STORMWATER POLLUTION CONTROL PLAN (SWPCP)
FOR
PHELPS BROOK DAM AND EAST DIKE REHABILITATION PROJECT, NEPAUG RESERVOIR
CANTON AND BURLINGTON, CT

CONTRACT #2014B-11

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

This Stormwater Pollution Control Plan (SWPCP) is a necessary component in applying for a General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (Construction General Permit, or CGP), which authorizes stormwater and dewatering wastewater discharges from construction activities that result in a total land disturbance of one acre or more within the State of Connecticut. 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 and additional information from the permittee and contractors/subcontractors.

Any person who or municipality which initiates, creates, originates or maintains a discharge of stormwater and/or dewatering wastewater from a construction activity with a total disturbance greater than one (1) acre, without local municipal approval, must file with the Commissioner of the Connecticut Department of Energy and Environmental Protection (DEEP) a *General Permit Registration Form for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities*, along with the applicable fee, within the timeframes described below, and under the requirements for a "Locally Exempt Project". The Registration Form is available online (see below for web addresses). The registrant is the permittee, which is MDC for this Project.

This project is a "Locally Exempt Project" as it is authorized under municipal, state or federal authority and is not required to obtain municipal approval. This project has a total disturbed area of between one (1) and twenty (20) acres and does not discharge to a tidal wetland or impaired waters; thus, the Registration Form must be submitted to DEEP at least sixty (60) days prior to the planned commencement of the construction activity. An electronic copy of the SWPCP must be provided with the Registration Form. A Plan Review Certification is not required.

All registrations must include applicable forms and information regarding compliance and/or consistency with the Coastal Management Act, Impaired Waters (including TMDL requirements), Endangered and Threatened Species, and Aquifer Protection Areas.

A copy of the completed Registration Form should be maintained with the SWPCP and the originals must be filed with DEEP, in accordance with the permit conditions.

A copy of the Registration Form and SWPCP shall be available upon request to the local agency approving erosion and sediment control plans, grading plans, or stormwater management plans, and the local official responsible for inspection or enforcement of such plans.

The permittee (MDC) is responsible for fulfilling the requirements of the CGP, and supplementing this document to reflect actual site conditions, practices, and construction sequencing. The permittee is responsible for all SWPCP maintenance, reporting requirements, inspections, and maintenance of all necessary documentation for permit compliance. Violations of this permit may result in penalties of up to $25,000 per violation per day under Chapter 446k of the Connecticut

General Statutes, and/or the revocation of the permittee's authorization to discharge under the CGP.

An updated copy of the SWPCP must be retained 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 must retain the SWPCP and all associated documentation and records for a period of at least five 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. At the completion of a construction project and when all required inspections have been completed, the permittee must file a Notice of Termination (NOT) with DEEP, in accordance with Section 6 of the CGP. A web link to access a blank NOT form is included below.

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. 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. The controls shown in the SWPCP by GZA are a minimum of what will be required for permit compliance. GZA takes no responsibility for permit compliance by the applicable parties.

Web Addresses:
Connecticut DEEP Stormwater Website with Construction General Permit Documents:

http://www.ct.gov/deep/stormwater

Connecticut DEEP exFile Portal for on-line registration:

https://filings.deep.ct.gov/DEEPPortal/

General Permit Registration Form for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, effective 10/1/13:

http://www.ct.gov/deep/lib/deep/permits_and_licenses/water_discharge_general_permits/storm_const_reg.pdf.

General Permit Registration Form Instructions:

http://www.ct.gov/deep/lib/deep/permits_and_licenses/water_discharge_general_permits/storm_const_inst.pdf

Notice of Termination (NOT) Form:

http://www.ct.gov/deep/lib/deep/permits_and_licenses/water_discharge_general_permits/storm_const_termination.pdf

INSERT COPIES OF GENERAL PERMIT REGISTRATION FORM AS WELL AS CT DEEP CORRESPONDENCE HERE.

1 INTRODUCTION

This Stormwater Pollution Control Plan (SWPCP) has been prepared on behalf of the Metropolitan District Commission (MDC) by GZA GeoEnvironmental, Inc. (GZA), for the Phelps Brook Dam and East Dike Rehabilitation Project, at Nepaug Reservoir in the Towns of Canton and Burlington, Connecticut; see Figure 1 for a Locus Map and the Exhibits section for the Erosion and Sediment Control Plan. MDC is the Owner and Permittee/Registrant; GZA is the Engineer; and the Contractor is Running Brook Farms.

1.1 PROJECT LOCATION

East Dike:
Off of Torrington Ave.
Canton, CT
Hartford County

Latitude: 41° 49’ 21.6” N
Longitude: 72° 56’ 3.5” W

Phelps Brook Dam:
Off of Barnes Hill Rd.
Burlington, CT
Hartford County

Latitude: 41° 47’ 55.6” N
Longitude: 72° 55’ 52.3” 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 purpose of the Project is to rehabilitate the Phelps Brook Dam and East Dike, both of which impound the Nepaug Reservoir. The rehabilitation work will include raising the top of the dam/dike with placement of fill and construction of a small, upstream retaining wall, providing additional upstream slope protection (riprap), rehabilitating (repaving) the existing roadway surfaces, and installation of upstream guardrails at the top of each dam and dike The work is comprised of minor clearing and grubbing, earthwork/grading, retaining wall construction, hot mix asphalt paving, trenching, loaming, mulching, and other incidental items of work as listed in the project plans and specifications and as required to complete the work.

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 in provided in Appendix A.** In addition, amendments to this sequence shall also be appended to the SWPCP by the Contractor as appropriate.

- Mobilization.
- Installation of temporary erosion and sedimentation control measures[1].
- Installation of temporary traffic and pedestrian controls.
- Clearing and grubbing.
- Creation of soil and vegetation stockpiles.
- Site preparation.
- Riprap placement.
- Pavement removal.
- Place fill and construct retaining walls.

[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.

- 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

	Phelps Brook Dam	East Dike	Total
Total Site Area (Acres)	2.22	1.55	3.77
Disturbed Site Area (Acres)	1.51	0.67	2.18

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 bid set grading and drainage 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 drainage basin for the Nepaug River, which flows into the Farmington River, which eventually drains to the Connecticut River. The first surface water(s) receiving discharge of stormwater from the site include: Nepaug Reservoir.

The Nepaug Reservoir is not impaired, and thus, does not have a TMDL.

3.1.2 Wetlands

Both Phelps Brook Dam and East Dike impound the Nepaug Reservoir. At the Phelps Brook dam, the wetland boundary is coincident with the edge of the reservoir. At the East Dike, the wetland boundary is coincident with the edge of the reservoir for the majority of the dike's length, but there are some wetland areas which extend beyond the edge of water at the northern and southern ends of the dike and work area. At the East Dike, another wetland area is present at the downstream toe of the dike. Generally, runoff travels from the top of the dam/dike downslope towards Nepaug Reservoir or to the downstream toe of the dam/dike.

3.1.3 Floodplains and Riparian Buffers

The boundary of the 1% annual chance flood is generally coincident with the edge of water at Nepaug Reservoir, as indicated by FEMA's National Flood Hazard Layer, Panels 09003C0304F and 09003C0315F (eff. 9/26/2008), observed at the FEMA GeoPlatform (fema.maps.arcgis.com). Riparian areas are not present at the project site.

3.2 THREATENED AND ENDANGERED SPECIES

Nepaug Reservoir, including the Phelps Brook Dam and East Dike, is within a shaded area representing locations of endangered, threatened and special concern species and significant natural communities, based on the Connecticut Department of Environmental Protection's Natural Diversity Data Base (NDDB) Maps, reviewed on June 29, 2016 using the Advanced Map Viewer from CT ECO (Connecticut Environmental Conditions Online). Thus, coordination with the DEEP Bureau of Natural Resources Wildlife Division is required.

A Request for Natural Diversity Data Base (NDDB) State Listed Species Review was submitted to the DEEP Bureau of Natural Resources Wildlife Division to request an update to the NDDB determination which was obtained for the project in 2011. In response to the request, DEEP Bureau of Natural Resources Wildlife Division granted a Two-Year Determination (NDDB #2016-08605). The NDDB Determination letter, included in Appendix D, describes specific measures that the Contractor shall adhere to for the protection of rare and endangered species.

3.3 HISTORIC PROPERTIES

The project site is not listed at the Connecticut Register of Historic Places, as of July 1, 2016. The project site is located within 300 feet of surface water features (Nepaug Reservoir). Soils within the majority of the work areas (along the dam/dike) are "Udorthents, flood control"; thus, there is a low potential for prehistoric period archaeological resources. There are no buildings or structures over 150 years in age within the project site, and there are no buildings or structures shown within or immediately adjacent to the project site on the 1850's Connecticut County maps. Therefore, the site does not have the potential for historic/archaeological resources and coordination with the State Historic Preservation Office, Department of Economic and Community Development is not necessary.

3.4 EXISTING SOILS AND RUNOFF COEFFICIENT

Based on a review of the USDA Soil Survey of Hartford County, Connecticut, onsite soils are primarily Udorthents, flood control.

The estimated average runoff coefficient for the site after construction activities are completed is 0.63 at Phelps Brook Dam and 0.51 at East Dike. Calculations are included in Appendix F.

3.5 AQUIFER PROTECTION AREAS

There are no aquifer protection areas in the vicinity of the project work. Nepaug Reservoir is a public water supply reservoir operated by the MDC.

4 CONTROLS

Controls shall be in accordance with 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 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.

Dewatering wastewaters discharged to surface waters 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 all 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, or filtration systems that are designed to remove sediment. Dewatering measures shall be installed on upland soils.

Dewatering will be limited to the removal of accumulated groundwater and/or rainwater from excavations, and is not anticipated to be significant during this project.

Dewatering wastewaters shall not be discharged to Nepaug Reservoir, but instead shall be discharged on the downstream side of the dam, rather than back into the reservoir. The discharge area shall be protected to prevent erosion by high velocity flow.

4.2 EROSION AND SEDIMENTATION CONTROLS

The primary activities occurring onsite are minor clearing and grubbing, earthwork/grading for riprap installation, retaining wall construction, hot mix asphalt paving, trenching, loaming, seeding and mulching. Controls for these activities are addressed in the following sections. These controls, their implementation and specific requirements will also be discussed in the project plans and specifications.

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. 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. Excerpts from Chapter 5 of this document related to stormwater controls are included as Appendix E of this SWPCP. GZA takes no responsibility for the selection, design, or application of such controls, as this Appendix is included purely for the Contractor's reference.

4.2.1 Stabilization Practices

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

- Riprap,
- 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 two weeks shall receive soil protection (straw mulch or wood chip mulch) within 7 days in accordance with the Project Plans and Specifications. Areas that will remain disturbed but inactive for at least thirty days shall receive topsoiling and temporary seeding within 7 days in accordance with the Project Plans and Specifications. 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 the site through the winter.

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 and on the Project Plans and Specifications shall be implemented within seven days.

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 will be stabilized with crushed stone and riprap, at the reservoir side of the dam/dike, and with loam and seed on the downstream side of the dam/dike. The top of the dam/dike will be surfaced with pavement to accommodate the access road(s).

All post-construction stormwater structures shall be cleaned of construction sediment and any 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 and straw bales) located around the perimeter of the work areas and around contractor laydown and staging areas, stabilized construction entrances, and turbidity curtain within Nepaug Reservoir as needed. Straw wattles shall be used in lieu of silt fence and straw bales at the limit of work on the reservoir side at the Phelps Brook Dam. In addition, all existing catch basins shall be protected with "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. Additional guidance regarding structural controls to prevent erosion and sedimentation is included in Appendix E.

Perimeter Controls: Sediment controls, such as filter berms, silt fences, 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 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 12 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 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 inspection notes.

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 though 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 Wattles: Straw wattles are tubular products consisting of agricultural, certified weed seed free straw fibers encased in a durable netting. The wattles act as a barrier to flowing water; thus, water pools behind the wattles to allow sediment to fall out. Wattles also are used on hillslopes to break up slope lengths and slow overland flow. They may also be used across channel bottoms to pool water and reduce flow velocities.

Wattles are typically installed in a two-inch deep trench that is constructed parallel to the contour, or perpendicular to the slope or flow direction. Ends of the wattles shall be turned to be placed parallel to the slope to prevent water from scouring around the end of the wattle.

Wattles shall be secured to the subgrade by wooden stakes driven through the center of the wattle and spaced every four linear feet. The stakes shall penetrate the ground by a minimum of 24 inches, with less than 2 inches projecting above the top of the wattle. Wattles shall be joined at the ends by overlapping a minimum of 10 inches and tied together. Wattles may be left in place to degrade naturally over time.

Straw bales: Straw bales shall be placed in conjunction with silt fences at the limit of work as shown on the Project Plans. Bales shall be placed to form temporary water stops, dams, diversions, dikes, berms and other uses as needed. On sloping terrain, bales may be used to trap sediment until vegetation has become established. They shall be staked and installed according to project specifications. Bales that deteriorate or become plugged with sediment shall be removed by the Contractor and replaced with new straw bales. Bales shall be disposed of by the Contractor when the site is stabilized.

Drainage Swale Straw Bale Check Dams: Straw bales shall also be placed across construction and/or existing ditches during construction as necessary to limit the transport of sediment into drainage systems and waterways.

Temporary Diversion: The purpose of temporary diversions is to reduce slope lengths, break up concentration of runoff, and move water to stable outlets at a non-erosive

velocity; to protect work areas from upslope runoff; and to divert sediment-laden water to an appropriate sediment-trapping facility.

Erosion Control Matting: If required for larger exposed areas, the erosion control matting shall be porous, biodegradable geotextile matting specifically manufactured to retain soil moisture, to hold soil temperatures and to generally stabilize soils where storm water flows in channels, swales or recently planted slopes. The erosion control matting shall be selected and installed to protect soil and seedlings where moving water is likely to wash out new plantings. The erosion control matting shall be manufactured and constructed by weaving or bonding fibers made from synthetic and/or natural, biodegradable materials. Mulch matting is typically made of jute, straw, or wood fibers that are pre-formed into sheets of mulch and delivered to the site in rolls. Netting is typically made of jute, wood fiber, plastic, or cotton and used to hold the mulch matting together. Netting and matting shall be held to the ground with biodegradable staples or anchors as furnished and installed in accordance with manufacturer's recommendations.

Erosion Control Matting shall meet the specifications described in the ConnDot Qualified Products List:
(http://www.ct.gov/dot/LIB/dot/documents/dresearch/conndot_qpl.pdf).

Wood Fiber Mulch: Wood fiber mulch or wood cellulose fiber mulch shall be material manufactured for mulching seeded areas. The material may be made from coniferous or hardwood trees. It shall be free from shavings, rot, mold, foreign material or debris. It shall be of uniform texture. It may contain a nontoxic marking dye. The moisture content of the material when delivered to the project shall not be more than 12 percent by mass. It must be material capable of forming a homogeneous slurry when mixed in water. It shall be delivered to the project in clean, new, sealed containers bearing the brand, net mass, and name and address of the manufacturer.

4.3 POST-CONSTRUCTION STORM WATER MANAGEMENT

The project site at both the Phelps Brook Dam and the East Dike is comprised of the dam/dike embankment with a paved drive at the crest, and turf grass slopes on either side of the drive. There is no storm drainage system associated with the paved drive, although there are some catch basins located along the downstream slope of the dam (outside of the project site work area). Runoff along the paved drive generally sheet flows to the vegetated shoulders. At Phelps Brook Dam, at the edge of water and extending approximately 10 feet upslope from the edge of water, the slope is surfaced with stone paving. The project site at Phelps Brook Dam also includes the Phelps Brook Dam Access Road, Clear Brook Road, and the drive to the MDC Maintenance Building. These roads are currently paved and do not include any formal storm drainage system (catch basins and storm drains). Runoff from these paved areas generally sheet flows to the vegetated shoulders.

At both the Phelps Brook Dam and the East Dike, the proposed project will include repaving the paved drive at the crest, and sloping the road so that it drains towards the downstream embankment, and not towards the reservoir. Runoff from the drive will sheet flow towards the vegetated embankment, thus; the drive is considered disconnected impervious area, which is an overall runoff reduction practice in accordance with the CGP. The vegetated embankment adjacent to the paved drive will act as a filter strip which reduces runoff flow velocities and promotes infiltration and filtration. The proposed rip rap along the upstream embankment (reservoir side) will provide shoreline stabilization.

4.4 GOOD HOUSEKEEPING BMPS

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

Hazardous or Toxic Wastes: Hazardous or toxic wastes including 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 all other 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 all federal, state, tribal, and local disposal requirements. Spills shall be cleaned up immediately in accordance with the Spill Prevention and Response Plan in Appendix G to 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 all federal, state and local regulations. Waste materials for this project may consist of 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.

DUMPING OF LIQUID WASTES INTO STORM SEWERS IS PROHIBITED.

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 properly designated exit points. Anti-tracking pads or turf mats shall be installed 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. 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 construction 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. The volume of water sprayed for controlling dust shall be minimized so as to prevent the runoff of water. No discharge of dust control water shall contain or cause a visible oil sheen, floating solids, visible discoloration, or foaming in the receiving waters (downstream of the dam). No discharges to Nepaug Reservoir shall be permitted.

4.4.3 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 onsite.** 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 downstream of the dam. No discharges to Nepaug Reservoir shall be permitted.

It is not anticipated that vehicle and equipment washing will be performed for the Project. However, 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 within an established laydown area off of the dam, and away from surface waters and stormwater inlets or conveyances.

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

In general, the discharge of wastewater from washout of concrete, and washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials is prohibited. However, if appropriate options for water handling are implemented to keep these materials from reaching any drainage system or outlet to a surface water, washout/cleanout may be allowed onsite, in accordance with all applicable local, state, or federal regulations and permits.

It is not anticipated that washout/cleanout will be performed for this Project. However, if washout/cleanout is to be completed onsite, a designated area(s) shall be established **and marked on the Erosion and Sediment Control Plan by the Contractor**. This area shall be a minimum of 50 feet from all drainage structures, ditches, waterbodies, and resource areas, as well as property boundaries. The area shall not have an outlet to discharge wastes or flows. No detergents shall be used or vehicles washed in this location.

A leak-proof pit or container shall be established in the washout area(s), to which washings shall be directed. This area shall be used for washout containment and dewatering by evaporation only. The pit shall not allow infiltration to occur. Prefabricated washout containers are the preferable choice, although the Contractor may construct their own unit in the depressed area by establishing a frame and lining the washout pit with plastic sheeting of at least 10-mil thickness with no holes, tears, or seams. The pit should be sized properly, with freeboard included to account for precipitation or run-on to the pit. The immediate area leading to the washout shall have a layer of crushed stone to stabilize the ground for concrete truck traffic. To prevent clean water from entering the pit, the washout area should be covered during precipitation events.

The washout area should be inspected weekly and the contents removed when they reach 50% of the capacity of the washout pit. Liquids may be vacuumed and disposed of in accordance with local, state, and federal requirements. Hardened solids shall be removed from the washout either as a whole or after being broken up. These solids may be removed from the site and properly recycled or disposed of, or may be used onsite as appropriate, in accordance with all applicable regulations and the project plans and specifications. Wastes shall be handled in accordance with Section 4.4.1. If a plastic lined pit is used, new plastic must be laid down after every cleanout, since the washwater removal process is likely to damage the plastic. Records of all cleanouts and how the waste materials were disposed of shall be maintained with the SWPCP and mentioned in the weekly construction site inspection forms.

The Contractor is responsible for proper waste handling and disposal and for following all applicable regulations associated with this activity. EPA maintains a fact sheet

regarding this practice on its website (www.epa.gov) under the NPDES Stormwater Menu of BMPs fact sheets.

4.4.5 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.

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.

The Contractor has prepared a Spill Prevention and Response Plan for this Project. Refer to Appendix G.

4.4.6 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

Within the first 30 days following commencement of the construction on the Site, the Permittee (MDC) shall contact: (1) the appropriate Conservation District of Connecticut; or (2) a qualified soil erosion and sediment control professional or a qualified professional engineer to perform Plan Implementation Inspection(s) in accordance with the CGP.

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. Sample inspection forms are included in Appendix B.

As this Project will disturb more than one acre and less than fifteen (15) acres, the inspector for the Plan Implementation Inspections shall be someone who: (a) is not an employee, as defined by the Internal Revenue Service in the Internal Revenue Code of 1986, of the registrant, and has no ownership interest of any kind in the project for which the registration is being submitted. Note that this requirement only applies to the Plan Implementation Inspections, not routine inspections during construction. For this Project, the inspector for Plan Implementation Inspections shall be the GZA Project Engineer.

5.1.2 Routine Inspections During Construction

The Permittee (MDC; or his qualified designee as defined in Section 2 of the CGP) shall formally inspect all areas disturbed by construction that have not undergone temporary or final stabilization 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. This shall continue until the Site is final stabilized and a NOT form is submitted and accepted by DEEP.

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 installed and maintained on-site by the Contractor to document rainfall amounts on a daily basis.

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.

The Final Stabilization Inspection shall be conducted by a qualified inspector (as defined in Section 2 of the CGP) provided by the Permittee.

The person(s) responsible for conducting inspections and their qualifications shall be indicated in Appendix B. For this Project, the inspector for Final Stabilization Inspections shall be the GZA Project Engineer.

5.2 INSPECTION PROCEDURES

5.2.1 Items to be Inspected

The items to be inspected shall include the following:

- Disturbed areas of the construction activity that have not been finally stabilized,
- All erosion and sedimentation control measures,
- All structural control measures,
- Soil stockpile areas,
- Washout areas, and
- Locations where vehicles enter or exit the Site.

Inspectors must look for evidence of, or the potential for, pollutants entering the stormwater conveyance system or surface waters, impacts to receiving waters, and evidence of off-site sediment tracking. The qualified inspector shall evaluate the effectiveness of erosion and sediment controls, structural controls, stabilization practices, and any other controls implemented to prevent pollution and determine if it is necessary to install, maintain, or repair such controls and/or practices to improve the quality of stormwater discharges. More specific requirements are listed in the Table at the end of this section, and additional information is included in Appendix E. 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.

5.2.2 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 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 a condition that will protect waters of the State from pollution during site construction, 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.

Additional maintenance measures and suggestions for appropriate control measures selection, installation, and maintenance can be found in Appendix E.

Inspection and Maintenance Procedures

Item	**Inspection Procedure**	**Maintenance Procedure**
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.
Silt fence	Silt fence shall be inspected to check if 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 or replaced.
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 check if 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.

Item	**Inspection Procedure**	**Maintenance Procedure**
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.
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.

Item	**Inspection Procedure**	**Maintenance Procedure**
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.
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 check if 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.

Item	**Inspection Procedure**	**Maintenance Procedure**
Straw bales	Straw bale lines shall be inspected to check if 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 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 check if sediment is entering the catch basins. Catch basin sumps shall be monitored for sediment deposition. "Dandy Sacks" or equivalent shall be inspected for clogging.	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.
Erosion Control Blankets	Erosion control blankets shall be inspected for proper placement with 4-in minimum side overlaps and that the staples are secure and the blankets present a smooth surface in full contact with the soil below.	Any blankets that are not installed securely shall be repaired or replaced as needed.

5.3.3 Long Term Maintenance of Post-Construction Measures

No post-construction stormwater management measures will be installed as part of this project.

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.

In accordance with the General Permit, known violations of a condition of the General Permit as well as corrective actions shall be reported in writing to DEEP within five (5) days of the permittee's learning of such violation. Upon learning of such violation, the permittee shall immediately take all reasonable action to determine the cause of such violation, correct and mitigate the results of such violation, and prevent further such violation. The notification shall be signed and certified in accordance with Section 5(i) of the General Permit.

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,
- 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, and/or

- DEEP has notified the permittee that the SWPCP and/or the site does not meet one or more of the minimum requirements of the CGP. In this case, changes to the SWPCP shall be implemented within 7 days of such notice. Within 15 days of such notice, the permittee shall submit to DEEP a written certification that the requested changes have been made and implemented on the site.

6 TURBIDITY MONITORING

Turbidity monitoring is required for sites which meet the following criteria:

- Area of soil disturbance is 1 acre or more, but less than 5 acres, and a Registration with DEEP is required; or
- Area of soil disturbance is 5 acres or more.

6.1 TURBIDITY MONITORING REQUIREMENTS

6.1.1 Monitoring Frequency

Sampling shall be conducted at least once per month, when there is a discharge of stormwater from the site while construction activity is ongoing, until final stabilization of the drainage area associated with each outfall is achieved.

Sampling shall be conducted during normal working hours, which shall be identified in the Turbidity Monitoring Report in Appendix B. If sampling is discontinued due to the end of normal working hours, sampling shall be resumed the following morning or the morning of the next working day, as long as the discharge continues.

Sampling may be temporarily suspended if conditions exist that may reasonably pose a threat to the safety of the person taking the sample, such as high winds, lightning, impinging wave or tidal activity, intense rainfall, or other hazardous condition.

If there is no stormwater discharge during a month, sampling is not required.

6.1.2 Sample Collection

The storm event selected for sampling shall occur at least 24 hours after the previous storm event which generated a discharge.

Samples shall be grab samples taken at least three separate times during a storm event. The first sample shall be taken within the first hour of stormwater discharge from the site, or at the start of normal working hours if the first hour of discharge is outside of normal working hours.

6.1.3 Sampling Locations

It is not anticipated that there will be point source discharges of stormwater during construction. Stormwater discharges to Nepaug Reservoir are prohibited. Nonetheless, points of potential accumulation of stormwater runoff are identified on the Erosion

Control Plan as turbidity monitoring locations. These points shall be inspected at least once per month, during a rain event that could generate a discharge of stormwater from the site while construction activity is ongoing, and samples shall be collected if a discharge beyond the limits of the sediment and erosion control barrier (e.g., silt fence/straw bales, wattles) is discovered. All perimeter sediment and erosion control barriers shall be inspected in accordance with the inspection requirements described in Section 5 of this SWPCP. If a location is identified that exhibits evidence (e.g., erosion, sediment plume) that a point source discharge may have occurred, it shall be added to the Erosion Control Plan as a turbidity monitoring location.

All turbidity monitoring locations shall be inspected for the presence of a point source discharge; however, up to five (5) discharge points that discharge substantially identical runoff, based on similarities of the exposed soils, slope, and type of stormwater controls used, may be represented by one representative sample.

All sampling points are identified on the Site Plan / Erosion and Sediment Control Plan and shall be clearly marked in the field with a flag, stake, or other visible marker.

6.1.4 Methodology

Grab samples shall be collected for the analysis of turbidity using a LaMotte 2020we field turbidity meter or equal, compliant with 40 CFR Part 136.

6.1.5 Reporting

Stormwater sampling results shall be entered on the Stormwater Monitoring Report (SMR) form (available at www.ct.gov/deep/stormwater) and submitted electronically in accordance with NetDMR provisions (see CGP Section 5.(c)(2)(F)) within thirty (30) days following the end of each month.

A SMR shall be filed each month. If there was no discharge during any given monitoring period, the words “no discharge” shall be entered on the SMR in place of the monitoring results. Any modifications to sampling protocols and the reasons for such modifications shall be described with the SMR.

All discharge points and representative substantially identical monitoring locations shall be identified on the SMR.

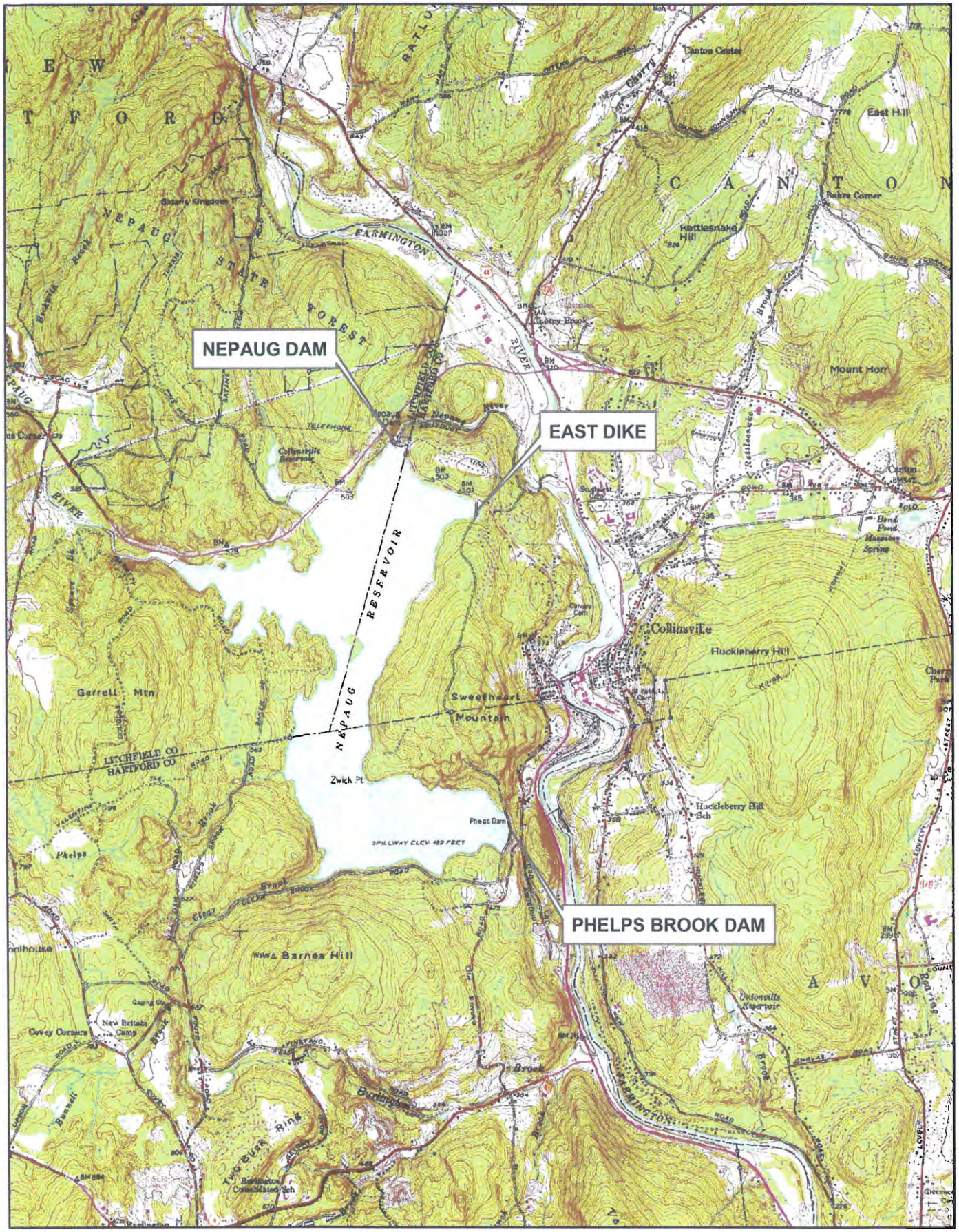


FIGURE 1	SITE LOCUS MAP NEPAUG RESERVOIR DAMS	SCALE 0 1,000 2,000 Feet	GZA
JOB NO. 19395.00	METROPOLITAN DISTRICT COMMISSION DAMS NEW HARTFORD AND BURLINGTON, CONNECTICUT	BASEMAP SOURCE:	

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: Phelps Brook Dam and East Dike Rehabilitation Project,
Nepaug Reservoir, Canton and Burlington, 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

Contractors and subcontractors shall be listed in the table below, with the sequencing, intended timing and actual timing of major activities, and the area of the site each contractor/subcontractor shall be responsible for indicated (this table to be amended/ additional sheets appended as needed). The proposed sequencing of major activities is provided in Section 2.1. Activities listed on this table must include implementation of all stabilization practices and pollution control measures (BMPs), and major grading activities.

Contractor/ Subcontractor	**Activity**	**Location on site**	**Intended Timing**		**Actual Timing**	
			Start Date	**End Date**	**Start Date**	**End Date**
Example	*Install silt fence*	*Site perimeter*	*3/4/10*	*3/7/10*	*3/5/10*	*3/9/10*

Contractor/ Subcontractor	Activity	Location on site	Intended Timing		Actual Timing	
			Start Date	End Date	Start Date	End Date

APPENDIX B 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 <u>all</u> 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.

<u>Notes</u>

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 MONITORING REPORT

Phelps Brook Dam & East Dike Rehabilitation Project

Location:
Canton & Burlington, CT

Construction General Permit:
Filing ID. 20276

USACE 404 Permit:
NAE-2012-51

Dam Safety Permit:
DS-201103051

GZA Project No:
01.0019395.80

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?
		☐ YES ☐ NO
		☐ YES ☐ NO
		☐ YES ☐ NO
		☐ YES ☐ NO

PROJECT TEAM

PROPERTY OWNER
MDC
Attn: John Whitcomb
Phone: 860-948-8320
Email: JWhitcomb@themdc.com

CONTRACTOR
Running Brook Farms
Attn:
Phone: 860-391-5449
Email:
Cell:

ENVIRONMENTAL CONSULTANT
GZA GeoEnvironmental, Inc.
Attn: John DeLano
Phone: 781-812-6510
Email: John.delano@gza.com

OTHER
_____
Attn:
Phone:
Email:

SUBCONTRACTOR
_____
Attn:
Phone:
Email:

OTHER
_____
Attn:
Phone:
Email:

TEMPORARY EROSION AND SEDIMENTATION CONTROLS (TESC)

Installed and functioning per the SWPPP? ☐ 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 SWPPP).

Installed and functioning per the SWPPP? ☐ 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:	Permittee or his/her authorized representative:
SIGNATURE: _____	SIGNATURE: _____
PRINTED NAME: _____	PRINTED NAME: _____
TITLE: _____	TITLE: _____
AFFILIATION: _____	AFFILIATION: _____
ADDRESS: _____	ADDRESS: _____
PHONE: _____	PHONE: _____
DATE: _____	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.

You must complete the report form as soon as possible of discovering the condition that triggered corrective action

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 Problem
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 noted in the Corrective Action Log Form.

CORRECTIVE ACTION LOG FORM

Phelps Brook Dam & East Dike Rehabilitation Project

Location:

Canton & Burlington, CT

GZA Project No:

01.0019395.80

Date: _____ Time: _____

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	**Non-engineered controls**
1. Land Grading	23. Topsoiling
2. Permanent TRM	24. Surface Roughening
3. Retaining Walls	25. Dust Control
4. Riprap	26. Temporary Seeding
5. Gabions	27. Permanent Seeding
6. Permanent Slope Drain	28. Sodding
7. Channel Grade Stabilization Structure	29. Landscape Planting
8. Temporary Lined Chute	30. Temporary Soil Protection
9. Temporary Pipe Slope Drain	31. Mulching
10. Vegetated Waterway	32. Temporary Erosion Control Blanket
11. Temporary Lined Channel	33. Stone Slope Protection
12. Permanent Lined Waterway	34. Temporary Fill Berm
13. Temporary Stream Crossing	35. Water Bar
14. Temporary Diversion	36. Temporary Sediment Trap
15. Permanent Diversion	37. Hay Bale Barrier
16. Subsurface Drain	38. Silt Fence
17. Detention Basin	39. Turbidity Curtain
18. Level Spreader	40. Vegetative Filter
19. Outlet Protection	41. Construction Entrance
20. Stone Check Dam	42. Pump Intake and Outlet Protection
21. Temporary Sediment Basin	43. Pumping Settling Basin
22. Dewatering of Earth Materials	44. Portable Sediment Tank

Turbidity Monitoring Report (*attach additional sheets as necessary*)					
Name of Project	Phelps Brook Dam & East Dike	**Normal Working Hours**		**Monitoring Date**	
Personnel		**Rainfall start time**			

Snow or Ice Melt

Does the sample contain or have the potential to contain snow or ice melt?: ☐ Yes ☐ No

Note that sampling of snow or ice melt in the absence of a storm event is not a valid sample.

Sample Location:										
Identify Substantially Identical Outfalls:										
	Time of Sample	**Turbidity Value**	**Time of Sample**	**Turbidity Value**	**Time of Sample**	**Turbidity Value**	**Time of Sample**	**Turbidity Value**	**Time of Sample**	**Turbidity Value**
1.										
2.										
3.										
Stormwater Discharge Turbidity Value = Average Turbidity Value =										

Turbidity Monitoring Report

CERTIFICATION STATEMENT

"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: _____

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

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

July 20, 2016

Rosalie Starvish
GZA Geoenvironmental, INC
1350 Main St
Suite 1400
Springfield, MA 01103-1667
rosalie.starvish@gza.com

NDDB Determination No: 201608605

Project: Phelps Brook Dam and East Dike Rehabilitation Project, Nepaug Reservoir. New Hartford, Canton, and Burlington

Dear Rosalie Starvish,

I have reviewed Natural Diversity Data Base (NDDB) maps and files regarding the Phelps Brook Dam and East Dike Rehabilitation Project, Nepaug Reservoir. New Hartford, Canton, and Burlington, Connecticut. According to our records, there are State-listed species (RCSA Sec. 26-306) documented in close proximity and may occur within the proposed project area.

Bald Eagle (*Haleaeetus leucocephalus*)- State Threatened

Bald Eagles are currently listed as a state threatened species as well as protected under both the Federal Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. It is illegal pursuant to section 26-93 of the Connecticut General Statutes to disturb Bald eagles. These laws prohibit disturbing the birds while they are roosting, feeding, or nesting.

The wildlife division recommends a 660' setback with no public access from a bald eagle nest or critical roosting site. The critical time for nesting eagles is **February 1- August 1**. The critical time period for winter roosts is December 31- March 1. This time period and setback may vary depending on weather. Contact Brian Hess of the Wildlife Division to determine the specific status of the nest/roost near your project (brian.hess@ct.gov; 860-424-3208).

Given your indicated work boundaries and access paths, I anticipate no impacts to nesting state listed Bald Eagle with your indicated start of work beginning after August 1, 2016 or 2017 (Phelps Brook Dam) and late July, 2016 or June 1, 2017 (East Dike).

Eastern Box Turtle (*Terrapene carolina carolina*)- State Special Concern

In Connecticut, this terrestrial turtle inhabits a variety of habitats, including woodlands, field edges, thickets, marshes, bogs, and stream banks. Typically, however, box turtles are found in well-drained forest bottomlands and a matrix of open deciduous forests, early successional habitat, fields, gravel pits, and or powerlines. The greatest threat to this species is habitat loss, fragmentation, and degradation due to development. This species is very sensitive to adult mortality because of late maturity (10 years old) and long life span (50-100years). Vehicular traffic, heavy equipment used for farming, and ATV use in natural areas are implicated

specifically in adult mortality through collisions. Illegal collection by the pet trade and unknowing public for home pets exacerbates mortality rates and removes important individuals from the population. Predation rates are also unnaturally high because of increased predator populations (e.g. skunks, foxes, raccoons, and crows) that surround developed areas.

The following recommendations will minimize potential impacts:

- Exclusionary practices be used to prevent any turtle access into staging areas.
- All staging and storage areas, outside of previously paved locations, regardless of the duration of time they will be utilized, be reviewed to remove individuals and exclude them from re-entry.
- All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species, and instructed to move turtles found inside work areas to safety.
- In areas where silt fence is used for exclusion, it shall be removed as soon as the area is stable and disturbance is finished to allow for reptile and amphibian passage to resume.
- The Contractor search the work area each morning prior to any work being done.

This determination is valid for two years. Please submit an updated NDDB Request for Review if the scope of the proposed work changes or if work has not begun by **July 20, 2018.**

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 Bureau of Natural Resources and cooperating units of DEEP, independent conservation groups, and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the NDDB should not be substituted 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 in the NDDB as it becomes available.

Please contact me if you have any questions (shannon.kearney@ct.gov; 860-424-3170). Thank you for consulting with the Natural Diversity Data Base and continuing to work with us to protect State-listed species.

Sincerely,

/s/ Shannon B. Kearney
Wildlife Biologist

Connecticut Department of

ENERGY &
ENVIRONMENTAL
PROTECTION

December 6, 2011

Mr. Anthony Zemba
GZA-GeoEnvironmental, Inc.
One Financial Plaza
1350 Main Street, Suite 1400
Springfield, MA 01103

Re: NDDB #17481 Dam and Dike Repair to Nepaug Reservoir
DS-201103051

Dear Mr. Zemba:

Thank you for meeting with the DEEP Wildlife Division to discuss proposed mitigation options to address nesting bald eagle concerns pursuant to the dam and dike repairs needed at Nepaug Reservoir and for providing a detailed, geo-referenced summary of proposed activities.

I concur with your proposal to delay work at Nepaug Dam until after April 1st to avoid the critical time of nest establishment, egg-laying, and incubation. Once that most sensitive time period has passed, the project site is distant enough from previous nest locations, that it meets federal guidelines for eagle management and is unlikely to have a negative on nesting bald eagles.

I also concur with your proposal to delay work at East Dike until after June 1st. While this site meets the federal separation distance, the extra time restriction provides an added measure of protection for nesting eagles should the exact location of the 2012 change slightly from the site used in 2011.

As you have indicated, Phelps Brook Dam is the closest site to nesting eagles and it does not meet the federal guidelines for nest separation distance. Delaying work until after August 1st as you have proposed will allow any nestling birds to reach fledging and be fully mobile prior to possible disturbance.

The additional measures you have proposed with regard to staging and access to work areas will also help minimize any potential impacts to nesting eagles.

As we discussed during our meeting on October 12, 2011, this project is not likely to adversely impact the state-endangered common loon. Due to the measures you have proposed with regard to access and staging, combined with the actual project work sites locations, this project is not likely to adversely impact the state-threatened whip-poor-will.

The DEEP Wildlife Division is in agreement with the mitigation plan you have proposed and appreciates the opportunity to reach a solution that meets projects needs as well as those of state-listed species.

Please feel free to contact me if you have any additional questions.

Sincerely,

Jenny Dickson
Supervising Wildlife Biologist
Wildlife Diversity Program

cc: NDDB-17481
P. Spangenberg, DEEP Dam Safety (DS-201103051)

GZA
GeoEnvironmental, Inc.

Engineers and Scientists

October 24, 2011
File No. 01.0019395.40

Ms. Jenny Dickson
State of Connecticut
Department of Energy and Environmental Protection
Wildlife Division - Sessions Woods Wildlife Management Area
341 Milford Street (State Route 69)
Burlington, CT

Re: NDDB # 17481 – Dam and Dike Improvements at Nepaug Reservoir

Dear Jenny:

Thank you for your time to meet with GZA GeoEnvironmental Inc. (GZA) - represented by Matt Taylor and myself - our client, the Metropolitan District Commission (MDC) represented by Jim Randazzo and Carol Youell, and Don Hopkins of the Bald Eagle Study Group, a conservation partner of the MDC on October 12, 2011 regarding the aforementioned project.

ONE FINANCIAL PLAZA
1350 Main Street
Suite 1400
Springfield
Massachusetts 01103
413-726-2100
FAX 413-732-1249
www.gza.com

As we discussed in the meeting, GZA has been contracted by the MDC to provide engineering services associated with dam safety assessments for the Nepaug Dam, Phelps Brook Dam, and East Dike at the Nepaug Reservoir (See Figure 1, attached). As a result of these assessments, deficiencies have been identified and rehabilitation activities have been designed. The MDC intends to conduct the rehabilitation of these three impoundment structures during the 2012/2013 construction season. The proposed work will include anchor installations to improve stability and other concrete repairs to Nepaug Dam and the re-grading of the embankment crests and placement of upstream riprap on Phelps Brook Dam and East Dike.

As part of the permit application process, GZA consulted with CT DEEP Natural Diversity Database (NDDB # 17481) in 2010. We received correspondence from the Wildlife Division (Julie Victoria) dated March 15, 2010 informing us that the Bald Eagle (then State Endangered but now State Threatened as of the July 2010 CT ESA list revision); Common Loon (State Special Concern), and the Whip-poor-will (State Special Concern) are known to occur on the reservoir. Ms. Victoria suggested that work be conducted outside of the Bald Eagle breeding season (which is reportedly from February 1 through August 1), in order to avoid impact to nesting eagles, and that adherence to this schedule would also avoid impact to the Common Loon and Whip-poor-will (Please See the Wildlife Division response letter attached).

The overall project duration is estimated to be approximately 12 months. Therefore, we cannot complete the project within the short window of time outside of the breeding season without significant delay and the associated costs of remobilization and, more importantly, uncompleted safety improvement measures. Previously, we had been informed by CT DEEP Dam Safety that this potential conflict would need to be addressed via consultation with NDDB/ Wildlife Division; hence we requested to meet with you to discuss this matter.

The three work areas associated with this improvement project, and their distance from the known Bald Eagle nest at Nepaug Reservoir, are as follows:

- Phelps Brook Dam - approximately 5,500 feet from the nest
- East Dike - approximately 9900 feet from the nest, and
- Nepaug Dam - approximately 10,700 feet from the nest.

The work areas in relation to the eagle nest are also depicted on the attached Figure 2.

The anchor work and concrete work at Nepaug Dam will be extremely temperature sensitive and should not be performed during freezing temperatures. Therefore, we envision that the work at Nepaug Dam will need to begin in the spring of 2012 in order to be completed by Summer 2013. No work would be performed during the winter months or before April 1st.

The work at Phelps Brook Dam and East Dike is slightly more temperature tolerant. As such, we envision that this portion of the work could begin during the summer 2012 and extend into the winter of 2013. Therefore, as we agreed during our October 12, 2011 meeting, the construction sequence will be as follows:

- At Nepaug Dam, the location the farthest away from the eagle nest, no work shall begin before April 1st. This ensures that construction activity would NOT coincide with the most sensitive time period of eagle egg-laying and incubation. The separation distance between the nest and the work areas meets the separation distance recommended by the USFWS in the *National Bald Eagle Management Guidelines* dated May 2007.
- At East Dike, (which also meets the recommended separation distance in the Federal Guidelines) no work shall begin before June 1st. This ensures an added measure of safety by allowing the eagles to firmly establish their nest, lay eggs, and incubate the eggs until hatching after which they would be very reluctant to leave given the time and energy invested in breeding up to that point.
- At Phelps Brook Dam, which does not meet the separation distance recommended by the Federal Guidelines for construction activity with no visible barrier, the MDC shall specify to the contractor that no work shall begin before August 1st, a date by which eagles hatched that year would be expected to have been fledged and mobile.

This phasing allows work to be accomplished without significant impact to the eagles and without compromising the integrity of the work. Two additional constraints that the MDC is willing to impose on the contractor are as follows:

- The contractor would not be allowed to use Clear Brook Road for access to and from the work areas.
- Material and equipment staging is to occur in the general vicinity each of the dams and dikes as well as near the access gate at the entrance to the reservoir lands at Litchfield Turnpike (State Route 202) as indicated on the attached Figure 2.

It is our understanding that the record of nesting Common Loons is an historical one, with no recent successful nesting occurring on Nepaug Reservoir in recent years. Never-the-less, potential impact to breeding Common Loon would be minimal since work areas are to occur on existing dam and dike faces and thus would not result in direct impact to future potential nesting habitat. Similarly, the Whip-poor-will would not be expected to nest along the dike and dam face but rather, within the open woodland areas. No work is proposed within the wooded areas of Nepaug Reservoir lands associated with this project.

We feel that the work as proposed with the time constraints and sequencing above is an effective approach to minimize impact to the species of conservation concern and still implement the proposed and necessary structural integrity improvements to the dam and dike at Nepaug Reservoir. We understand that NDDB/Wildlife will issue a letter of concurrence based on the conditions agreed upon during our meeting, which have been summarized and presented herein.

As you know, a letter of concurrence from NDDB/Wildlife Division is required for the CT DEEP - Dam Construction Permit to be issued for the project. Our CT DEEP Dam Construction Permit Application Number is DS-201103051. Our contact at CT DEEP – Dam Safety is Mr. Peter L. Spangenberg.

Please let us know if you are in agreement with what is proposed herein, so that we may complete the Dam Safety permitting process. It is our understanding that our consultation with you on this matter and the measures to be implemented to protect the eagles are also sufficient to meet our federal obligations under the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, and the Federal Endangered Species Act for protection of the Bald Eagle.

If you have any further questions of us regarding engineering or construction procedures or otherwise, please do not hesitate to contact us.

Again, we thank you for your time and attention to this matter.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Anthony Zemba CHMM
Certified Ecologist / Soil Scientist

Matthew A. Taylor, P.E.
Senior Project Manager

Peter H. Baril, P.E.
Principal- In- Charge

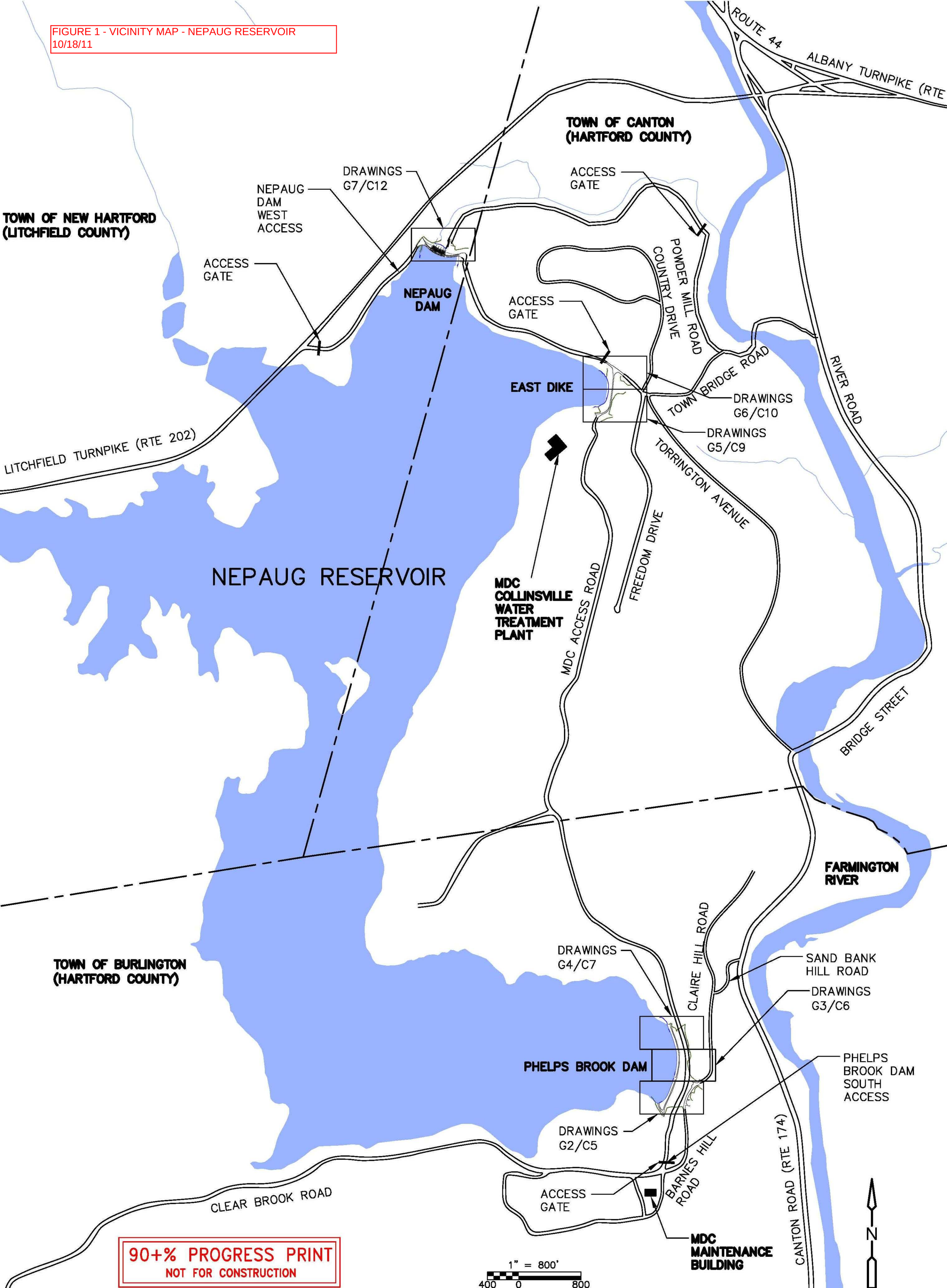
Attachments:

- Vicinity Map and General Conditions
- Separation distances of proposed work areas from the known Bald Eagle nest at Nepaug Reservoir
- NDDB Correspondence from J. Victoria

Cc: Mr. James Randazzo, MDC
Ms. Carol Youell, MDC
Mr. Constantin, Banciulescu, MDC

J:\19,000-20,999\19395\19395-40.MAT\Permitting\NDDB\October 2011 Correspondance\Nepaug Wildlife Div Meeting Letter-10-24-11.Docx

FIGURE 1 - VICINITY MAP - NEPAUG RESERVOIR
10/18/11



90+% PROGRESS PRINT
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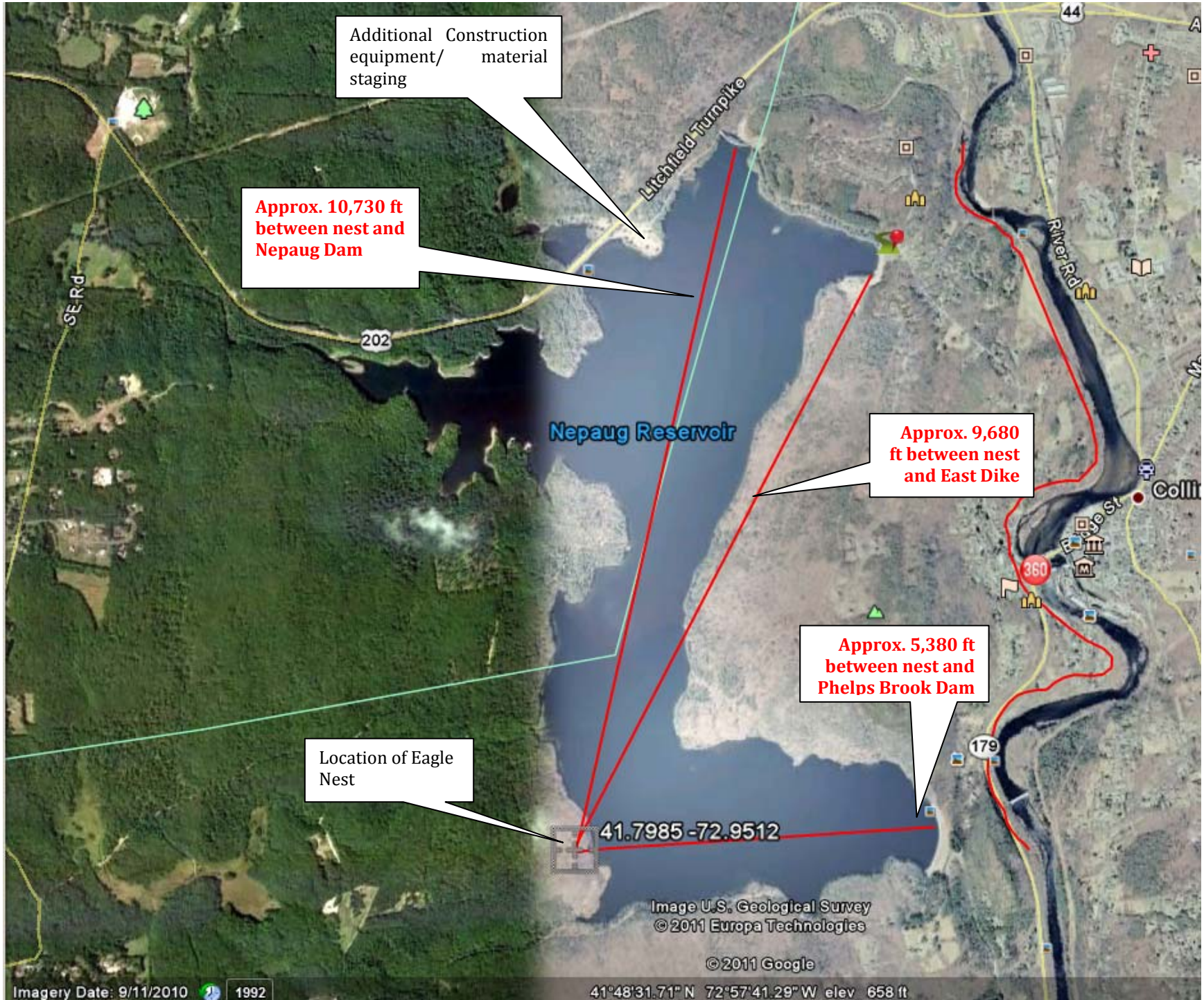
Figure 2 – Separation Distances between Eagle Nest Location and Work Areas



STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Bureau of Natural Resources
Division of Wildlife
79 Elm Street, 6th Floor
Hartford, CT 06106
Natural Diversity Data Base

March 11, 2010

Ms. Michelle Ford
GZA GeoEnvironmental, Inc.
296 North Main Street
East Longmeadow, MA 01028

re: Rehabilitation of Substructure, Superstructure and Deck of the East Dike, Nepaug Dam and Phelps Brook Dam associated with Neapaug Reservoir in New Hartford, Canton and Burlington, Connecticut

Dear Ms. Ford:

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map you provided for the proposed rehabilitation of substructure, superstructure and deck of the east dike, Nepaug Dam and Phelps Brook Dam associated with Neapaug Reservoir in New Hartford, Canton and Burlington, Connecticut. According to our information, there are records for State Endangered *Haliaeetus leucocephalus* (bald eagle), State Special Concern *Gavia immer* (common loon) and *Caprimulgus vociferous* (whip-poor-will) in the vicinity of this project. I have forwarded your letter to Julie Victoria (DEP- Wildlife Division; 860-642-7239, julie.victoria@ct.gov) for further review. She will write to you directly with her comments. Our program botanist, Ms. Nancy Murray (DEP-Inland Fisheries; 860-424-3589, nancy.murray@ct.gov) has determined that the activities associated with this project will not impact any known state-listed plant species that may occur in this area.

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's Geological and Natural History Survey and cooperating units of DEP, 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.

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. Also be advised that this is a preliminary review and not a final determination. A more detailed review may be conducted as part of any subsequent environmental permit applications submitted to DEP for the proposed site.

Sincerely,

Dawn M. McKay
Biologist/Environmental Analyst

cc: Julie Victoria, NDDB #17481

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FRANKLIN WILDLIFE MANAGEMENT AREA
391 ROUTE 32
NORTH FRANKLIN, CT 06254
TELEPHONE: (860) 642-7239

March 15, 2010

Ms. Michelle Ford
GZA GeoEnvironmental, Inc.
296 North Main Street
East Longmeadow, MA 01028

re: Nepaug Reservoir work

Dear Ms. Ford:

Your request was forwarded to me on 3/15/10 from Dawn McKay of the Department of Environmental Protection's (DEP) Natural Diversity Data Base. Their records indicate that the state endangered, bald eagle (*Haliaeetus leucocephalus*), the species of special concern; Whip-poor-will (*Caprimulgus vociferous*) and Common Loon (*Gavia immer*) occur in the vicinity of your project.

A bald eagle pair is nesting in the reservoir. To avoid affecting nesting eagles we recommend that you **not** do work along the water's edge from February 1 to August 1. This timeframe will also benefit the loon and whip-poor-wills.

The Common Loon (*Gavia immer*), is a state Species of Special Concern and their diet is fish, frogs, crayfish, leeches, and aquatic insects. They are affected by the bioaccumulation of pesticides along with habitat loss due to shoreline development; careless boaters who disturb waterside loon nests; ingestion of discarded fishing line, hooks, and, especially, lead sinkers. If work is done outside the breeding season, the potential for disturbance is reduced.

Whip-poor-wills are ground nesting birds that favor mixed hardwood forests. It is considered a neotropical migrant, nesting in Connecticut from late May through July and wintering in South America. If work is done outside the breeding season, the potential for destruction of nests, eggs, or young is reduced.

Please be advised that should state permits be required or should state involvement occur in some other fashion, specific restrictions or conditions relating to the species discussed above may apply. In this situation, additional evaluation of the proposal by the DEP Wildlife Division should be requested. Consultation with the Wildlife Division should not be substituted for on-site surveys required for environmental assessments. If the proposed project has not been initiated within 6 months of this review, contact the NDDB for an updated review. If you have any additional questions, please feel free to contact me at Julie.Victoria@ct.gov, please reference the NDDB # at the bottom of this letter when you e-mail or write. Thank you for the opportunity to comment.

Sincerely,

Julie Victoria
Wildlife Biologist
Franklin Swamp Wildlife Management Area
391 Route 32
N. Franklin, CT 06254

cc: NDDB – 17481

APPENDIX E SELECTED EROSION AND SEDIMENT CONTROL GUIDELINES

Contains excerpts from the 2002 Connecticut Guidelines For Soil Erosion and Sediment Control, by The Connecticut Council on Soil and Water Conservation in Cooperation with the Connecticut Department of Environmental Protection; DEP Bulletin 34, ISBN 0-942085-10-8; selected to provide information about BMPs which may be appropriate for this project.

The selected excerpts are not intended to be all inclusive; 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 Responsible Party or Parties shall provide, install, maintain and inspect additional controls as needed.

More information about additional controls may be obtained at http://www.ct.gov/deep/cwp/view.asp?a=2720&q=325660&deepNav_GID=1654%20.

GZA takes no responsibility for the selection, design, or application of such BMPs, as this Appendix is included purely for the Contractor's reference.

2002 Connecticut Guidelines for Soil Erosion and Sediment Control
The Connecticut Council on Soil and Water Conservation in Cooperation with the Connecticut Department of Environmental Protection

Chapter 5, The Functional Groups and Measures*

☐ Tree Protection	☐ Temporary Lined Channel
☐ Topsoiling	☐ Permanent Lined Waterway
☐ Land Grading	☐ Temporary Stream Crossing
☐ Surface Roughening	☐ Temporary Fill Berm
☐ Dust Control	☐ Water Bar
☑ Temporary Seeding	☑ Temporary Diversion
☐ Permanent Seeding	☐ Permanent Diversion
☐ Sodding	☐ Subsurface Drain
☐ Landscape Planting	☐ Detention Basin
☑ Temporary Soil Protection	☐ Level Spreader
☐ Mulch for Seed	☑ Outlet Protection
☐ Landscape Mulch	☐ Stone Check Dam
☐ Temporary Erosion Control Blanket	☐ Temporary Sediment Basin
☐ Permanent Turf Reinforcement Mat	☐ Temporary Sediment Trap
☐ Stone Slope Protection	☐ Hay Bale Barrier
☐ Retaining Walls	☐ Geotextile Silt Fence
☐ Riprap	☐ Turbidity Curtain
☐ Gabions	☑ Vegetative Filter
☐ Permanent Slope Drain	☐ Construction Entrance
☐ Channel Grade Stabilization Structure	☐ Pump Intake and Outlet Protection
☐ Temporary Lined Chute	☐ Pumping Settling Basin
☐ Temporary Pipe Slope Drain	☐ Portable Sediment Tank
☐ Vegetated Waterway	☐ Dewatering of Earth Materials

*Checked items are copied and included herein. Unchecked items may be found in the complete text of the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

Definition

Structurally lined aprons or other acceptable energy dissipating devices placed between the outlets of pipes or paved channel sections and a stable downstream channel.

Purpose

To prevent scour at storm drain, culvert or drainageway outlets and to minimize the potential for downstream erosion by reducing the velocity of concentrated storm water flows.

Applicability

At the outfall of all storm drain outlets, road culverts, paved channel outlets, new channels constructed as outlets for culverts and conduits, etc. discharging into natural or constructed channels, which in turn discharge into existing streams or drainage systems.

Planning Considerations

Analysis and appropriate treatment shall be done along the entire length of the flow path from the end of the conduit, channel or structure to the point of entry into an existing stream or publicly maintained drainage system. Where flow is excessive for the economical use of an apron, excavated stilling basins may be used. Acceptable designs for stilling basins may be found in the following sources:

- *Hydraulic Design of Energy Dissipators for Culverts and Channels, Hydraulic Engineering Circular No. 14, U.S. Department of Transportation, Federal Highway Administration. December 1975.*
- *Hydraulic Design of Stilling Basins and Energy Dissipators, Engineering Monograph No. 25, U.S. Department of the Interior, Bureau of Reclamation.*
- *Scour at Cantilevered Pipe Outlets – Plunge Pool Energy Dissipator Design Criteria, Agricultural Service Research Publication ARS-76, 1989.*

(All of the above are available from the U.S. Government Printing Office.)

- *Plunge Pool Design at Submerged Pipe Spillway Outlets, American Society of Agricultural Engineers, Volume 37(4):1167-1173, 1994.*

Design Criteria

Determination of Needs

The need for conduit outlet protection shall be determined by comparing the allowable velocity which the soil will withstand to the exit velocity of the flow from the conduit. The allowable velocity for water over the soil shall be that given in **Figure OP-1**. The exit velocity of the water in the conduit shall be calculated using the greater of the conduit design storm or the 25-year frequency storm. When the exit velocity of the water in the conduit exceeds the allowable velocity for the soil, outlet protection is required. Outlet protection is also required if the conduit outfall is set above the receiving channel (i.e., cantilevered) causing the water to drop at the outlet end of the culvert.

Figure OP-1 Allowable Velocities for Various Soils

Soil Texture	Allowable Velocity (ft./sec.)
Sand and sandy loam	2.5
Silt Loam	3.0
Sandy clay loam	3.5
Clay loam	4.0
Clay, fine gravel, graded loam to gravel	5.0
Cobbles	5.5
Shale	6.0

Source: USDA-NRCS

Riprap Aprons

Design Limitations: No bends or curves at the intersection of the conduit and the apron protection will be permitted.

There shall be no vertical drop from the end of the apron to the receiving channel.

Apron Dimensions: If an apron is used for energy dissipation, the following criteria apply:

1. The length of the apron, L_a, shall be determined from the formula:

$$L_a = \frac{1.7Q}{D_O^{3/2}} + 8D_O$$

where:

D_o is the maximum inside culvert width in feet, and
Q is the pipe discharge in cubic feet per second (cfs) for the conduit design storm or the 25-year storm, whichever is greater.

2. The width of the apron, W, shall be determined as follows:

❍ *Where there is a well-defined channel downstream of the apron, the bottom width of the apron shall be at least equal to the bottom width of the channel. The structural lining shall extend at least one foot above the tailwater elevation but no lower than two-thirds of the vertical conduit dimension above the conduit invert.*

❍ *Where there is no well defined channel immediately downstream of the apron, the width, W, of the outlet end of the apron shall be as follows:*

For tailwater elevation greater than or equal to the elevation of the center of the pipe, $W = 3\ D_o + 0.4\ L_a$
For tailwater elevation less than the elevation of the center of the pipe, $W = 3\ D_o + L_a$

where:

L_a is the length of the apron determined from the length formula and
D_o is the culvert width.

The width of the apron at the culvert outlet shall be at least three times the culvert width.

3. The side slopes shall be 2:1 or flatter.

4. The bottom grade shall be 0.0% (level).

5. There shall be no vertical drop at the end of the apron or at the end of the culvert.

Riprap Requirements

1. The median stone diameter, d_{50} in feet is determined using the formula for d_{50} found in the Outlet Protection Design Example Problem on page 5-10-8 where:

Q and D_o are as defined under apron dimensions and
TW is tailwater depth above the invert of the culvert in feet.

2. At least 50% by weight of the riprap mixture shall be larger than the median size stone designated as d_{50}. The largest stone size in the mixture shall be 1.5 times the d_{50} size. The riprap shall be reasonably well graded.

3. The thickness of riprap lining, filter and quality shall meet the requirements in the riprap standard.

4. Concrete paving may be substituted for riprap. However, this method may not provide for energy dissipation.

5. Gabions or precast cellular blocks may be substituted for riprap if the d_{50} size calculated above is less than or equal to the thickness of the gabions or concrete revetment blocks.

See Example Design Problem on next page.

Other Outlet Protections

Standard engineering practices allow for many different types of outlet protection which provide energy dissipation. Common outlet protections include the use of a riprap apron (see **Figure OP-2**) and a riprap stilling basin (see **Figure OP-3**). Also see **Figure LS-4** in **Level Spreader** measure which combines a level spreader with outlet protection.

Installation Requirements

Install in accordance with the requirements of the engineered design.

Maintenance

Inspect the completed structure annually and after each major rainfall for damage and deterioration. Repair damages immediately.

Outlet Protection Design Example Problem

Given: D_o = 1.5 ft, Q = 14.5 cfs, TW = 0.7 ft.
Find: L_a, W, d_{50}
Solution:

For L_a (length of apron):

$$L_a = \frac{1.7Q}{D_o^{3/2}} + 8D_o = \frac{1.7(14.5 \text{ cfs})}{1.5^{3/2}} + 8(1.5) = 25.4$$

Answer: L_a = 25.4 ft.

For W (apron width):

$$W = 3D_o + L_a = 3(1.5) + 29.9 \text{ ft.}$$

Answer: W = 30 ft.

For d_{50} (median stone diameter):

$$d_{50} = \left(\frac{0.02}{TW}\right)\left(\frac{Q}{D_o}\right)^{4/3} = \left(\frac{0.02}{0.7}\right)\left(\frac{14.5}{1.5}\right)^{4/3} = 0.58 \text{ ft.}$$

Answer: d_{50} = 0.58 ft. or 7 inches

Figure OP-2 Outlet Protection Utilizing Riprap Apron

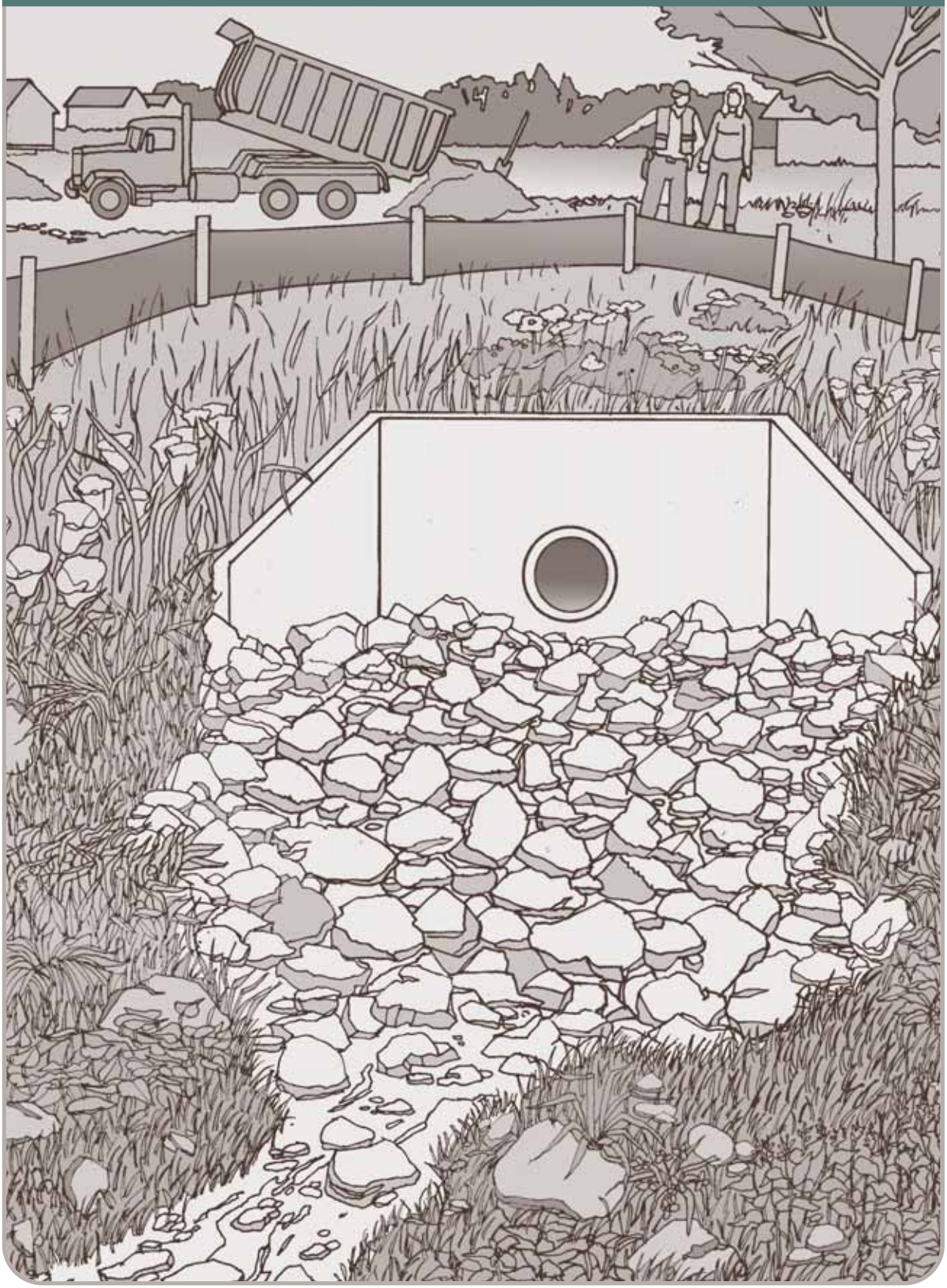
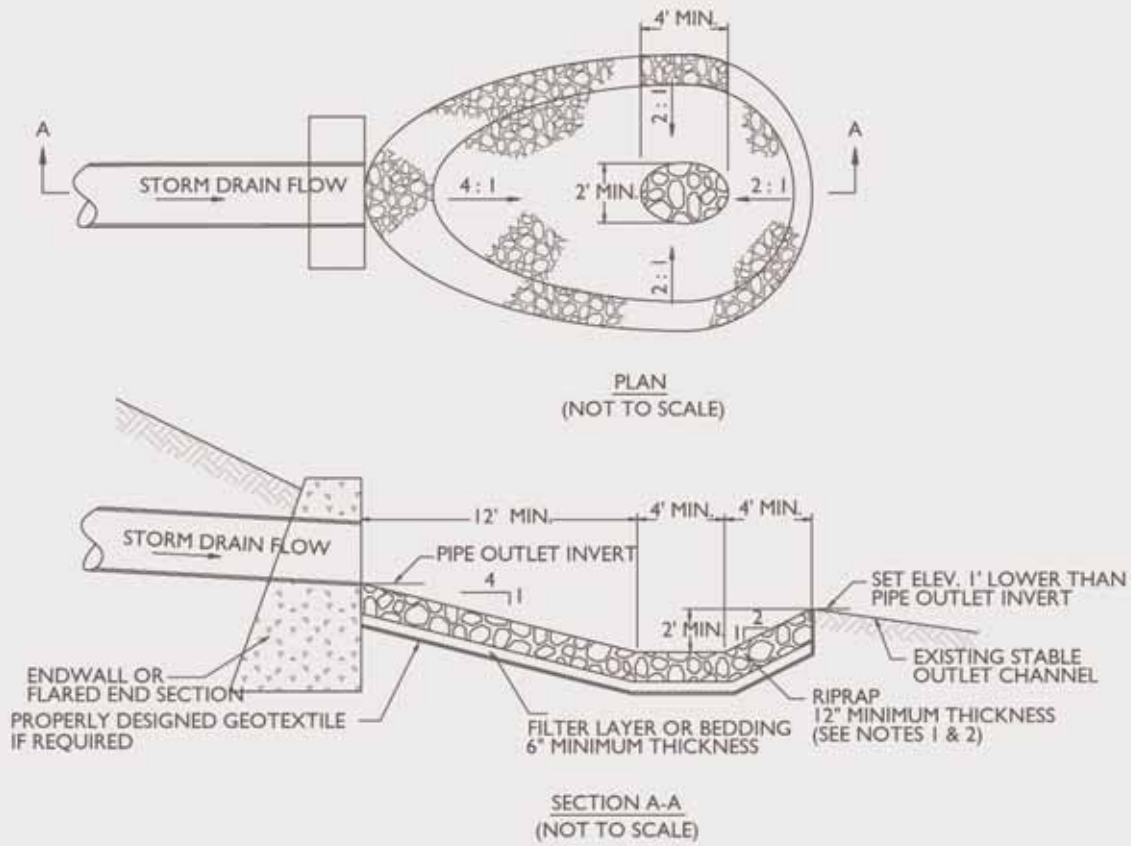


Figure OP-3 Configuration of Outlet Protection using a Riprap Stilling Basin



NOTES:

1. RIPRAP SIZE AND THICKNESS SHALL BE ADJUSTED UPWARD AS THE STORM DRAIN SIZE AND OUTLET VELOCITY INCREASE. SEE PLANNING CONSIDERATIONS SECTION FOR DESIGN REFERENCES.
2. CONSIDER THE APPLICATION OF CEMENTIOUS GROUT IN THE RIPRAP TO PREVENT VANDALISM AND FACILITATE SEDIMENT AND DEBRIS CLEANOUT.

Source: USDA-NRCS

Temporary Diversion (TD)

Definition

A temporary channel with a berm of tamped or compacted soil placed in such a manner so as to divert flows.

Purposes

- To divert sediment-laden runoff from a disturbed area to a sediment-trapping facility such as a temporary sediment trap, sediment basin or vegetative filter.
- To direct water originating from undisturbed areas away from areas where construction activities are taking place.
- To fragment disturbed areas thereby reducing the velocity and concentration of runoff.

Applicability

- Where the drainage area at the point of discharge is 5 acres or less. For drainage areas greater than 5 acres use **Permanent Diversion** measure.
- Where the intended use is 1 year or less. For uses greater than 1 year use **Permanent Diversion** measure.

Planning Considerations

A temporary diversion is used to divert sheet flow to a stabilized outlet or a sediment-trapping facility. It is also used during the establishment of permanent vegetative cover on sloping disturbed areas. When used at the top of a slope, the structure protects exposed slopes by directing runoff away from the disturbed areas. When used at the base of a disturbed slope, the structure protects adjacent and downstream areas by diverting sediment-laden runoff to a sediment trapping facility.

Temporary diversions must be installed as a first step in the land-disturbing activity and must be functional prior to disturbing the land they are intended to protect.

Where channel grades within the temporary diversion exceed 2%, stabilization of the channel is necessary to prevent erosion of the temporary diversion itself (e.g., temporary seeding, temporary erosion control blankets, riprap, etc.). The channel and berm must have a positive grade to assure drainage, but if the gradient is too great, precautions must be taken to prevent channel erosion due to high-velocity flows behind the berm. The cross-section of the channel should be of a parabolic or trapezoidal shape to prevent a high velocity flows which could arise in the bottom of a "V" shaped ditch.

This practice is economical because it uses materials available on the site and can usually be constructed with equipment needed for site grading. The useful life of the practice can be extended by stabilizing the berm with vegetation. Temporary diversions are durable, inexpensive, and require little maintenance when constructed properly. When used in conjunction with a **Temporary Sediment Trap**, temporary diversions become a logical choice for a control measure when the control limits for silt fences or hay bale barriers have been exceeded.

Temporary diversions are often used as a perimeter control in association with a sediment trap or a sediment basin, or a series of sediment-trapping facilities, on moderate to large construction sites. If installed properly and in the first phase of grading, maintenance costs are very low. Often, cleaning of sediment-trapping facilities is the only associated maintenance requirement.

Design Criteria

No engineered design is required for a temporary diversion if the contributing drainage area is 1 acre or less.

If the contributing drainage area exceeds 1 acre and is 5 acres or less, design the temporary diversion to the **Permanent Diversion** measure standards using the 2-year frequency storm as the design storm.

Specifications

For engineered temporary diversions, construct the temporary diversion in accordance with the design standards and specifications. For all non-engineered temporary diversions, comply with the following specifications.

Height

The minimum height from the bottom of the channel to the top of the berm shall be at least 18 inches and the berm constructed of compacted material.

Side Slopes and Top Width

Side slopes shall be 3:1 or flatter inside and 1:1 or flatter outside. The top width of the berm shall be 1 foot.

Grade and Stabilization

The flow line behind the berm shall have a positive

grade. Channel grades flatter than 2% require no stabilization. Channels with grades steeper than 2% require stabilization in accordance with stabilization specifications found in the **Permanent Diversion** measure. Temporary diversions shall be stabilized according to the duration of their intended use (see Short Term Non-Living Soil Protection Functional Group).

Outlets

Regardless of design, release the diverted runoff to a stable outlet or channel. Where diverted runoff is expected to be carrying a sediment load, the runoff shall be released to a sediment impoundments (see Sediment Impoundments and Barriers Functional Group).

Construction

Install erosion controls at the outlet where sediment laden runoff is expected.

Construct the temporary diversion (see **Figure TD-1**). After grading the berm, tamp or compact it to prevent failure.

Apply stabilization measures (may include temporary or permanent seed and mulch) immediately following construction.

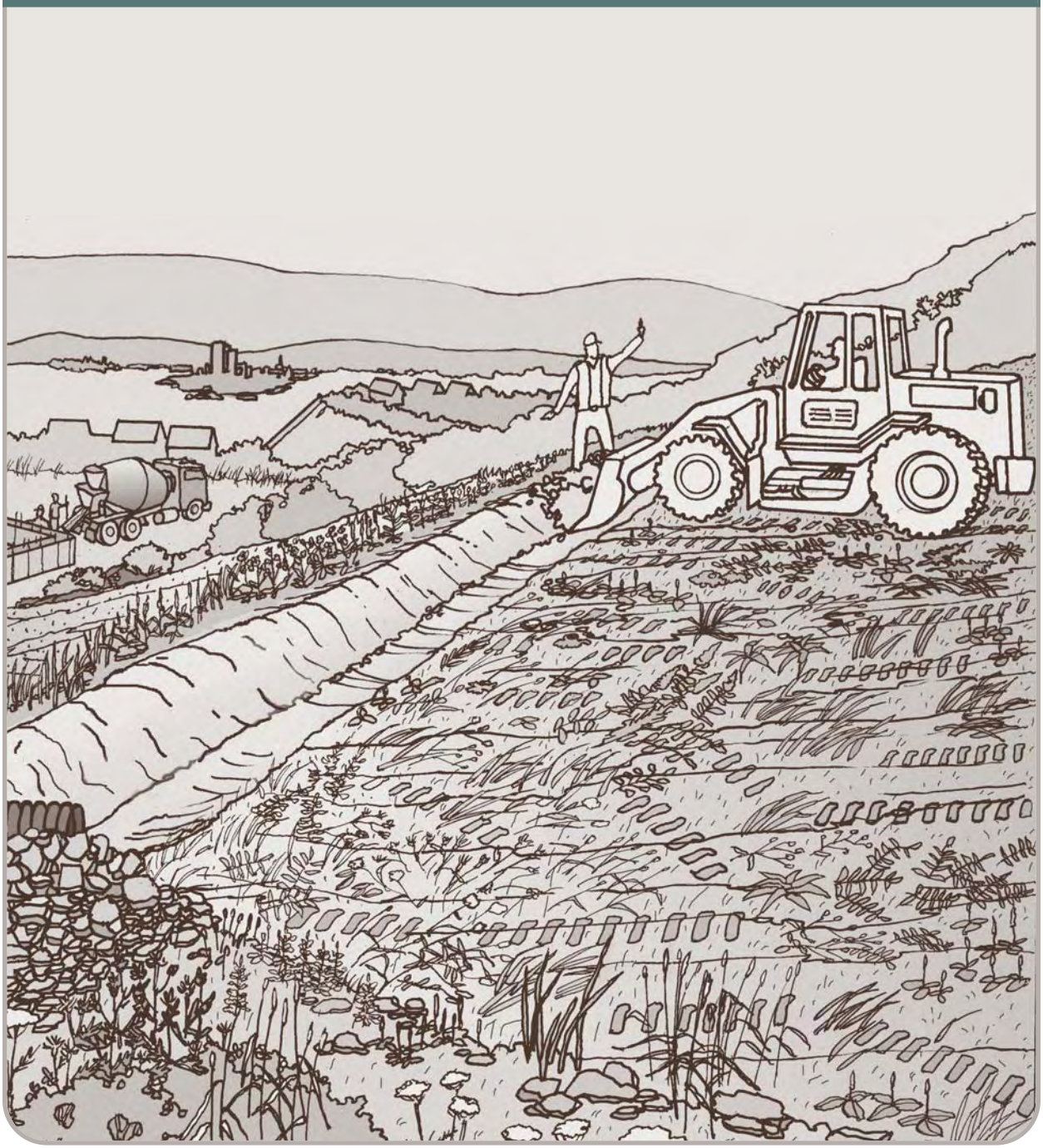
Maintenance

When the temporary diversion is located within close proximity to ongoing construction activities, inspect the temporary diversion at the end of each work day and immediately repair damages caused by construction equipment. Otherwise inspect the temporary diversion and any associated measures weekly or immediately after 0.5 inch of rain falls within a 24-hour period to determine maintenance needs.

Repair the temporary diversion and any associated measures within 24 hours of observed failure. Failure of the temporary diversion has occurred when the diversion had been damaged by either construction equipment, erosion or siltation such that it no longer meets the criteria established under the **Specifications** section or provided in the engineered design (if any).

When repetitive failures occur at the same location, review conditions and limitation for use and determine if additional measures are needed to reduce failure rates or if alternate measures are indicated to replace the temporary diversion.

Figure TD-1 Requirements for Non-Engineered Temporary Diversions



Definition

Establishment of temporary stand of grass and/or legumes by seeding and mulching soils that will be exposed for a period greater than 1 month but less than 12 months.

Purpose

To temporarily stabilize the soil and reduce damage from wind and/or water erosion and sedimentation until permanent stabilization is accomplished.

Applicability

- Within the first 7 days of suspending work on a grading operation that exposes erodible soils where such suspension is expected to last for 1 to 12 months. Such areas include soil stockpiles, borrow pits, road banks and other disturbed or unstable areas.
- Not for use on areas that are to be left dormant for more than 1 year. Use permanent vegetative measures in those situations.

Specifications

Seed Selection

Select grass species appropriate for the season and site conditions from **Figure TS-2**.

Timing Considerations

Seed with a temporary seed mixture within 7 days after the suspension of grading work in disturbed areas where the suspension of work is expected to be more than 30 days but less than 1 year. Seeding outside the optimum seeding dates given in **Figure TS-2** may result in either inadequate germination or low plant survival rates, reducing erosion control effectiveness.

Site Preparation

Install needed erosion control measures such as diversions, grade stabilization structures, sediment basins and grassed waterways in accordance with the approved plan.

Grade according to plans and allow for the use of appropriate equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. All grading should be done in accordance with the **Land Grading** measure.

Seedbed Preparation

Loosen the soil to a depth of 3-4 inches with a slightly roughened surface. If the area has been recently loosened or disturbed, no further roughening is required. Soil preparation can be accomplished by tracking with a bulldozer, discing, harrowing, raking or dragging with a section of chain link fence. Avoid excessive compaction of the surface by equipment traveling back and forth over the surface. If the slope is tracked, the cleat marks shall be perpendicular to the anticipated direction of the flow of surface water (see **Surface Roughening** measure).

Apply ground limestone and fertilizer according to soil test recommendations (such as those offered by the University of Connecticut Soil Testing Laboratory or other reliable source). Soil sample mailers are available from the local Cooperative Extension System office. Appendix E contains a listing of the Cooperative Extension System offices.

If soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 300 pounds per acre or 7.5 pounds per 1,000 square feet of 10-10-10 or equivalent. Additionally, lime may be applied using rates given in **Figure TS-1**.

Figure TS-1 Soil Texture vs. Liming Rates

Soil Texture	Tons / Acre of Lime	Lbs / 1000 ft^2 of Lime
Clay, clay loam and high organic soil	3	135
Sandy loam, loam, silt loam	2	90
Loamy sand, sand	1	45

Seeding

Apply seed uniformly by hand, cyclone seeder, drill, cultipacker type seeder or hydroseeder at a minimum rate for the selected seed identified in **Figure TS-2**. Increase

seeding rates by 10% when hydroseeding.

Mulching

Temporary seedings made during optimum seeding dates shall be mulched according to the **Mulch for Seed** measure. Note when seeding outside of the optimum seeding dates, increase the application of mulch to provide 95%-100% coverage.

Maintenance

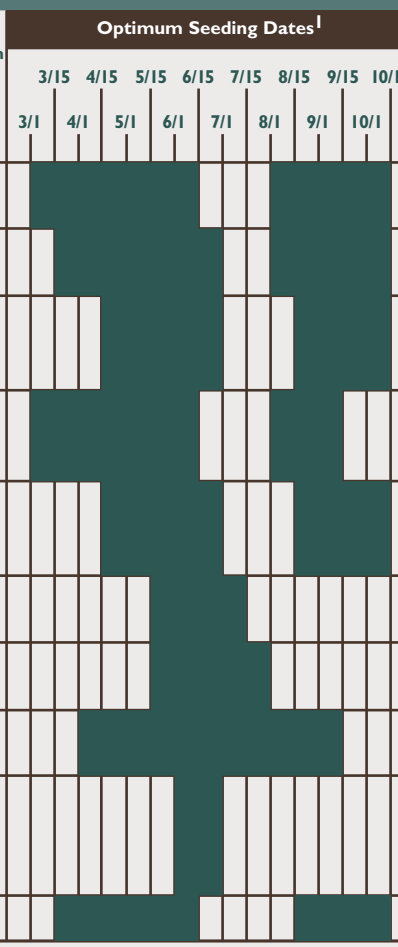
Inspect seeded area at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater for seed and mulch movement and rill erosion.

Where seed has moved or where soil erosion has occurred, determine the cause of the failure. Bird feeding may be a problem if mulch was applied too thinly to protect seed. Re-seed and re- mulch. If movement was the result of wind, then repair erosion damage (if any), reapply seed and mulch and apply mulch anchoring. If failure was caused by concentrated runoff, install additional measures to control water and sediment movement, repair erosion damage, re-seed and re-apply mulch with anchoring or use **Temporary Erosion Control Blanket** measure.

Continue inspections until the grasses are firmly established. Grasses shall not be considered established until a ground cover is achieved which is mature enough to control soil erosion and to survive severe weather conditions (approximately 80% vegetative surface cover).

Figure TS-2 Temporary Seeding Rates and Dates

Species[4]	Seeding Rates (pounds) /Acre	Seeding Rates (pounds) /1000 sq. ft.	Optimum Seed Depth[2] (inches)	Optimum Seeding Dates[1]	Plant Characteristics
Annual ryegrass Lolium multiflorum	40	1.0	0.5		May be added in mixes. Will mow out of most stands
Perennial ryegrass Lolium perenne	40	1.0	0.5		Use for winter cover. Tolerates cold and low moisture.
Winter Rye Secale cereale	120	3.0	1.0		Quick germination and heavy spring growth. Dies back in June with little regrowth.
Oats Avena sativa	86	2.0	1.0		In northern CT. will winter kill with the first killing frost and may throughout the state in severe winters.
Winter Wheat Triticum aestivum	120	3.0	1.0		Quick germination with moderate growth. Dies back in June with no regrowth.
Millet Echinochloa crusgalli	20	0.5	1.0		Warm season small grain. Dies with frost in September.
Sudangrass Sorghum sudanense	30	0.7	1.0		Tolerates warm temperatures and droughty conditions.
Buckwheat Fagopyrum esculentum	15	0.4	1.0		Hardy plant that will reseed itself and is good as a green manure crop.
Weeping lovegrass Eragostis curbula	5	0.2	0.25		Warm-season perennial. May bunch. Tolerates hot, dry slopes, acid infertile soils. Excellent nurse crop. Usually winter kills.
DOT All Purpose Mix[3]	150	3.4	0.5		Suitable for all conditions.



[1] May be planted throughout summer if soil moisture is adequate or can be irrigated. Fall seeding may be extended 15 days in the coastal towns.

[2] Seed at twice the indicated depth for sandy soils.

[3] See Permanent Seeding **Figure PS-3** for seeding mixture requirements.

[4] Listed species may be used in combinations to obtain a broader time spectrum. If used in combinations, reduce each species planting rate by 20% of that listed.

Source: USDA–NRCS

4-Short Term Non-living Soil Protection

Temporary Soil Protection (TSP)

Definition

Application of a degradable material that will protect the soil surface on a temporary basis without the intention of promoting plant growth.

Purpose

To prevent erosion by dissipating the erosive energy of raindrops and encouraging sheet flow over the soil surface.

Applicability

- When grading of the disturbed area will be suspended for a period of 30 or more consecutive days, but less than 5 months, stabilize the site within 7 days of the suspension of grading through the use of mulch or other materials appropriate for use as a temporary soil protector.
- For surfaces that are not to be reworked within 5 months but will be reworked within 1 year, use **Temporary Seeding**, **Mulch for Seed** or when slopes are less than 3:1, wood chips, bark chips or shredded bark.
- For surfaces that are to be reworked after 1 year, use **Permanent Seeding** and **Mulch for Seed**

Planning Considerations

See Mulching Selection Chart found in the Group Planning Considerations.

Specifications

Materials

Temporary soil protection materials include but are not limited to mulches, tackifiers, and nettings and shall be:

- ❍ *biodegradable or photo-degradable within 2 years but without substantial degradation for 5 months;*
- ❍ *free of contaminants that pollute the air or waters of the State when properly applied;*
- ❍ *free of foreign material, coarse stems and any substance toxic to plant growth or which interferes with seed germination; and*
- ❍ *capable of being applied evenly such that it provides 100% initial soil coverage and still adheres to the soil surface, does not slip on slopes when it rains or is watered, does not blow off site, and dissipates raindrop splash.*

Mulches within this specification include, but are not limited to:

Hay: The dried stems and leafy parts of plants cut and harvested, such as alfalfa, clovers, other forage legumes and the finer stemmed, leafy grasses. The average stem length should not be less than 4 inches. Hay that can be windblown should be anchored to hold it in place.

Straw: Cut and dried stems of herbaceous plants, such as wheat, barley, cereal rye, or brome. The average stem length should not be less than 4 inches. Straw that can be windblown should be anchored to hold it in place.

Wood Chips: Chipped wood material from logs, stumps, brush or trimmings including bark, stems and leaves having a general maximum size of 0.5 inch by 2 inches and free of excessively fine or long stringy particles as well as stones, soil and other debris. No anchoring is required. If seeding is performed where wood chips have been previously applied, prior to the seeding the wood chips should be removed or tilled into the ground and additional nitrogen applied. Nitrogen application rate is determined by soil test at time of seeding (anticipate 12 lbs. nitrogen per ton of wood chips).

Bark Chips, Shredded Bark: Tree bark shredded as a by product of timber processing having a general maximum size of 4 inches and free of excessively fine or long stringy particles as well as stone and other debris. Material use is the same as wood chips.

May also include corn stalks, leaves and other similar materials provided they meet the requirements of the materials section within this specification.

Note: *Wood and bark by-products may generate contaminated runoff if improperly stored for extended periods. These materials should only be stored on free draining, gently sloping soils, and only for short periods of time.*

If subsequent seeding is performed where cellulose dense mulches (e.g. leaves, excelsior, woodchips, barkchips) have been applied, then prior to seeding either remove the mulch or till it into the ground with the application of nitrogen.

Cellulose fiber is not recommended for use, except as a tackifier for other mulch materials.

Tackifiers within this specification include, but are not limited to:

Water soluble materials that cause mulch particles to adhere to one another, generally consisting of either a natural vegetable gum blended with gelling and hardening agents or a blend of hydrophilic polymers, resins, viscosifiers, sticking aids and gums. **Emulsified asphalts are specifically prohibited for use as tackifiers due to their potential for causing water pollution following its application**.

Nettings within this specification include but are not limited to:

Prefabricated openwork fabrics made of cellulose cords, ropes, threads, or biodegradable synthetic material that is woven, knotted or molded in such a manner that it holds mulch in place until temporary soil protection is no longer needed. Examples of netting are tobacco netting (used where flows are not concentrated) and jute netting (typically used in drainageways).

Substitute Measures

Where tackifiers or nettings are needed to anchor mulch, a **Temporary Erosion Control Blanket** or **Stone Slope Protection** may be substituted, providing 100% of the disturbed soil is covered.

Site Preparation

Prior to mulching, complete the required grading and install and/or repair other sediment control measures needed to control water movement within the area to be mulched.

Application

Spreading: Spread mulch material uniformly by hand or machine resulting in 100% coverage of the disturbed soil.

When spreading hay mulch by hand, divide the area to be mulched into approximately 1,000 square feet and place 2 to 3 bales of hay in each section to facilitate uniform distribution.

When spreading woodchips on slopes, it is particularly important not to spread the chips too thick. Excessive applications tend to slip or slump when saturated.

See **Figure TSP-1** for suggested application rates of specific mulches when used as temporary soil protection.

Figure TSP–1 Suggested Temporary Soil Protection Application Rates for 100% Cover

Mulch	Rate
Hay/Straw	2 – 3 Tons/acre
Wood Chips/ Shredded Bark	6 cu. yds./1000 sq. ft.

Anchoring: Apply tackifiers and/or netting either with the mulch or immediately following mulch application. Expect the need for tackifiers or netting along the shoulders of actively traveled roads, hill tops and long open slopes not protected by wind breaks.

When using netting the most critical aspect is to ensure that the netting maintains substantial contact with the mulch and the mulch, in turn, maintains continuous contact with the soil surface. Without such contact, the material is useless and erosion can be expected to occur. Install in accordance with manufacturer's recommendations.

Maintenance

Inspect temporary soil protection area at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater for mulch movement and rill erosion.

Where soil protection falls below 100%, reapply soil protection within 48 hours. Determine the cause of the failure. If mulch failure was the result of wind, consider applying a tackifier or netting. If mulch failure was caused by concentrating water, install additional measures to control water and sediment movement, repair erosion damage, re-apply mulch with anchoring or use Temporary Erosion Control Blankets.

Inspections should take place until work resumes.

Vegetated Filter (VF)

Definition

A maintained area of well established herbaceous or woody vegetation through which small volumes of sediment-laden water pass and are filtered.

Purpose

- To intercept and detain small amounts of sediment from small disturbed areas by filtering runoff waters.
- To decrease the velocity of sheet flows and allow for sediment deposition to occur before reaching sensitive areas.

Applicability

- For contributing drainage areas of 1 acre or less in size.
- For contributing slopes are no steeper than 10%.
- Where slopes in the vegetated filter area are no steeper than 10%.
- For use only when existing vegetation is in an adequate condition to provide filtering of runoff water. If vegetated filters are to be established from permanent seedings, use is prohibited until after the grass has reached 6 inches in height, has been mowed twice and survived one full growing season.
- Not for use where flows concentrate or at the outlet of diversions, drainageways, and waterways except in special cases where other measures are applied in conjunction with a vegetated filter, such as a **Level Spreader**, **Geotextile Silt Fence** or **Hay Bale Barrier**.

Planning Considerations

Vegetated filters are located in non-wetland areas and outside of riparian buffer areas. The vegetation in the filter must be sediment tolerant. The minimum flow length through the vegetated filter is determined by the steepness of the contributing slope, the soil texture of the contributing slope, the condition of vegetation within the filter and level of human activity above the filter area. A 90% total suspended solids (TSS) removal efficiency rate can be expected in areas where low levels of human disturbance above the filter area occur, variations in the vegetation are minimal and flow velocity conditions are uniform throughout the filter. A 50% TSS removal rate can be expected over a period of time if design conditions of the filter deteriorate.

When planning to use existing vegetation it must be healthy, have a vigorous growth habit and be protected from damage by construction equipment.

When planning to establish a herbaceous vegetated filter use either **Sodding** or **Permanent Seeding** measures. Sodding is a convenient method for establishing a vegetated filter that may be used immediately after installation. Sodding around a catch basin and accompanied by geotextile silt fencing or haybale barriers during contributing slope stabilization creates a vegetated filter that is very effective in reducing sediment loading to the storm drain system. Seeding may be done to establish a vegetated filter, however the area cannot be used until after the first growing season and grass growth has become well established.

Due to problems with sediment accumulation, this measure is not recommended for use greater than 1 year.

Specifications

Size and Slope Requirements

Determine the minimum flow length through a vegetated filter based upon the slope and soil texture of the contributing drainage area, vegetative condition of the filter, and level of human activity above the filter. Use **Figure VF-1** to determine filter length.

Slopes to and within the vegetated filter shall not exceed 10%.

Condition of Vegetation in Filter Area

Herbaceous vegetation shall be a dense formed sod of fine stemmed, healthy plants. Woody vegetation shall be well established and healthy with an undisturbed layer of leaf litter or duff. Protect vegetation by prohibiting the use of construction equipment in the area.

Maintenance

Inspect the vegetated filter at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater to determine maintenance needs. Maintenance is required when sediment fails to be retained by the filter due to rilling, excessive deposition of sediment, vegetation failure or other causes.

If the vegetated filter area failed due to rilling, install additional measures immediately below the filter to prevent sediment from leaving the filter area, such as a **Geotextile Silt Fence** or **Stone Check Dam**. Rills shall then be regraded, re-seeded or sodded.

Additionally, if the vegetated filter failed due to excessive sediment loading causing the vegetation to become buried, inspect the contributing area and install additional measures to control sediment before runoff enters the filter area. If further use of the vegetated filter is planned, consider manually removing the accumulated sediment that has buried the vegetation. Otherwise, seed or otherwise stabilize the accumulated sediments in the filter area.

Figure VF-1 Determining Vegetative Filter Lengths

Slope of contributing area	Soil Texture Class I[1]	Soil Texture Class II[1]	Soil Texture Class III[1]
High Density and Low Disturbance Potential (in feet) [2]			
0	50	110	150
1	54	119	162
2	58	128	174
3	62	136	186
4	66	145	198
5	70	154	210
6	74	163	370
7	78	172	390
8	82	180	410
9	86	189	430
10	90	198	450
Medium Density or High Disturbance Potential (in feet) [3]			
0	150	330	735
1	162	356	794
2	174	383	853
3	186	409	911
4	198	436	970
5	210	462	1029
6	370	814	1813
7	390	858	1911
8	410	902	2009
9	430	946	2107
10	450	990	2205

[1] Texture Class I - sands and loamy sands; Soil Texture Class II - sandy clay loams and sandy loams; Soil Texture Class III - all other soil textural classes (see Appendix H, Soil Classification Systems).

[2] Vegetation must be grass, transition forest or forest and thick enough that 80% or more of the filter area no bare ground can be seen through the grass or surface matter. These areas experience low levels of human disturbance by foot traffic.

[3] Vegetation density and/or surface litter is less than 80% of the ground or filter area will experience a high level of disturbance by foot traffic.

Source: Riparian Buffer Strategies for Urban Watersheds, Metro Washington Council of Government publication, p.44. 1995.

APPENDIX F DESIGN CALCULATIONS

GZA
GeoEnvironmental, Inc.
ONE FINANCIAL PLAZA
1350 Main Street, Suite 1400
Springfield, MA 01103
(413) 726-2100
Fax (413) 732-1249
http://www.gza.com

Engineers and Scientists

JOB 01.0019395.80 Phelps Brk Dam/East Dike
SHEET NO. 1 OF 1
CALCULATED BY RTS DATE 7/1/16
CHECKED BY JD DATE 7/14/16
SCALE

CGP: The SWPCP shall include an estimate of the average runoff coefficient of the site after construction activities are completed.

Phelps Brook Dam

	Area (ac)	Runoff Coeff.[1]	
Riprap/Stone paving	0.54	0.80	(assume Brick pavement)
Pavement	0.31	0.85	(asphaltic + concrete)
Crushed Stone	0.09	0.65	(assume light industrial)
Grass	0.51	0.30	(assume lawns, heavy soil, steep)
Total	1.45		

$$\text{Avg. RC} = \frac{0.54(0.80) + 0.31(0.85) + 0.09(0.65) + 0.51(0.30)}{1.45}$$

$$= 0.63$$

East Dike

	Area (ac)	Runoff Coeff.	
Riprap/Stone pav.	0.36	0.80	
Pavement	0.26	0.85	
Crushed Stone	0.03	0.65	
Grass	0.87	0.30	
Trees	0.03	0.20	(assume "unimproved")
Total	1.55		

Avg. RC = 0.51

[1] Table 7-10, Hydrologic Analysis + Design, 2nd edition, R.H. McCuen, 1998.

APPENDIX G SPILL PREVENTION AND RESPONSE PLAN

Date: 6/2/16

Submittal Transmittal

To: John Whitcomb

From: Running Brook Farms
219 Route 80
Killingworth, CT 06419

Project: Phelps Brook Dam and East Dike

Submittal No.: 01060-001B

Transmitted herewith for review and comment are the follow:

Spec# 01060
Copies: 1

Discription: Spill Prevention and Response Plan

Manufacturer:
Name:
Address:
Telephone No.:
For additional information, contact:
Email Address:

Supplier:
Name: Running Brook Farms,LLC Farms,LLC
Address: 219 Route 80, Killingwoth, Ct 06419
Telephone no: 860-663-5522 ext 304
For additional information, contact: Wendy Hopwood
Email Address: whopwood@runningbrookfarms.com

I hereby certify that I have carefully examined the enclosed submittal and have determined and verified all field measurements, construction criteria, materials, catalog numbers and similar data, coordinated the submittal with other submissions and the work of the other trades and contractors, and that to the best of my knowledge and belief, the enclosed submittal is in full compliance with the Contract Documents, except for the following deviations:

By:
Signature: Scott Papoosha
Name: Scott Papoosha
Title: Owner/Member

Running Brook Farms, LLC
219 Route 80 Killingworth Ct 06419
B 860-663-5522 F 860-663-0277

Running Brook Farms, LLC.

Spill Prevention and Response Plan

Developed and Promoted For:

The Metropolitan District
555 Main Street
Hartford, CT 06142-0800

Project:
Phelps Brook Dam and East Dike Rehabilitation Project
2014B-11

An Affirmative Action/Equal Opportunity Employer

Running Brook Farms, LLC
219 Route 80 Killingworth CT 06419
B 860-663-5522 F 860-663-0277

Spill Prevention and Response Plan

Name of Business: Running Brook Farms, LLC.

Address: 219 Route 80, Killingworth, CT 06419

Facility Phone: (860) 391 - 5449

Types of Work or Hazardous Substances Used: Gasoline, Diesel, Motor Oil, and Hydraulic Oil

This spill plan is designed to handle the requirements for this project and associated hazardous substances. The spill plan will be updated if the hazardous substance inventory changes.

Spill Prevention

The following are general requirements for any hazardous substances stored or used at this facility.

General Requirements

- Ensure all hazardous substances are properly labeled.
- Store, dispense, and/or use hazardous substances in a way that prevents releases.
- Provide secondary containment when storing hazardous substances in bulk quantities.
- Maintain good housekeeping practices for all chemical materials at the site.

Project Specific Requirements

- Trucks and machines will be fueled only on a paved road located a minimum of 200 feet away from any water sources or sensitive areas.
- No source of fuel will be kept overnight on the property, aside from fuel already in the trucks and machines, and each truck and piece of equipment is equipped with a locking fuel cap to prevent tampering.

Spill Containment

Spill Prevention and Response Plan

The general spill response procedure at this facility is to stop the source of the spill, contain any spilled material, and clean up the spill in a timely manner to prevent accidental injury or other damage. Small spills will be contained by site personnel if they are able to do so without risking injury. Spill kits are located at the following location(s).
Vehicle Spill Kits are located inside of every truck and piece of machinery.

Personnel will properly characterize spill cleanup materials before disposal.

For questions, please call the Connecticut Toll-Free COMPASS Hotline at 1-888-424-4193.

Emergency Procedures:

- Immediately call 911 in the event of injury, fire or potential fire, or spill of a hazardous substance that gives rise to an emergency situation.
- If a spill has occurred contact the following persons immediately:
  - Primary: Scott Papoosha (860) 391-5449
  - Secondary: John Whitcomb (860) 948-8320 (PE Construction Manager)
  - After Hours: Scott Papoosha (860) 391-5449
- In the event of a large spill, a properly trained employee should:
  - Assess the area for any immediate dangers to health or safety. **If any type of danger is present, move away from the area and call 911.**
- Notify the primary and/or secondary contact from the list above and then continue your spill response. The primary contact should assess additional notification requirements.
- Retrieve the spill kit from the closest location.
- Assess the size of the leak and any immediate threat of the spill reaching the storm drains or permeable surfaces in the area. If there is an immediate threat and there are no safety concerns, then attempt to block the spill from coming in contact with the storm drain or permeable surface. If no drain covers are available, then try to use an absorbent, such as cat litter, and/or sock booms or rags to stop the spill from getting into the drains or to any permeable surfaces.
- If the spill can be contained with absorbent booms, deploy them around the spill. Use the booms to direct the spill away from any immediate hazards.

- If there is no immediate threat to the storm drains or permeable surfaces, or after controlling the spill, try to plug or stop the leaks, if possible. If applicable, put on protective gear and plug the leak.

Spill Reporting

If a hazardous substance spill exceeds 15 gallons or if any amount has been released to surface water, storm drains, or soil, notify the following CT departments:

CT 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.

Local Fire Department	(911)
National Response Center	800-424-8802

Running Brook Farms, LLC
219 Route 80 Killingworth CT 06419
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Spill Prevention and Response Plan

Hazardous Substance Inventory

Hazardous Substance	Manufacturer	Quantity/ Unit of Issue
Gasoline	Various	20 Gallons Max
Diesel Fuel	Various	60 Gallons Max
Motor Oil	Various	10 Gallons Max
Hydraulic Oil	Various	10 Gallons Max

Plan Management

The primary contact or designee shall administer this plan and will be responsible for updating and including any required documentation.

Training

All personnel who may respond to any spill, need to be trained on the contents and procedures in this plan. Trained personnel will add their names and dates of training to the Training Log. Only Persons trained on this plan shall respond to a spill. If you are not trained and witness a spill, call or notify the primary and secondary contacts listed.

Spill Tracking

Any spills must be entered in to the Spill Log. If a large catastrophic spill occurs, attach additional pages to describe the event. Include known or possible causes, areas affected, and effectiveness of the cleanup. Include a review of the cleanup contractor and their procedures. For small spills, it is sufficient to fill out the Spill Log, and to take measure to prevent a repeat occurrence.

Facility Inspections

Routine inspections will be conducted daily during regular business hours. Daily inspections will include, at a minimum, a visual inspection of the hazardous substances containers and the area immediately adjacent to it for signs of a spill or leak. These inspections do not need to be logged unless a spill or leak is detected. Ideally, these inspections will be conducted by a manager or by regular employees.

Full site inspections will be conducted monthly by the primary contact or designee and, at a minimum, will include those items on the inspection form. If any item on the inspection form is found unacceptable, the inspection form will be attached to this plan. If all items are deemed acceptable; it is sufficient for the inspector to log only the inspection and the results in the Inspection Log.

Running Brook Farms, LLC
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Spill Prevention and Response Plan

Inspection Log

Inspection Month	Year	Inspector Initials	Lids and Labels?	Evidence of Spills?	New Product?	Spill Kit Complete?	Storm Drains?	Items Fixed?
January								
February								
March								
April								
May								
June								
July								
August								
September								
October								
November								
December								

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Spill Prevention and Response Plan

Inspection Form

Acceptable	Unacceptable	
☐	☐	**Lids and Labels?** - Have all lids and caps been returned to their proper place? Do all the containers still have labels?
☐	☐	**Evidence of Spills?** – Is there any indication that a spill might have occurred? If so, was the spill properly cleaned up? Was there any spill kit materials used? Was the Spill Log filled out for that incident? Any housekeeping issues?
☐	☐	**New Hazardous Substances?** – Have any new chemical products been purchased? DO you have the MSDS for the new products? Have you addressed how to store and handle the new product safely? Was the new product added to the inventory sheet? Is the container properly labeled?
☐	☐	**Spill Kit Complete?** – Have any items been used from the spill kit? If items are missing, there is an associated entry in the Spill Log? Are there any items missing that are currently on order? Is the spill kit stored where it is supposed to be stored? Is there a sufficient supply of daily cleanup materials?
☐	☐	**Storm Drains?** – Is there a buildup of sediment in the drain traps? Is there evidence of drain clogging? Are the drain filters still intact? Any need replacing? Have they been replaced?
☐	☐	**Items Fixed?** – Have all deficiencies previously noted been fixed or made acceptable?

List any other issues in detail:

_____

_____

_____

Running Brook Farms, LLC
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Spill Prevention and Response Plan

Spill Log

Date of Spill	Location of Spill	Size of Spill	Prevention Measures Taken?	Spill Kit Materials Used?	Was the Spill Kit Adequate?

Running Brook Farms, LLC
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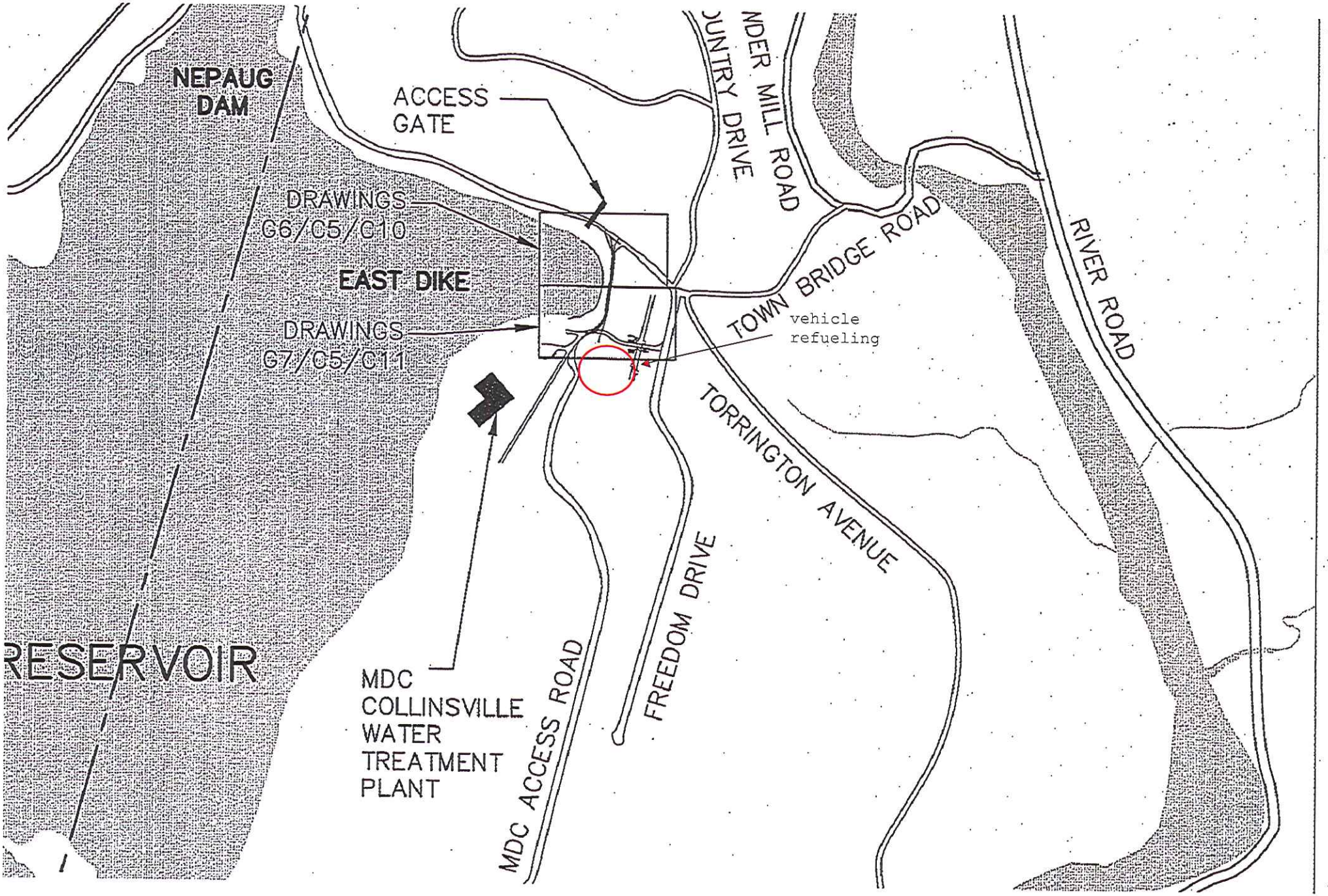
B 860-663-5522 F 860-663-0277

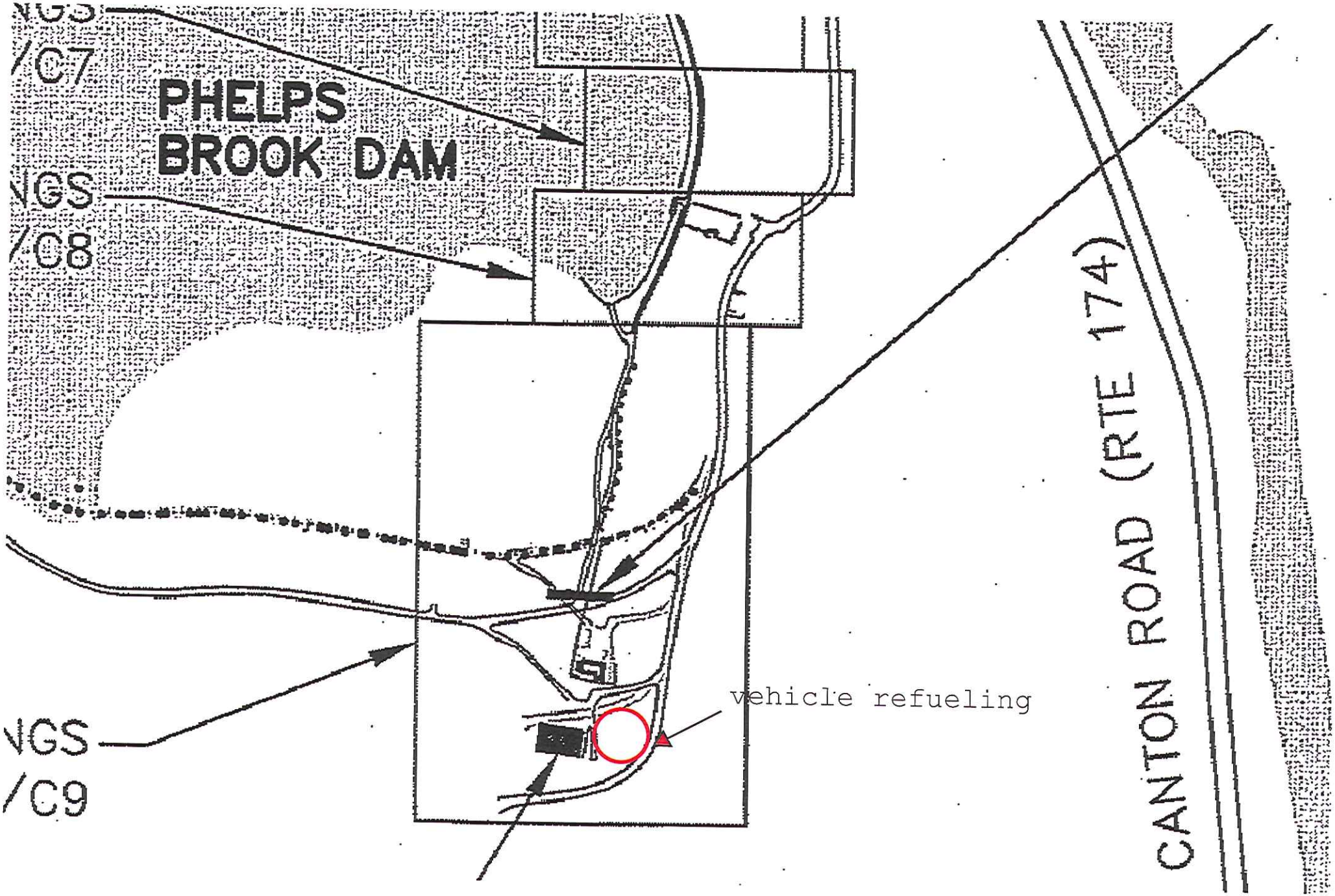
Spill Prevention and Response Plan

Training Log

Employee's Printed Name	Employee's Signature	Date Completed

Site Map


NEPAUG DAM
ACCESS GATE
DRAWINGS C6/C5/C10
EAST DIKE
DRAWINGS C7/C5/C11
vehicle refueling
JUNTRY DRIVE
NDER MILL ROAD
TOWN BRIDGE ROAD
RIVER ROAD
TORRINGTON AVENUE
FREEDOM DRIVE
MDC ACCESS ROAD
RESERVOIR
MDC COLLINSVILLE WATER TREATMENT PLANT


NGS
/C7
PHELPS
BROOK DAM
NGS
/C8
NGS
/C9
vehicle refueling
CANTON ROAD (RTE 174)

PRODUCTS
GRANULAR ABSORBENTS
SORBENTS & WIPERS
SPILL RESPONSE KITS
SPILL RESPONSE KITS: FOREST INDUSTRY
SPILL CONTAINMENT BERMS & TRAYS
SPILL CONTAINMENT & STORAGE SOLUTIONS
ULTRATECH PRODUCTS
DRAIN PROTECTION & STORMWATER CONTROL
CONTAINMENT BOOM
NEUTRALIZERS
LEAK STOP
DEGREASERS
TRAINING
CRD SOURCE CONTROL REGULATIONS
STORMWATER BYLAW SOLUTIONS
HAZMAT SPILL RESPONSE TRAILERS
ENVIRONMENTAL SPILL RESPONSE UNITS
REQUEST A QUOTE

OUR PRODUCTS

Customer Service:
1.888.548.3800
sales@spillsupply.com

Contractor Spill Response Kit (KI-ESK1B)

The perfect vehicle spill kit for contractors or site managers. Easy to store behind the truck seat or in a toolbox. Designed for durability in an oil and water resistant red nylon bag, with zipper and carry handle. Easily identified with yellow "Spill Response Kit" screenprint. Sorbent capacity of 8 gallons / 30 litres.

Request Quote

Standard Contents:
20 Absorbent Pads (Oil, Gas & Diesel)
2 3" x 4' Absorbent Socks (Oil, Gas & Diesel)
2 HD Hazmat Disposal Bags
1 Pair of Nitrile Gloves

Click here to view Spill Kit Options/Accessories

Please contact us for further information and volume discount pricing on Spill Kits.

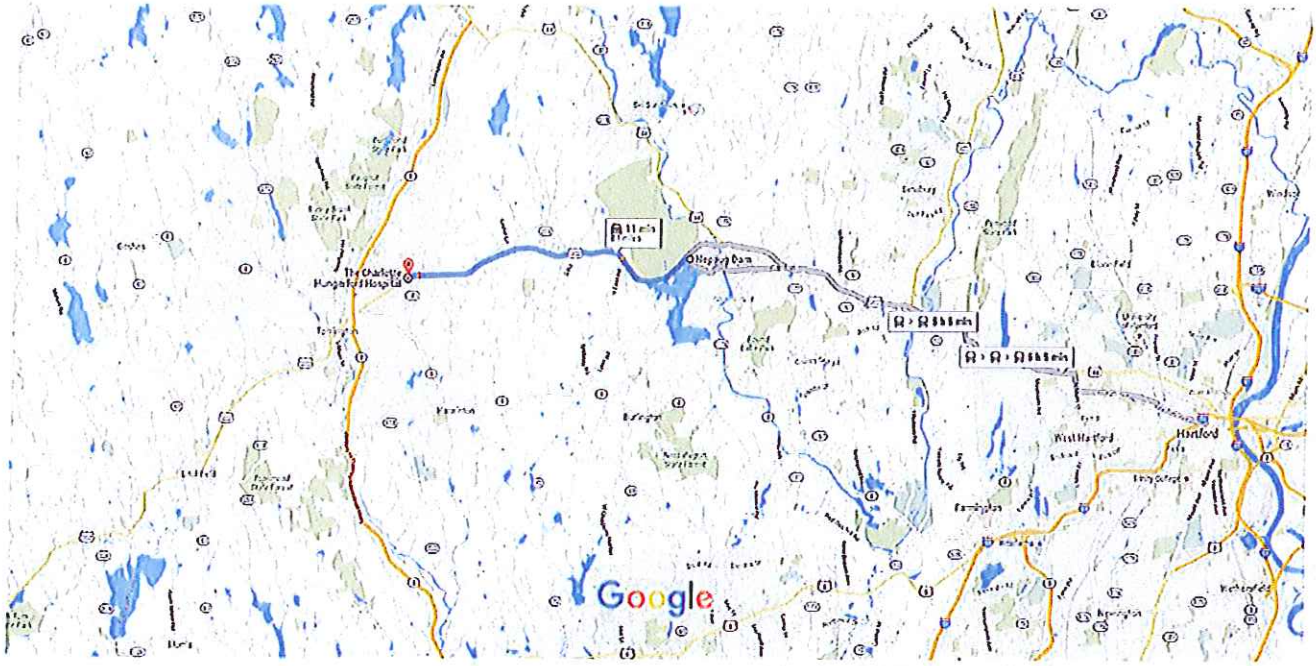
Products

- » Click here to view list of Popular Spill Response Kits
- » Custom / Personalized Spill Kits
- » XSORB Wall Mount Biohazard Response Kit (KI-BK607)
- » Smart Pack Spill Response Kit (KI-SPSK)
- » Entry Level Spill Response Kit (KI-ESKE)
- » Clear Pack Spill Response Kit (KI-ESK1)
- » Clear Pack Spill Response Kit (KI-ESK1-C)
- » Clear Pack Spill Kit + Granular (KI-ESK1G)
- » Contractor Spill Response Kit (KI-ESK1B)
- » Equipment Spill Response Kit (KI-ESK2)

Google Maps

Nepaug Dam, Canton, CT to The Charlotte Hungerford Hospital

Drive 8.1 miles, 11 min



Map data ©2016 Google 2 mi

Nepaug Dam

Canton, CT 06019

1. Head southwest on US-202 W

   Destination will be on the left

8.1 mi

The Charlotte Hungerford Hospital

1598 East Main Street, Torrington, CT 06790

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Google Maps

Running Brook Farms, LLC
219 Route 80 Killingworth Ct 06419
B 860-663-5522 F 860-663-0277

Emergency Contacts

Scott Papoosha- Cell- 860-391-5449

Wendy Hopwood- Home- 860-663-2850
Cell- 203-868-1884

An Affirmative Action/Equal Opportunity Employer

Running Brook Farms, LLC
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B 860-663-5522 F 860-663-0277

Emergency Alerting and Response Procedures

All spills must be reported to the Connecticut Department of Energy and Environmental Protection (CT DEEP) immediately!

- **Attempt to contain the spill, and/or shut off the system causing the spill**
- **Notify Scott Papoosha at (860) 391-5449**
- **Notify CT DEEP's Emergency Response & Spill Prevention Division at (860) 424-3338 or toll free at (866) DEP-SPIL ((866) 377-7745)**
- **Call Emergency Response Contractors (see attached list)**
- **Alert local authorities as needed**

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Emergency Response Contractors

- American Rooter, LLC-
  - Phone- (860) 274-7338
  - Fax- (860) 274-4778
  - 755 Thomaston Rd, Watertown, CT 06795
  - Email- service@americanrooter.com
  - License #- CT-HW-866
- Environmental Services, INC-
  - Phone- (860) 528-9500
  - Fax- (860) 289-3119
  - 90 Brookfield St, South Windsor, CT 06074
  - Website- www.e-s-i.com
  - License #- CT-HW-218
- Manafort Brothers, INC-
  - Phone- (860) 229-4853
  - Fax- (860) 747-6543
  - 414 New Britain Ave, Plainville, CT 06062
  - Website- www.manafort.com
  - License #- CT-HW-841
- Tri-S Environmental Services, INC-
  - Phone- (860) 875-2110
  - Fax- (860) 875-8587
  - 25 Pinney St, Ellington, CT 06029

- Website- www.tri-senvironmental.com
- License #- CT-HW-026

- True Blue Environmental Services, LLC-
  - Phone- (203) 269-3355
  - Fax- (203) 294- 0841
  - 5 Northfield Rd, Wallingford, CT 06492
  - Website- www.trueblueenvironmental.com
  - License #- CT-HW-794

APPENDIX H LIMITATIONS

STORMWATER POLLUTION CONTROL PLAN LIMITATIONS

1. GZA GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of our Client for the stated purpose(s) and location(s) identified in the Proposal for Services and/or Report. Use of this report, in whole or in park, 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 agreement, 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 **METROPOLITAN DISTRICT COMMISSION** for specific application to the **PHELPS BROOK DAM & EAST DIKE REHABILITATION PROJECT** located in **CANTON AND BURLINGTON, CONNECTICUT**, in accordance with generally accepted engineering practices. No other warranty, express or implied, is made.

3. The information contained in this Plan was performed 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.

4. Any observations described in this Plan were made under the conditions stated herein. Any conclusions presented in the 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 on certain information made available by public agencies, the Client and/or Others, and on information contained 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. In the event that the Client or others authorized to use this report 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 the conclusions stated in this report.

8. The findings and conclusions provided in this Plan are based on information made available to GZA and observations made while conducting the prescribed Scope of Work. Site conditions in many of the elements are subject to change, so conditions at any given time could differ from the conditions described in the Plan.

EXHIBITS

SITE PLAN / EROSION AND SEDIMENT CONTROL PLAN

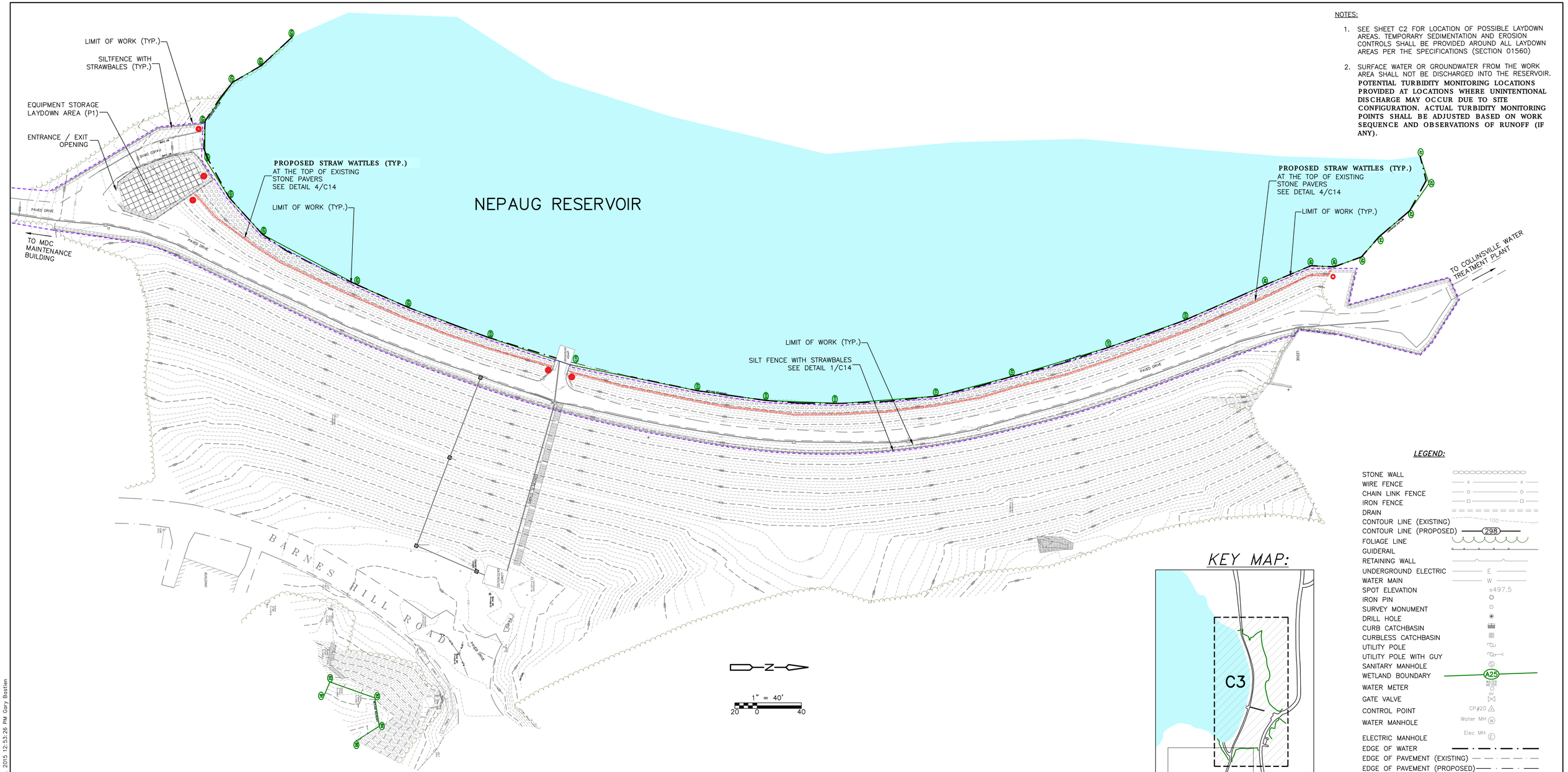
The Erosion and Sediment Control Plan was prepared by GZA with the best available information at the time of preparation. Various site management practices shall be decided by the Contractor during construction and are likely to change during the course of construction. **The following list of items 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.

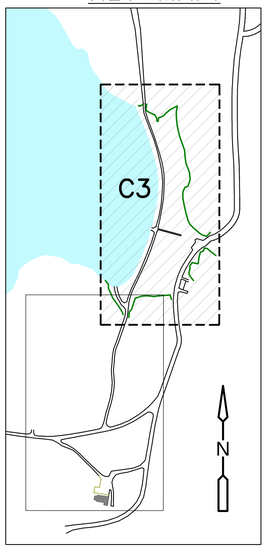
- ☐ Materials/equipment storage areas including stockpiles;
- ☐ Area(s) of soil disturbance (note phasing);
- ☐ Locations of major structural controls (BMPs) and stabilization practices (both temporary and permanent);
- ☐ Locations where vehicles will exit onto paved roads and stabilized construction 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. SEE SHEET C2 FOR LOCATION OF POSSIBLE LAYDOWN AREAS. TEMPORARY SEDIMENTATION AND EROSION CONTROLS SHALL BE PROVIDED AROUND ALL LAYDOWN AREAS PER THE SPECIFICATIONS (SECTION 01560)
2. SURFACE WATER OR GROUNDWATER FROM THE WORK AREA SHALL NOT BE DISCHARGED INTO THE RESERVOIR. **POTENTIAL TURBIDITY MONITORING LOCATIONS PROVIDED AT LOCATIONS WHERE UNINTENTIONAL DISCHARGE MAY OCCUR DUE TO SITE CONFIGURATION. ACTUAL TURBIDITY MONITORING POINTS SHALL BE ADJUSTED BASED ON WORK SEQUENCE AND OBSERVATIONS OF RUNOFF (IF ANY).**



KEY MAP:



LEGEND:

- STONE WALL
- WIRE FENCE
- CHAIN LINK FENCE
- IRON FENCE
- DRAIN
- CONTOUR LINE (EXISTING) — 100
- CONTOUR LINE (PROPOSED) — 298
- FOLIAGE LINE
- GUIDERAIL
- RETAINING WALL
- UNDERGROUND ELECTRIC — E
- WATER MAIN — W
- SPOT ELEVATION — x497.5
- IRON PIN
- SURVEY MONUMENT
- DRILL HOLE
- CURB CATCHBASIN
- CURBLESS CATCHBASIN
- UTILITY POLE
- UTILITY POLE WITH GUY
- SANITARY MANHOLE
- WETLAND BOUNDARY — A25
- WATER METER
- GATE VALVE
- CONTROL POINT — CP#20
- WATER MANHOLE — Water MH
- ELECTRIC MANHOLE — Elec MH
- EDGE OF WATER
- EDGE OF PAVEMENT (EXISTING)
- EDGE OF PAVEMENT (PROPOSED)
- STRAWBALES
- **STRAW WATTLES**
- SILTATION FENCE
- LIMIT OF WORK LINE
- EXISTING STONE PAVING

POTENTIAL TURBIDITY MONITORING LOCATION (SEE NOTE 2)

THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT (MDC OR DISTRICT) OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR MODIFIED IN WHOLE OR IN PART FOR ANY OTHER PURPOSE OR PROJECT. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING SHALL BE AT THE USER'S OR SUCH OTHER PARTIES' SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA OR THE MDC.

Saved: Wednesday, May 27, 2015 3:55:35 PM GARY.BASTIEN Plotted Friday, May 29, 2015 12:53:26 PM Gary Bastien

MDC **The Metropolitan District**
Hartford, Connecticut
Engineering And Planning

UNDERGROUND UTILITY CHECK		
APPROXIMATE LOCATION	SOURCE	DATE
GAS		
CATV		
ELEC.		
TEL.		
SEWER		
WATER		
STEAM		
FIBER OPTICS		

REVISION	DATE

DRAFTER MEA CHECKED MAT
PROJ. ENG. JGD/MSA REVIEWED PHB
SUBMITTED
APPROVED

EROSION CONTROL PLAN PHELPS BROOK DAM (1 OF 2)

STATE OF CONNECTICUT MATTHEW A. TAYLOR No. 28490 LICENSED PROFESSIONAL ENGINEER

MDC CODE:
DATE MAY 2015

DRAWING C3
11 OF 23 SHEETS

CONTRACT NUMBER 2014B-11
PLAN NUMBER

J:\GEO\01.019395.80 – NEPAUG\01.019395.80\FIGURES\GZA DWGS\19395.80_C3-C4_EROSION-STAGING_1APR2014

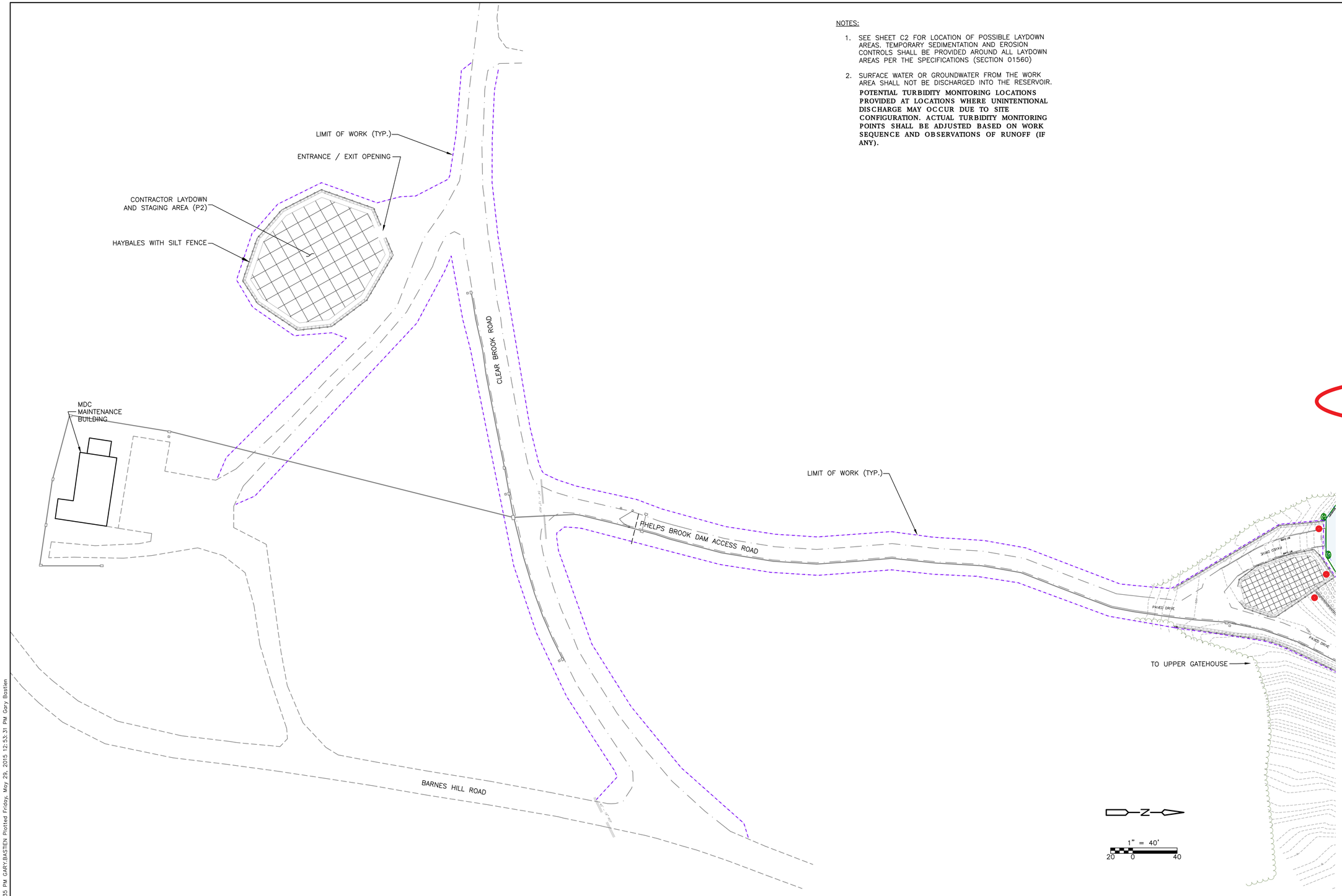
NOTES:

1. SEE SHEET C2 FOR LOCATION OF POSSIBLE LAYDOWN AREAS. TEMPORARY SEDIMENTATION AND EROSION CONTROLS SHALL BE PROVIDED AROUND ALL LAYDOWN AREAS PER THE SPECIFICATIONS (SECTION 01560)
2. SURFACE WATER OR GROUNDWATER FROM THE WORK AREA SHALL NOT BE DISCHARGED INTO THE RESERVOIR. **POTENTIAL TURBIDITY MONITORING LOCATIONS PROVIDED AT LOCATIONS WHERE UNINTENTIONAL DISCHARGE MAY OCCUR DUE TO SITE CONFIGURATION. ACTUAL TURBIDITY MONITORING POINTS SHALL BE ADJUSTED BASED ON WORK SEQUENCE AND OBSERVATIONS OF RUNOFF (IF ANY).**

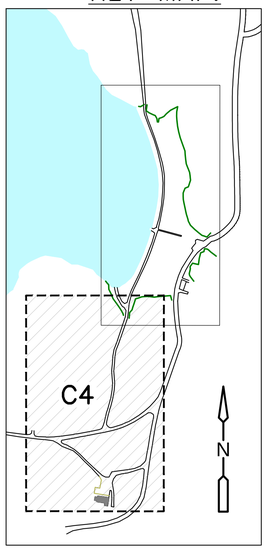
LEGEND:

STONE WALL
WIRE FENCE
CHAIN LINK FENCE
IRON FENCE
DRAIN
CONTOUR LINE (EXISTING) 100
CONTOUR LINE (PROPOSED) 298
FOLIAGE LINE
GUIDERAIL
RETAINING WALL
UNDERGROUND ELECTRIC E
WATER MAIN W
SPOT ELEVATION x497.5
IRON PIN
SURVEY MONUMENT
DRILL HOLE
CURB CATCHBASIN
CURBLESS CATCHBASIN
UTILITY POLE
UTILITY POLE WITH GUY
SANITARY MANHOLE
WETLAND BOUNDARY A25
WATER METER
GATE VALVE GV
CONTROL POINT CP#20
WATER MANHOLE Water MH
ELECTRIC MANHOLE Elec MH
EDGE OF WATER
EDGE OF PAVEMENT (EXISTING)
EDGE OF PAVEMENT (PROPOSED)
STRAWBALES
SILTATION FENCE
LIMIT OF WORK LINE

POTENTIAL TURBIDITY MONITORING LOCATION (SEE NOTE 2)



KEY MAP:



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MDC **The Metropolitan District**
Hartford, Connecticut
Engineering And Planning

UNDERGROUND UTILITY CHECK		
APPROXIMATE LOCATION	SOURCE	DATE
GAS		
CATV		
ELEC.		
TEL.		
SEWER		
WATER		
STEAM		
FIBER OPTICS		

REVISION	DATE

DRAFTER MEA CHECKED MAT
PROJ. ENG. JGD/MSA REVIEWED PHB
SUBMITTED
APPROVED

EROSION CONTROL PLAN PHELPS BROOK DAM (2 OF 2)

STATE OF CONNECTICUT MATTHEW A. TAYLOR No. 28420 LICENSED PROFESSIONAL ENGINEER

MDC CODE:
DATE MAY 2015

DRAWING C4
12 OF 23 SHEETS

CONTRACT NUMBER 2014B-11
PLAN NUMBER

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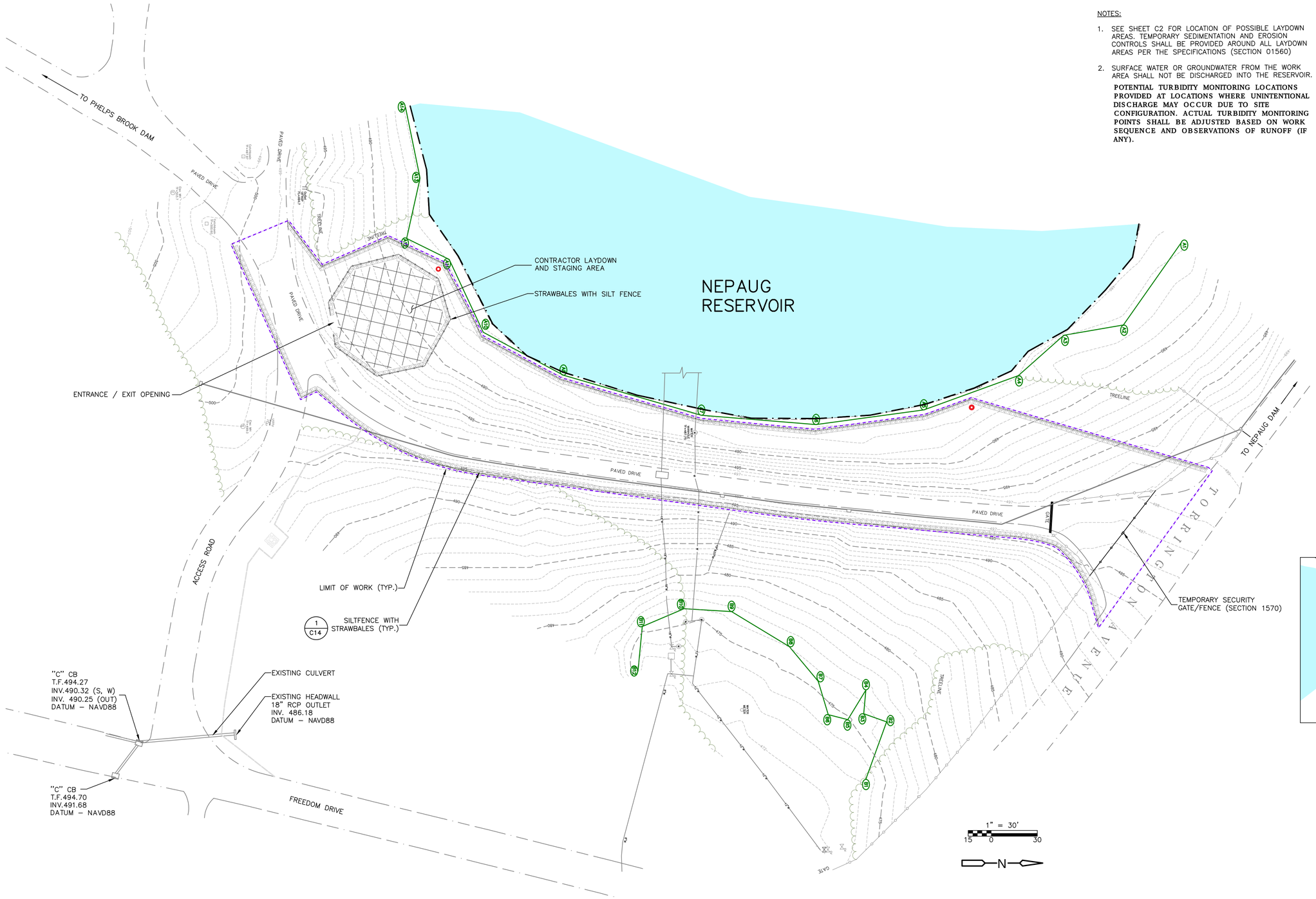

LEGEND:

- STONE WALL
- WIRE FENCE
- CHAIN LINK FENCE
- IRON FENCE
- DRAIN
- CONTOUR LINE (EXISTING) — 100
- CONTOUR LINE (PROPOSED) — 298
- FOLIAGE LINE
- GUIDERAIL
- RETAINING WALL
- UNDERGROUND ELECTRIC — E
- WATER MAIN — W
- SPOT ELEVATION — x497.5
- IRON PIN
- SURVEY MONUMENT
- DRILL HOLE
- CURB CATCHBASIN
- CURBLESS CATCHBASIN
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- UTILITY POLE WITH GUY
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- WETLAND BOUNDARY — A25
- WATER METER — WATER METER
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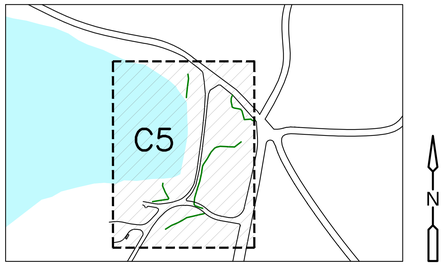
- CONTROL POINT — CP#20
- WATER MANHOLE — Water MH
- ELECTRIC MANHOLE — Elec MH
- EDGE OF WATER
- EDGE OF PAVEMENT (EXISTING)
- EDGE OF PAVEMENT (PROPOSED)
- TEMPORARY ACCESS ROAD
- STRAWBALES
- SILTATION FENCE
- TUBIDITY CURTAIN
- LIMIT OF WORK LINE

POTENTIAL TURBIDITY MONITORING LOCATION (SEE NOTE 2)

KEY MAP:



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Hartford, Connecticut
Engineering And Planning

UNDERGROUND UTILITY CHECK		
APPROXIMATE LOCATION	SOURCE	DATE
GAS		
CATV		
ELEC.		
TEL.		
SEWER		
WATER		
STEAM		
FIBER OPTICS		

REVISION	DATE

DRAFTER MEA CHECKED MAT
PROJ. ENG. JGD/MSA REVIEWED PHB
SUBMITTED
APPROVED

EROSION CONTROL PLAN EAST DIKE

STATE OF CONNECTICUT MATTHEW A. TAYLOR No. 28290 LICENSED PROFESSIONAL ENGINEER

MDC CODE:
DATE MAY 2015

DRAWING C5
13 OF 23 SHEETS

CONTRACT NUMBER 2014B–11
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