta. 195+00 to 200+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A4760	Sta. 120+00 to 125+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	5	29-Aug-19	06-Sep-19	06-Sep-19	13-Sep-19	In Roadway Work - Nights	5	0%	Sta. 120+00 to 125+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A5020	Sta. 185+00 to 190+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	55	29-Aug-19	06-Sep-19	09-Apr-20	16-Apr-20	In Roadway Work - Nights	5	0%	Sta. 185+00 to 190+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A4780	Sta. 125+00 to 130+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	5	06-Sep-19	13-Sep-19	13-Sep-19	20-Sep-19	In Roadway Work - Nights	5	0%	Sta. 125+00 to 130+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A5040	Sta. 190+00 to 195+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	55	06-Sep-19	13-Sep-19	16-Apr-20	23-Apr-20	In Roadway Work - Nights	5	0%	Sta. 190+00 to 195+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A4800	Sta. 130+00 to 135+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	5	13-Sep-19	20-Sep-19	20-Sep-19	11-Oct-19	In Roadway Work - Nights	5	0%	Sta. 130+00 to 135+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A4820	Sta. 135+00 to 140+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	5	20-Sep-19	11-Oct-19	11-Oct-19	19-Oct-19	In Roadway Work - Nights	5	0%	Sta. 135+00 to 140+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A4840	Sta. 140+00 to 145+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	5	11-Oct-19	19-Oct-19	19-Oct-19	26-Oct-19	In Roadway Work - Nights	5	0%	Sta. 140+00 to 145+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A4860	Sta. 145+00 to 150+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	5	21-Oct-19	26-Oct-19	26-Oct-19	02-Nov-19	In Roadway Work - Nights	5	0%	Sta. 145+00 to 150+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A4880	Sta. 150+00 to 155+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	5	28-Oct-19	02-Nov-19	02-Nov-19	09-Nov-19	In Roadway Work - Nights	5	0%	Sta. 150+00 to 155+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A4900	Sta. 155+00 to 160+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	5	04-Nov-19	09-Nov-19	09-Nov-19	20-Nov-19	In Roadway Work - Nights	5	0%	Sta. 155+00 to 160+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A4920	Sta. 160+00 to 165+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	5	13-Nov-19	20-Nov-19	20-Nov-19	27-Nov-19	In Roadway Work - Nights	5	0%	Sta. 160+00 to 165+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A4940	Sta. 165+00 to 170+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	5	20-Nov-19	27-Nov-19	27-Nov-19	09-Apr-20	In Roadway Work - Nights	5	0%	Sta. 165+00 to 170+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A4960	Sta. 170+00 to 175+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	5	01-Apr-20	10-Apr-20	09-Apr-20	16-Apr-20	In Roadway Work - Nights	5	0%	Sta. 170+00 to 175+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A4980	Sta. 175+00 to 180+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	5	10-Apr-20	17-Apr-20	16-Apr-20	23-Apr-20	In Roadway Work - Nights	5	0%	Sta. 175+00 to 180+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A5000	Sta. 180+00 to 185+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	5	17-Apr-20	24-Apr-20	23-Apr-20	30-Apr-20	In Roadway Work - Nights	5	0%	Sta. 180+00 to 185+00 - Rte 17 - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A7540	Connect to Existing Main, Chlorinate & Test - Rte 17 - 16" WL	20	65	12-Jun-20	13-Jul-20	22-Sep-20	22-Oct-20	Out of Roadway Work - Days	20	0%	Connect to Existing Main, Chlorinate & Test - Rte 17 - 16" WL																						
Talcott Ridge Dr. & Watch Hill Dr.																																	
Talcott Ridge Dr. - 16" Waterline																																	
A5120	Sta. 52+29 to 47+27 - Talcott Ridge Dr. - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	33	30-Jul-19	05-Aug-19	18-Sep-19	08-Oct-19	In Roadway Work - Days	5	0%	Sta. 52+29 to 47+27 - Talcott Ridge Dr. - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A5140	Sta. 47+27 to 42+00 - Talcott Ridge Dr. - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	33	06-Aug-19	12-Aug-19	09-Oct-19	16-Oct-19	In Roadway Work - Days	5	0%	Sta. 47+27 to 42+00 - Talcott Ridge Dr. - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A5160	Sta. 42+00 to 37+00 - Talcott Ridge Dr. - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	33	14-Aug-19	20-Aug-19	17-Oct-19	23-Oct-19	In Roadway Work - Days	5	0%	Sta. 42+00 to 37+00 - Talcott Ridge Dr. - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						
A5180	Sta. 37+00 to 32+00 - Talcott Ridge Dr. - Excavate, Install Pipe, Hydrants & Backfill - 16" WL	5	33	21-Aug-19	27-Aug-19	24-Oct-19	30-Oct-19	In Roadway Work - Days	5	0%	Sta. 37+00 to 32+00 - Talcott Ridge Dr. - Excavate, Install Pipe, Hydrants & Backfill - 16" WL																						

