Stormwater Pollution Control Plan
Windsor-Bloomfield Landfill

Town of Windsor
Windsor, CT

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1 Introduction

The Town of Windsor is closing the Windsor-Bloomfield Landfill located at 500 Huckleberry Road. The closure involves final grading of the landfill and then installing an evapotranspiration cap. These construction activities are subject to the *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities* (General Permit), dated August 21, 2013. This Stormwater Pollution Control Plan is required as part of the permit registration.

The purpose of this plan is to specify parameters to follow to minimize pollution caused by use of the project site during and after construction is completed. Erosion and sediment control requirements are also shown on the Final Cover System Design plans in *Appendix C*. A site location map of the project site for Windsor-Bloomfield Landfill can be found in *Figure 1* at the end of this report.

The Town of Windsor, herein referred to as the Town, has elected to perform the work themselves. During construction, the Town shall be responsible for implementing all elements of the erosion and sedimentation control measures as defined on the drawings and in this plan. Construction activities will be phased to minimize areas of disturbance throughout construction. Erosion and sedimentation controls will be implemented and adjusted as needed throughout construction to minimize soil erosion.

Throughout the construction process, the Permittee or Permittee's agent shall periodically inspect erosion control measures. A monitoring program will be put in place to observe potential off-site impacts due to erosion. After construction, the Permittee shall be responsible for maintaining these erosion and sedimentation control measures. The Windsor-Bloomfield Landfill project will not be considered complete until disturbed areas have been satisfactorily stabilized for at least three months, erosion has been repaired, and temporary erosion control measures have been removed as called for on the plans.

The Town and subcontractor(s) will be required to sign the certification statement located in *Appendix B* of this plan.

2 Site Description

The project site is the Windsor-Bloomfield Landfill located at 500 Huckleberry Road in the Town of Windsor, Connecticut, and is owned and operated by the Town of Windsor. The Town is preparing the landfill for final closure. Previous operations performed at this site by Town personnel included the disposal of municipal solid waste (MSW) and bulky waste.

The 65-acre landfill is situated on an approximate 187-acre parcel. The landfill property is bordered to the west by the Farmington River, to the north by Northwest Park (a 470 acre park owned by the Town of Windsor), and eastward and southward by various privately owned properties.

The Town of Windsor operated the landfill, which began operations on July 5, 1972, to serve the Towns of Windsor and Bloomfield. Operations at the landfill included the disposal of MSW from the Towns of Windsor and Bloomfield as well as several other communities on a spot-market basis.

The Connecticut Department of Energy and Environmental Protection (CTDEEP), formerly the Connecticut Department of Environmental Protection, issued the Town of Windsor a permit for MSW disposal on February 5, 1973. This permit was issued for 65 acres of land west of Huckleberry Road.

The CTDEEP has permitted the disposal of a variety of wastes at this site including metal hydroxide sludges (1977), bulky waste (1982), and grinding waste (1989). Minor permit amendments were also issued by the CTDEEP to allow leaf composting (1989), wood grinding and chipped wood waste composting (1991), and the establishment of a regional recycling facility on site (1993).

As part of the final closure plan, proposed activities include grading existing landfill slopes, placing an evapotranspiration (ET) cover system atop the landfill consisting of 18 inches of low-permeable soil with an additional 6-inch vegetative support layer, reconstructing a gravel perimeter access road, and constructing permanent erosion and sedimentation control devices.

2.1 Scope of Construction Activities

The proposed construction activities for the Windsor-Bloomfield Landfill include the following:

- Establish erosion and sedimentation controls
- Grade the landfill to the final design elevations
- Place 18 inches of low-permeable soil over the landfill
- Install 6-inch vegetative support layer
- Stabilize the landfill area and detention basins with permanent vegetation

2.2 Area of Disturbance

The total disturbed area for the Windsor-Bloomfield Landfill project will be approximately 79 acres. This acreage includes the entire landfill area that will be final graded and topped with an ET cover system and seeded (approximately 56 acres) and the existing northern, southern, and southwestern detention/retention basins (approximately 10 acres) which will be permanently stabilized. The remaining area consist of the perimeter gravel access road, blending proposed grades to existing grades, and an area east of Huckleberry Road that may be used as a stockpile and staging area.

2.3 Stormwater Discharge Information

The construction activity will be performed in areas that are already part of the operations of the landfill. Runoff from the landfill will continue to be directed to one of the three existing detention basins. The landfill drainage areas and basins are shown on Figure DRA-02, located in *Appendix G*.

The proposed final landform for the closure will not substantially alter the overall drainage patterns of the existing conditions. Only small adjustments to the relative drainage areas will result from the final closure plan. In general, the highest elevation of the landfill will follow the crest of the main ridge that runs east to west across the main landform, and also along the six smaller north-south "finger" crests extending perpendicular from the main ridge to the north and south. The Final Cover System Design plans are located in *Appendix C*.

The gentle grading over the central and southwestern portions of the main landform will direct stormwater runoff into wide, shallow grass swales lined with permanent erosion control matting. These on-cap swales will discharge into the stormwater conveyance swales at the toe of the landform slope to the north and south eventually discharging to the existing stormwater detention basins and treatment systems.

Stormwater from large areas of the landfill top to the north and west will be collected by on-cap diversion swales and will be directed to grouted riprap-armored downchutes. These downchutes are designed to allow collected stormwater to travel down the steeper side slopes of the landform quickly while resisting erosive velocities. Downchutes will discharge stormwater to armored impact basins, which will dissipate the energy of high velocity flows before discharging to the conveyance swales at the toe of slope.

Precipitation that falls on the landfill will generally flow to four areas described below:

1. South Basin - Stormwater runoff from the central portions of Cell C and Cell D flows southerly across the landfill as sheet flow. A swale built at the toe of the southern slope collects this runoff and directs it to sediment forebays and then to the existing South basin. Currently, the South basin is equipped with an outlet control structure that has a low-flow orifice to regulate outflow that discharges to a vegetated swale parallel to Huckleberry Road. There are no major changes proposed to the South basin under the final grading plan except the addition of a single large sediment forebay for water quality. The South basin was designed to detain the stormwater runoff and limit the discharge outflow meeting the design criteria listed in the Town of Windsor Stormwater Manual. The low-flow orifice will detain the runoff behind the outlet control structure promoting infiltration into the underlying sandy soils.

2. Southwest Basin - Stormwater runoff from the south-western portion of Cell C and Cell D will flow westerly across the landform as sheet flow. Runoff collected will subsequently flow into an existing stormwater basin to the southwest, which was originally constructed to function as an infiltration basin during landfilling operations. Currently, the basin retains the 100-year storm event and has an emergency overflow swale that directs stormwater to a level spreader outfall during high water events. In the final grading plan, the Southwest basin will continue to retain the runoff up to the 100-year storm event but will be equipped with a high-level overflow swale that will direct any discharge to the South basin.

3. North Basin - Runoff from Cell A, Cell B (including the Swarf Cell) and the western portion of Cell C will drain into the forebay of the existing northern detention basin. The North detention basin has an outlet control structure that discharges to a rip rap swale to the north. During construction, the North basin has been designed to retain runoff for the 2-year storm event. Under the proposed final grading plan, the North basin will be modified with an outlet control structure to mitigate peak flows while two sediment forebays will be added for water quality.

4. Hydrodynamic Separator - Runoff from the eastern portion of Cell C, the Bulky Waste Cell, the closed Metal Hydroxide Cell, the residential recycling center, and office area will continue to flow into a system of catch basins in Huckleberry Road passing through an existing hydrodynamic separator prior to discharging off-site.

Note that the closed metal hydroxide cell was designed and constructed with run-on/runoff controls to prevent any run-on of stormwater over its surface. This was done in accordance with 40 CFR 265.118. No changes are proposed for this area. After final closure, grass swales around the perimeter of the cell will continue to re-direct up-gradient stormwater away from the cell and towards the Huckleberry Road catchment system.

The three detention basins will continue to be part of the post-construction stormwater management plan to mitigate peak flows and enhance the water quality of the runoff. Other permanent measures such as the downchutes and the vegetated swales will also be maintained as they direct the runoff to the basins. All stormwater swales, downchutes, basins, and impact basins have been designed to safely convey the 100-year 24-hour storm event. Supplemental stormwater calculations are provided in *Appendix G* to demonstrate the effectiveness of the post-construction measures.

The under lying soils within the basin areas is a loamy sand capable of high infiltration rates. As a conservative design approach, infiltration was not used in the design of the basins but is expected in all three on-site basins.

2.4 Receiving Waters

The Windsor-Bloomfield Landfill project site is located within the Connecticut Major Basin, as indicated within the *Public Water Supply Sources & Drainage Basins of Connecticut* mapping provided in *Figure 2* of this plan. No directly channeled or concentrated flow is anticipated from the project to the receiving waters.

All stormwater runoff from the property eventually flows into one of two surface water features located in the vicinity of the 500 Huckleberry Road property:

- The North basin discharges to a wetland area and an unnamed tributary to the Farmington River, west of the MSW/bulky waste landfill
- The Southwest and South basins and the Huckleberry Road hydrodynamic separator discharge to Goodwin Pond, south of the MSW/bulky waste landfill, and subsequently to the Farmington River

2.5 Wetlands on Site

There is a small area on the Windsor-Bloomfield property adjacent to the Farmington River to the west that contains wetlands. These wetland areas are not in the vicinity of the landfill. There will be no impacts to any wetlands areas as a result of the Windsor-Bloomfield landfall ET cover system and final grading construction activities.

Portions of the relevant Flood Insurance Rate Maps for the area of work can be found in *Figure 1* of this plan.

3 Construction Sequencing

The Town shall be aware that grading, preparation of sub-grades, and the placement of the final cover system have significant potential to cause erosion and sedimentation until complete stabilization of the site has occurred.

The proposed project consists of final grading of the landfill and then placing an ET cover system consisting of 18-inches of low-permeable soil topped with a 6-inch vegetative support layer and seeded.

The general Construction Sequencing for construction activities is as follows:

- Install construction entrance, catch basin inlet protection, silt fencing and other erosion & sediment controls as shown on the Erosion & Sediment Control Plan and Detail sheets. *Note: Erosion and sedimentation controls shall be modified with changing grades to enable protection of areas adjacent to the site.*

- Install temporary/permanent diversion swales to direct stormwater to one of the three on-site existing detention/retention basins.

- Place the low-permeable soil, vegetative support layer

- Established turf and stabilize.

It is estimated that the final closure plan will take approximately three years to complete but there are many factors, such as weather conditions, which may affect the proposed schedule. CTDEEP will be kept apprised of changes in schedule as they become necessary.

4 Control Measures

The following paragraphs address the controls and measures to be implemented on the work site both during and after construction to minimize stormwater pollution to the waters of the State of Connecticut. Control measures during construction activities are shown on the Erosion and Sedimentation Control Plan and Detail sheets within the Final cover System Design plans included as *Appendix C*.

4.1 Erosion and Sediment Controls

The goal of this plan is to control erosion on the site and to control movement of sediment into adjacent wetlands, watercourses or storm sewer systems. Note that erosion and sediment controls shall conform to the requirements of the *Connecticut Guidelines for Soil Erosion and Sediment Control*, dated May 2002, which will hereafter be referred to as the "Standards", and the *2004 Connecticut Stormwater Quality Manual*, which will hereafter be referred to as the "Guidelines". To meet these goals, stabilization, structural and maintenance practices shall be implemented by the Town as outlined below.

4.1.1 Stabilization Practices and Protection

Both temporary and permanent stabilization practices shall be implemented throughout the project to minimize erosion of soil from the disturbed site. Temporary and permanent stabilization measures are proposed to provide protection against erosion both during and after construction. Existing vegetation shall be preserved to the maximum extent practicable.

The Town shall maintain silt fence and haybales until the area has been permanently stabilized. When construction activities have permanently ceased or when final grades are reached on any portion of the site, stabilization and protection practices shall be implemented within seven days. Areas that will remain disturbed but inactive for at least 30 days shall receive temporary seeding or soil protection in accordance with the Guidelines. Areas that will remain disturbed beyond the seeding season shall receive long term non-vegetative stabilization and protection measures sufficient to protect the site through the winter. In all cases, stabilization and protection measures shall be implemented as soon as possible in accordance with the Guidelines.

The stabilization practices to be implemented during the construction of the proposed project are as follows:

Grading sequence: Construction activities will generally commence from a point on the landfill furthest from the final stormwater discharge. This process will allow sediment to be transported downgradient by stormwater to be controlled within the existing drainage features. In addition, newly installed features will not be subject to heavy siltation because up-gradient surfaces will have been stabilized.

Temporary Vegetative Cover: All exposed areas that will be inactive for more than seven days, or immediately (as schedules allow) for stockpiles not to be used for 30 days, and areas that have not yet reached finished grades shall receive a temporary vegetative cover during the planting season of March 15 to July 1 and August 1 to October 15. This temporary vegetative cover shall consist of perennial rye grass. The rye grass shall be planted at a rate of 2 lbs./1,000 sq. ft. at a depth of ½ inch. Limestone (equivalent to be 50% calcium plus magnesium oxide) shall be applied as seedbed prepared at a rate of 90 lbs./1,000 sq. ft. Where grass predominates, fertilize according to a soil test at a minimum application rate of 1 lb. of nitrogen per ton, areas to be left bare before finish grading and seeding outside of planting seasons shall receive an air-dried woodchip mulch, free of coarse matter, treated with 12 lbs. of nitrogen per ton, applied at a rate of 185—275 lbs./1,000 sq. ft.

Temporary Mulching: Temporary mulching shall be used to temporarily stabilize areas that will be inactive for 30 days or more, or 15 days for stockpiles, and cannot be seeded within the recommended planting dates. In addition, temporary mulching shall be conducted immediately following temporary or permanent seeding in order to aid the growth of vegetation. Temporary mulch shall consist of straw or hay overlay applied at a rate of 70 to 90 pounds per 1,000 square feet (two tons per acre). This mulch shall be spread uniformly by hand or mulch blower and shall be bonded with a non-asphaltic tackifier or other approved method immediately after spreading.

Permanent Vegetative Cover: Once the planting season begins, temporary stabilization measures shall be removed and slopes shall be prepared and seeded. Seeding shall be in accordance with the technical specifications for the project. Seeding shall only occur between April 1 and June 1 and August 15 and October 15.

4.1.2 Structural Measures

Structural practices shall be implemented to control the movement of sediment and minimize any discharge of pollutants from the site, divert flows away from exposed soils, store flows, and limit runoff. The structural practices to be implemented during construction are as follows:

- Geotextile Sediment Filter Fence (Silt Fence): To minimize the transport of sediment from the disturbed areas to receiving wetlands, geotextile sediment filter fence has been shown on the plans at select areas around the site to filter runoff from the disturbed areas. Geotextile sediment filter fence details and locations are provided on the drawings. A row of geotextile sediment filter fence shall be placed around stockpiles during stockpiling operations. Geotextile sediment filter fence shall be removed only when the entire site has been permanently stabilized.

- Haybale Barriers: To reduce velocity of stormwater traveling across the site, haybale barriers may be installed across the direction of high runoff flows. Haybale barriers shall remain as temporary measures during construction to protect downgradient disturbed surfaces during establishment.

- Check Dams: To reduce velocity and dissipate erosive flows, stone check dams may be installed in defined swales and channels. The dams impound sediment-laden water and allow for settlement of suspended soil before the stormwater flows over and through the device. Dams shall be placed along the water course at linear intervals in which the elevation of the bottom of the upper most check dam is at the same elevation as the top of the check dam immediately below it. This will allow the most ponding capacity and will not increase the velocity of the water flowing along the channel.

- Sediment Control at Catch Basin: To prevent sediment from clogging the storm water sewer system after its installation, a wall of haybales will be installed around catch basin grates as per the detail provided in the drawings. Catch basin inserts shall also be installed around catch basins. Haybales shall be replaced and inserts shall be emptied as necessary. Sediment control at catch basins shall be removed only when the entire site has been permanently stabilized.

- Construction Entrance/Anti-Tracking Pad: To prevent soil or sediment from being carried off site by construction equipment, a construction entrance will be installed before construction traffic into and out of the project area. The width of the anti-tracking pad shall not be less than the width of the ingress or egress. Adjacent roadways shall be swept daily to remove material that may be tracked onto pavement.

- Diversion Swales: Grading of the landfill has been designed such that stormwater drains as sheet flow from ET cover system areas on the top and sides of the landfill. Runoff from the upper areas of the landfill which are up gradient from slopes greater than 10% will be

intercepted by earthen diversion swales installed on the landfill side slopes. These swales are graded with a minimum slope of 4% to allow rapid drainage without developing erosive velocities, and the channel geometry has been sized to covey the peak discharge from the 100 year design storm. Diversion swales will also be underlain by a geomembrane liner material to prevent infiltration of stormwater when future landfill settling occurs.

Their alignment in relation to the top and bottom of the landfill slopes are intended to minimize the flow path length of stormwater runoff on the landfill surfaces, while minimizing the pitch of slopes down gradient of the diversion swales.

- On cap Swales: To safely collect sheet flow from large, flat areas of the landform, shallow on-cap swales will direct stormwater towards the armored/paved conveyance swales at the toe of the landform slope. Portions of the swale experiencing significant flows will be reinforced with permanent erosion control matting.

- Temporary Diversion and Pipe Slope Drains: In order to minimize the volume of run-off flowing over the steeper side slopes of the landfill, a temporary diversion and slope drain system will be placed at the top-of-slope to minimize surface run off to disturbed areas. The temporary diversions will include silt fence backed by haybales and sandbag diversion berms for installation directly on top of the liner. These diversions will be relocated and replaced as necessary during various stages of construction to permit installation of the final cover. Diverted stormwater will be conveyed to the toe of the slopes through temporary pipe slope drains.

- Armored/Paved Conveyance Swales: Conveyance swales surround most of the landfill and direct stormwater flows from the down-chutes to the infiltration basins. In areas where the swales are greater than 2%, the conveyance swale is armored with modified rip rap. In areas where the swales are less than 2% slopes, the conveyance swale is paved.

- Grouted Riprap Down-chutes: Down-chutes collect the stormwater flow from diversion swales and convey it rapidly down the side slopes of the landfill in an armored channel to prevent scouring.

- Permanent Erosion Control Matting: This non-biodegradable, flexible lining will be installed in diversion swales and on slopes greater than 10% experiencing sheet flow travel distances in excess of 100 feet. This matting will reinforce vegetative cover and minimize the potential for erosion.

- Erosion Control Blankets: Erosion control blankets, or equivalent protection, will be installed on all other landfill side slopes exceeding 10%, after placement of final cover, to minimize erosion and allow growth of permanent vegetative cover. These controls also retain soil moisture and modify soil temperature to further enhance growth.

- Mulch for Seed: Straw mulch will be installed on all disturbed surfaces with slopes not exceeding 10%, after placement of final cover, to minimize erosion and allow growth of permanent vegetative cover.

- Impact Basins: Cast-in-place concrete impact basins will be constructed at the bottom of each down-chute to safely dissipate the energy of the rapidly flowing water. The impact basins serve the same function as the more commonly used energy dissipater, but will reduce the size of the structure required to dissipate the energy.

- Stilling Basins/Riprap Outlet Protection: Riprap stilling basins located at stormwater pipe and swale discharge points will dissipate energy of rapidly-flowing stormwater and prevent scour of the downstream landscape. These basins will be sized to handle the design flow of stormwater piping discharging stormwater from impact basins, as well as the existing parking lot stormwater collection system.

- Sediment Forebay: A sediment forebay is used to suspend and retain sediment prior to stormwater discharge to the northern infiltration basin.

4.1.3 Maintenance

The erosion and sediment controls must be maintained in a condition that will protect waters of the State from pollution during site construction. The Town shall conduct the following maintenance to promote the proper performance of erosion and sediment control measures.

- Temporary and Permanent Vegetation: At any eroded areas, repair by filling to finished grades, replace vegetative support material and seed, fertilize and lime, as specified for temporary and permanent stabilization. Add additional mulch as required.

- Temporary Mulching: Additional mulch should be applied where erosion is observed. If it is determined that straw mulch is not providing adequate erosion protection to a disturbed area, the Engineer will direct the Town to install cellulose fiber mulch, erosion control blanket, or other stabilization measure.

- Silt Fence, Haybales, and Check Dams: Inspect silt fence, haybales, and check dams immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs should be made immediately. Should the barrier decompose or become ineffective while the barrier is still needed, the barrier shall be replaced promptly. Sediment deposits should be removed when they reach approximately one-half the height of the barrier. Sediment shall be disposed of on-site as non-structural fill. Sediment deposits remaining in place after the silt fence or haybales is no longer required shall be removed and placed in a stockpile surrounded by silt fence in a location suitable to the Permittee.

- Swales, Downchutes, and Outlet Protection: Remove accumulated sediment from the affected area when sediment reaches a depth of 6 inches. Use removed sediment to complete non-structural fill areas during project. Once the site has been stabilized, sediment removed at the end of construction shall be stockpiled on-site, surrounded by silt fence, in a location approved by the Owner.

4.2 Dewatering Wastewaters

Dewatering on this site is not anticipated. However, in such a case where dewatering is necessary, wastewater from dewatering pumps will be infiltrated into the ground where possible. Where this is impracticable, proper methods and devices will be utilized to the extent permitted by law, such as pumping water into a temporary sedimentation depression, providing surge protection at the inlet and outlet of pumps, floating the intake of the pump, or other methods to minimize and retain the suspended solids. These wastewaters will not be discharged directly without treatment. If a pumping operation causes turbidity problems beyond the control of these measures, the operation will cease until feasible means of controlling turbidity (e.g. discharge to the sanitary sewer) are determined and implemented.

4.3 Post-Construction Stormwater Management

4.3.1 Standards

Detailed erosion and sedimentation controls in accordance with the Guidelines have been proposed for this site. This system will protect the wetlands during and after construction until the site is stabilized. The water quality of runoff from the stabilized, developed site will be improved using widely accepted Best Management Practices (BMPs).

According to the 2004 Connecticut Stormwater Quality Manual, the Water Quality Volume is defined as the volume of runoff generated by one inch of rainfall on a site. The key component to calculating the runoff volume is the percent of impervious land cover on the site. Under the final grading plan, the proposed impervious land cover will only be paved swales and grouted riprap downchutes directing the stormwater runoff to the basins. As part of the final grading plan, the North basin will include two forebays and the South basin will include one large forebay. The added forebays and the capacity of the Southwest basin to retain the 100-year storm event will provide water quality measures and enhance the stormwater runoff from the vegetated landfill cover. In addition, infiltration is expected within all three basins adding to the water quality measures of the stormwater management.

4.3.2 Control Measures

At the end of construction, areas disturbed by construction activities shall be stabilized. As a result, the potential for erosion at this site after construction is minimal. The final grassed landform cover will also serve as a filter to remove sediment from runoff if permanently stabilized areas are properly maintained. Temporary perimeter controls (i.e., silt fence) will be actively maintained until final stabilization of those portions of the site up-gradient has been established. Temporary perimeter controls will be removed after final stabilization.

Water quality measures have been incorporated into the design using BMPs to treat stormwater runoff prior to being discharged from the detention basins or into the existing stormwater drainage network in Huckleberry Road. No channeled or concentrated flow of runoff is expected to leave the project site.

The Town shall be responsible for cleaning all post-construction stormwater structures and removal of remaining silt fence before filing a termination notice, a copy of which is included as *Appendix D.* After filing the termination, maintenance and cleaning of the unit shall become the responsibility of the Permittee.

The design will meet the requirements of the Connecticut Stormwater Quality Manual, the requirements of the Town of Windsor, the Standards and Guidelines for Soil Erosion and Sediment Control, and federal stormwater regulations.

4.4 Other Controls

Good housekeeping will be maintained to minimize impacts of protected areas by pollutants, soil, and fugitive sediment.

4.4.1 Waste Disposal

The following BMPs shall be implemented to minimize the discharge of litter, debris, construction materials, hardened concrete waste, or similar materials to waters of the State.

- Construction waste will be removed from the site and disposed of legally.
- Waste will be removed from the site as soon as practical.
- Containers will be appropriate for the material stored.
- Where necessary, containers will be sealed/covered to prevent waste from escaping the container.
- Containers will only be located where approved by the engineer or regulatory agency.
- Waste storage areas shall be located, designed, and operated to prevent polluted runoff from leaving the waste storage area.
- Fences or covers shall be provided to prevent waste from blowing out of the waste storage area.

4.4.2 Construction Materials

Construction materials needed for this project will be properly stored in a neat and orderly manner until used. Construction materials shall not be stored outside of any buffers and at least 50 feet from any stream, wetland or other sensitive resource.

4.4.3 Washout Areas

Washout of applicators, containers, vehicles, and equipment for concrete, paint, and other materials shall be conducted in a designed washout area. There shall be no surface discharge of washout wastewaters from this area. To eliminate overflows during rainfall or after snowmelt all washwater shall be directed into a pit. This area shall be outside of any buffers and at least 50 feet from any stream, wetland, or other sensitive resource. The area shall be completely self-contained and clearly marked.

In addition, dumping of liquid wastes in storm sewers is prohibited. All wastes including hardened concrete waste from washouts shall be disposed of legally at an off-site location. At least once per week, all containers or pits used for washout should be inspected for structural integrity, adequate holding

capacity, and to check for leaks or overflows. If any deficiencies are discovered, corrective action shall be taken immediately. Washout areas shall be emptied when levels reach ½ the height of the container or pit.

4.4.4 Vehicle Tracking and Dust Control

As shown on the plans, a construction entrance shall be installed and maintained to prevent vehicles from tracking sediments onto Town roads. The Town shall be responsible for performing dust suppression techniques during construction, including but not limited to:

- Spraying water or calcium chloride as necessary to control dust from construction activities. The volume of water sprayed for controlling dust shall be minimized so as to prevent runoff of water. No discharge of dust control water shall contain or cause a visible oil sheen, floating solids, visible discoloration, or foaming. Calcium chloride may also be used to control dust.

- Sweeping surfaces adjacent to the construction entrances and the soil management areas daily. The designated haul routes will be swept as required.

If at any time fugitive dust is observed to be generated from the construction site, the Town shall be responsible for employing additional dust suppression techniques to remedy the situation.

4.4.5 Chemical and Petroleum Products

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. Containers of 100 gallon capacity or more may be stored without a roof only if stored in a double-walled tank.

On-site vehicles shall be monitored for leaks and receive maintenance as needed.

4.4.6 Fertilizers

Fertilizers, if used in conjunction with the seeding operation, will be applied only in the amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to stormwater. Storage will be in a covered area. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

4.4.7 Spill Control Practices

The following practices shall be implemented during construction activities to mitigate spills of material and prevent their release to the waters of the State.

- Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.

- Materials and equipment necessary for spill cleanup will be kept in the material storage area on-site. Equipment and materials will include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.

- Spills will be cleaned up immediately after discovery.

- Spills of toxic or hazardous material will be reported to the appropriate State and local government agency, regardless of size.

5 Runoff Reduction and Low Impact Development (LID) Information

The Windsor-Bloomfield Landfill project is considered a construction activity consisting of final grading and placement of an ET cover system atop the existing landfill. There will be no significant changes to the existing drainage patterns between the pre-closure and post-closure construction activities. There will be only minor modifications made to existing stormwater management basins which will have an insignificant impact to runoff peak flow rates or volume leaving the post-closure construction site.

Runoff reduction will be achieved by utilizing the three on-site detention basins. The underlying soils within the basin areas are categorized as a loamy sand capable of high infiltration rates. The large open footprint of the North and South basins will promote infiltration as the stormwater is detained by a low-flow orifice within the outlet control structures. The North and South sediment forebays, as well as the Southwestern basin, will contribute to additional runoff reduction by retaining all the captured stormwater.

LID measures will be implemented by directing stormwater runoff from the vegetated landfill cover to one of the three on-site detention basins to mitigate peak flowrates and to enhance the water quality. Several on-cap swales and diversion swales will be used to limit the size of the contributing watersheds to minimize flowrates and preventing erosive conditions.

6 Inspections

6.1 Plan Implementation Inspections

Within the first 30 days following commencement of the construction activity on the site, the permittee shall contact: 1) the appropriate District; or 2) a qualified soil erosion and sediment control professional or a qualified professional engineer to inspect the site. The site shall be inspected at least once and no more than three times during the first 90 days to confirm compliance with the General Permit and proper initial implementation of all controls measures designated in the Plan for the site for the initial phase of construction.

6.2 Routine Inspections

The Permittee shall routinely inspect the site for compliance with the General Permit and the Plan until a Notice of Termination has been submitted. Inspection procedures for these routine inspections shall be addressed and implemented in the following manner: The Permittee shall maintain a rain gauge on-site to document rainfall amounts. The Permittee shall engage a qualified inspector to inspect the site at least once a week and within 24 hours of the end of a storm that generates a discharge. For storms that equal or exceed 0.5 inches 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. For storms of less than 0.5 inches, an inspection shall occur immediately upon the start of the subsequent normal working hours. Where sites have been temporarily or finally stabilized, an inspection shall be conducted at least once every month for three months to confirm compliance with the General Permit.

The items to be inspected shall include, at a minimum, the following:

- Disturbed areas of the construction activity that have not been permanently stabilized
- All erosion and sediment control measures
- All structural control measures
- Stockpile areas
- Washout areas
- Drainage control facilities including diversion and perimeter drainage ditches
- Locations where vehicles enter or exit the site

Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants leaving the work site. Erosion and sediment control measures identified in the Plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be visually inspected to ascertain whether erosion control measures are effective in preventing significant impacts, such as turbidity to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site sediment tracking.

Based on the results of the inspection, the description of potential sources and pollution prevention measures identified in the Plan shall be revised as appropriate by the Permittee or his agent as soon as practicable after such inspection.

A report shall be prepared for every inspection and retained as part of the Plan. The report shall, at a minimum, summarizing the following;

- The scope of the inspection
- Name(s) and qualifications of personnel making the inspection
- Date(s) of the inspection
- Weather conditions including precipitation information
- Major observations relating to the implementation of the storm water pollution control plan
- Descriptions of the stormwater discharge(s) from the site
- Any water quality monitoring performed during the inspection

- Statement that, in the judgment of the qualified inspector(s), the site is either in compliance or out of compliance with the terms and conditions of the Plan and General Permit.

The report shall be signed by both the qualified inspector and the permittee or his/her authorized representative in accordance with the General Permit. A blank copy of the inspection report is provided in *Appendix E.*

If the site inspection indicates that the site is out of compliance, the inspection report shall include a summary of the remedial actions required to bring the site back into compliance. During the period in which any corrective actions are being developed and have not yet been fully implemented, interim measures shall be implemented to minimize the potential for the discharge of pollutants to the site.

6.3 Corrective Actions

If at any time an inspection determines that the site is out of compliance with the terms and conditions of this Plan and the General Permit, corrective actions shall be taken. Non-engineered corrective actions (as identified in the Guidelines) shall be implemented on site within 24 hours and incorporated into a revised Plan within three 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 days and incorporated into a revised Plan within ten calendar days of the date of inspection unless another schedule is specified in the Guidelines.

7 Monitoring

Stormwater sampling is required for monitoring turbidity. Sampling shall occur on a monthly basis, during storm events that generate a discharge of stormwater from the site while construction activity is ongoing, until final stabilization of the drainage areas associated with each outfall is achieved. Sampling shall continue on a monthly basis until final stabilization of the drainage area associated with each outfall is achieved.

Sampling is only required during normal working hours, as defined by the General Permit. For this site, normal working hours for stormwater monitoring shall be Monday through Friday, 7am to 4pm. If sampling is discontinued due to the end of normal working hours, it shall be resumed the next working day as long as the discharge continues. Sampling may be temporality suspended if conditions exist that may reasonably pose a threat to the safety of the person taking the sample (e.g., high winds, lighting, flooding, intense rainfall, etc.). Sampling shall resume once the unsafe conditions are no longer present. If there is no stormwater discharge during a month, sampling is not required.

7.1 Monitoring Requirements

All samples shall be collected from discharges resulting from a storm event that occurs at least 24 hours after any previous storm event that generated a discharge. Sampling of snow or ice melt in the absence of a storm event is not a valid sample.

Samples shall be grab samples taken at least three separate times during a storm event. The samples shall be representative of the flow and characteristics of the discharge. The first sample shall be taken within the first hour of stormwater discharge from the site. In cases where discharges begin outside of normal working hours, the first sample shall be taken at the start of normal working hours.

Sampling is required of areas of concentrated runoff of stormwater from disturbed areas. Sampling shall be done in accordance with 40 CFR Part 136/ASTM D1889-00. Sampling locations are shown on the Erosion and Sedimentation Control Plans found in the Construction Drawings of *Appendix C* and shall be identified in the field with a flag, stake, or other visible marker.

7.2 Monitoring Reports

The stormwater turbidity value for each sampling point shall be determined by taking the average of the turbidity values of all samples at that sampling point during a given storm. Any samples containing snow or ice melt must be noted. A blank copy of the stormwater monitoring report for submitting turbidity sampling data is provided in *Appendix F.*

Monitoring reports shall be submitted to CT DEEP in accordance with the provisions outlined in the General Permit.

7.3 Sampling Locations

There are three discharge locations for the project site. DSN-001 and DSN-002 will be monitored in accordance with the General Permit. DSN-003 will be represented by DSN-002. A site plan showing the proposed sampling locations is provided in *Appendix F.* The site sampling locations are described below:

- Sampling Location #1 – Sampling Location 1 (DSN-001) is an 18" RCP discharge pipe in the storm catch basin located on the east side of Huckleberry Road. The drainage area includes the vast majority of the impervious area within the Windsor-Bloomfield Landfill project. Under existing conditions, runoff from this area is captured in the existing stormwater drainage system. For the landfill final grading and ET cover system project, there are no proposed changes to the existing stormwater drainage system or the impervious coverage, and only minor changes to the contributing drainage area. The 18" RCP discharges ultimately to Goodwin Pond to the southwest. Sampling for DSN-001 shall occur in the storm manhole.

- Sampling Location #2 – Sampling Location 2 (DSN-002) is an 8" HDPE discharge pipe from the northern detention basin. The drainage area includes most of Cell A and Cell B and a portion of Cell C from the landfill. Under existing conditions, runoff from these areas is directed to the northern detention basin which will continue under the proposed conditions. The 8" HDPE pipe discharges to a riprap swale and ultimately to the Farmington River. Sampling for DSN-002 shall occur at the discharge point into the riprap swale.

- Sampling Location #3 – Sampling Location 3 (DSN-003) is an 18" RCP discharge pipe from the southern detention basin. The drainage area includes Cell C and Cell D from the landfill. Under existing conditions, runoff from these areas is directed to the southern retention basin

which will continue under the proposed conditions. The 18" RCP pipe discharges to a riprap swale and ultimately to Goodwin Pond. Sampling for DSN-003 will be represented by DSN-002.

8 Contractors

8.1 General

All contractors and subcontractors who will perform actions on site that may reasonably be expected to cause or have the potential to cause pollution of the waters of the State will be identified in *Appendix B.*

8.2 Certification Statement

All contractors and subcontractors must sign the certification included in *Appendix B*. All certifications will be included in the Stormwater Pollution Control Plan.

9 Additional Requirements

9.1 Endangered and Threatened Species

Preliminary review of the maps titled Natural Diversity Data Base (NDDB) Areas in Windsor, CT dated December 2014 published by the Connecticut Department of Energy and Environmental Protection, verified that the project site is located within ¼ mile of areas known to contain State and Federal Listed Species and Significant Natural Communities Area. The request for Natural Diversity Data Base State Listed Species Review form has been filed with the agency and the review process has been started. A copy of the submitted form is included in this attachment in *Appendix A* within the General Permit. Upon completion of the review, the General Permit Registration Form and Stormwater Pollution Control Plan will be modified accordingly to reflect the findings of the agency.

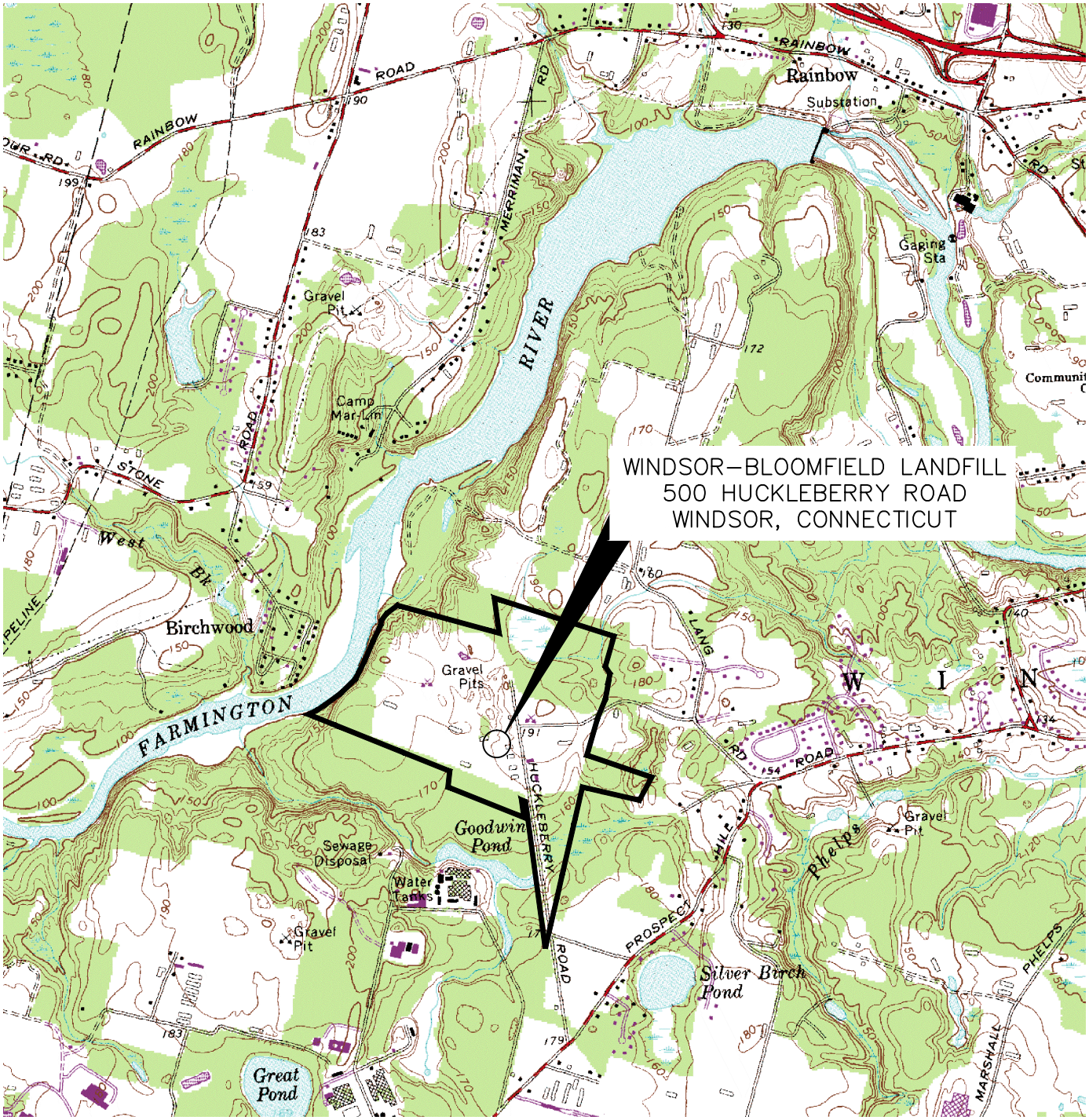
10 Termination

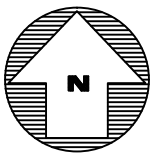
Once the site has been stabilized and all final inspections have occurred, the registrant shall file a termination notice. Prior to filing for termination, all temporary erosion and sediment control measure shall be removed. A blank copy of the Notice of Termination Form is provided in *Appendix D*.

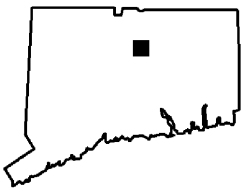
Figures

Figure 1

Site Location Map







NOTE:
THE *GENERAL PERMIT FOR THE DISCHARGE OF STORMWATER AND DEWATERING WASTEWATERS FROM CONSTRUCTION ACTIVITIES* (EFFECTIVE DATE OCTOBER 1, 2013) REQUIRES THE STORMWATER POLLUTION CONTROL PLAN (SWPCP) TO INCLUDE A GENERAL LOCATION MAP (E.G. USGS QUADRANGLE) WITH ENOUGH DETAIL TO IDENTIFY THE FACILITY LOCATION AND ALL RECIEVING WATERS TO WHICH STORMWATER IS DISCHARGED. THE ULTIMATE RECEVING WATERS FOR SUCH DISCHARGES FROM THE LANDFILL ARE SHOWN ABOVE (I.E. FARMINGTON RIVER, GOODWIN POND).

MAP REFERENCE:
THIS MAP WAS PREPARED FROM THE FOLLOWING 7.5 MINUTE USGS MAP:
WINDSOR LOCKS, CONNECTICUT, 1964, REVISED 1984.

File Path: J:\DWG\P93\93126\B14\Civil\Plan\01993126B14LOC001.dwg, Layout: SWPCP Fig. 1, Plotted: Fri, Feb 26, 2016 - 12:29 PM User: kgoodrow
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DATUM:	
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VERT.:	
0 20 40 GRAPHIC SCALE	

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MANCHESTER, CONNECTICUT 06040
860.646.2469
www.fando.com

WINDSOR-BLOOMFIELD LANDFILL

SITE LOCATION MAP

500 HUCKLEBERRY ROAD

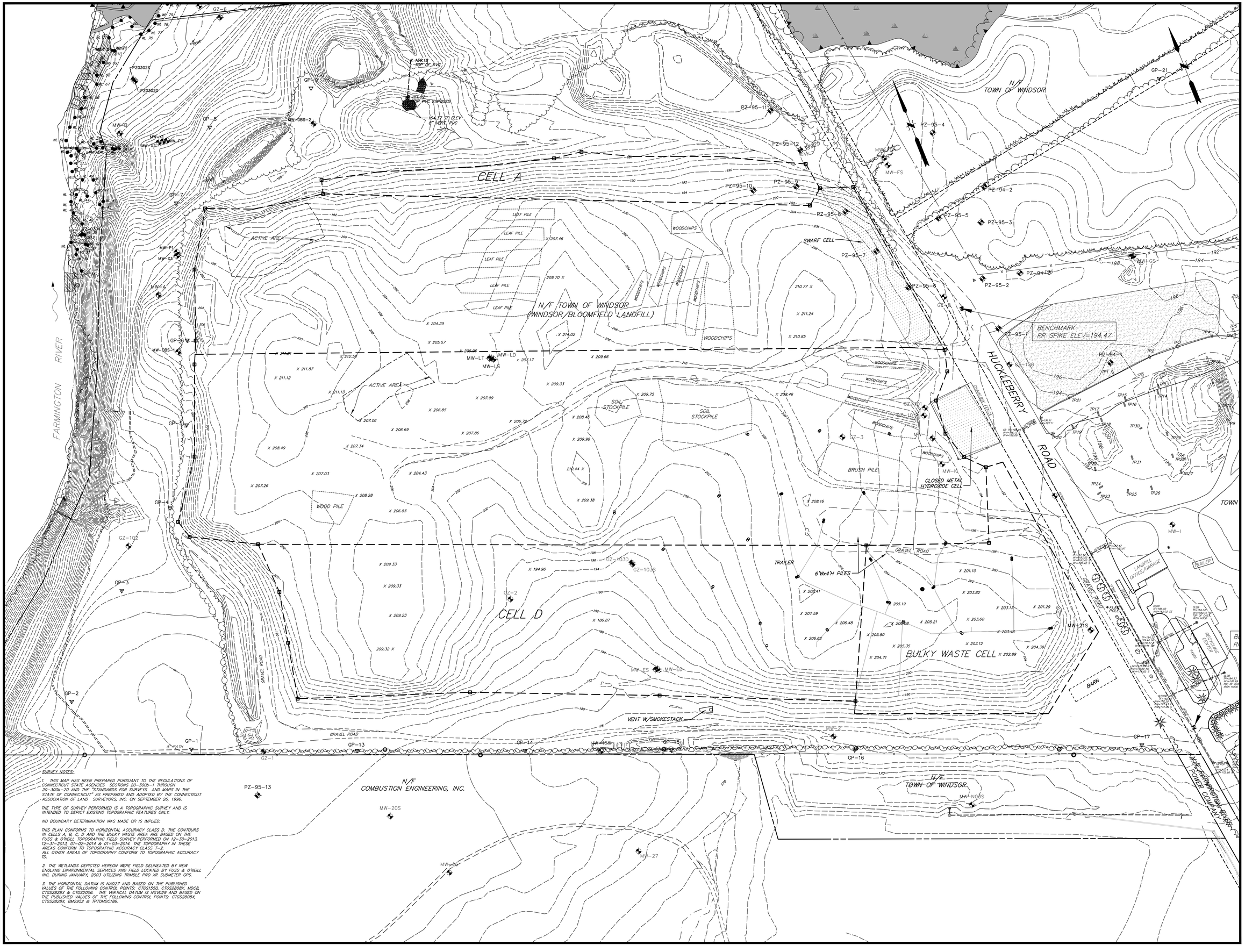
WINDSOR CONNECTICUT

PROJ. No.: 1993126.B14
DATE: FEBRUARY 2016

FIG. 1

Appendix C

Final Cover System Design Plans



SURVEY NOTES:

1. THIS MAP HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20–300b–1 THROUGH 20–300b–20 AND THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS PREPARED AND ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

THE TYPE OF SURVEY PERFORMED IS A TOPOGRAPHIC SURVEY AND IS INTENDED TO DEPICT EXISTING TOPOGRAPHIC FEATURES ONLY.

NO BOUNDARY DETERMINATION WAS MADE OR IS IMPLIED.

THIS PLAN CONFORMS TO HORIZONTAL ACCURACY CLASS D. THE CONTOURS IN CELLS A, B, C, D AND THE BULKY WASTE AREA ARE BASED ON THE FUSS & O'NEILL TOPOGRAPHIC FIELD SURVEY PERFORMED ON 12–30–2013, 12–31–2013, 01–02–2014 & 01–03–2014. THE TOPOGRAPHY IN THESE AREAS CONFORM TO TOPOGRAPHIC ACCURACY CLASS T–2. ALL OTHER AREAS OF TOPOGRAPHY CONFORM TO TOPOGRAPHIC ACCURACY TD.

2. THE WETLANDS DEPICTED HEREON WERE FIELD DELINEATED BY NEW ENGLAND ENVIRONMENTAL SERVICES AND FIELD LOCATED BY FUSS & O'NEILL INC. DURING JANUARY, 2003 UTILIZING TRIMBLE PRO XR SUBMETER GPS.

3. THE HORIZONTAL DATUM IS NAD27 AND BASED ON THE PUBLISHED VALUES OF THE FOLLOWING CONTROL POINTS; CTGS155G, CTGS2808X, MDC8, CTGS2828X & CTGS2006. THE VERTICAL DATUM IS NGVD29 AND BASED ON THE PUBLISHED VALUES OF THE FOLLOWING CONTROL POINTS; CTGS2808X, CTGS2828X, BM2952 & TPTOMDC186.

No.	DATE	REVISIONS PER 3RD PARTY REVIEW	DESCRIPTION	DESIGNER	REVIEWER
1.	9/30/2015				

SEAL

SEAL

SCALE: HORZ.: 1" = 80'
VERT.:
DATUM: HORZ.: NAD 27
VERT.: NGVD 29
GRAPHIC SCALE 0 40 80 160

FUSS & O'NEILL
146 HARTFORD ROAD
MANCHESTER, CONNECTICUT 06040
860-646-2469
www.fussandoneill.com

WINDSOR-BLOOMFIELD LANDFILL
EXISTING CONDITIONS PLAN
FINAL CLOSURE SYSTEM DESIGN
WINDSOR CONNECTICUT

PROJ. No.: 1993 126.B14
DATE: 01/31/2014

V-101

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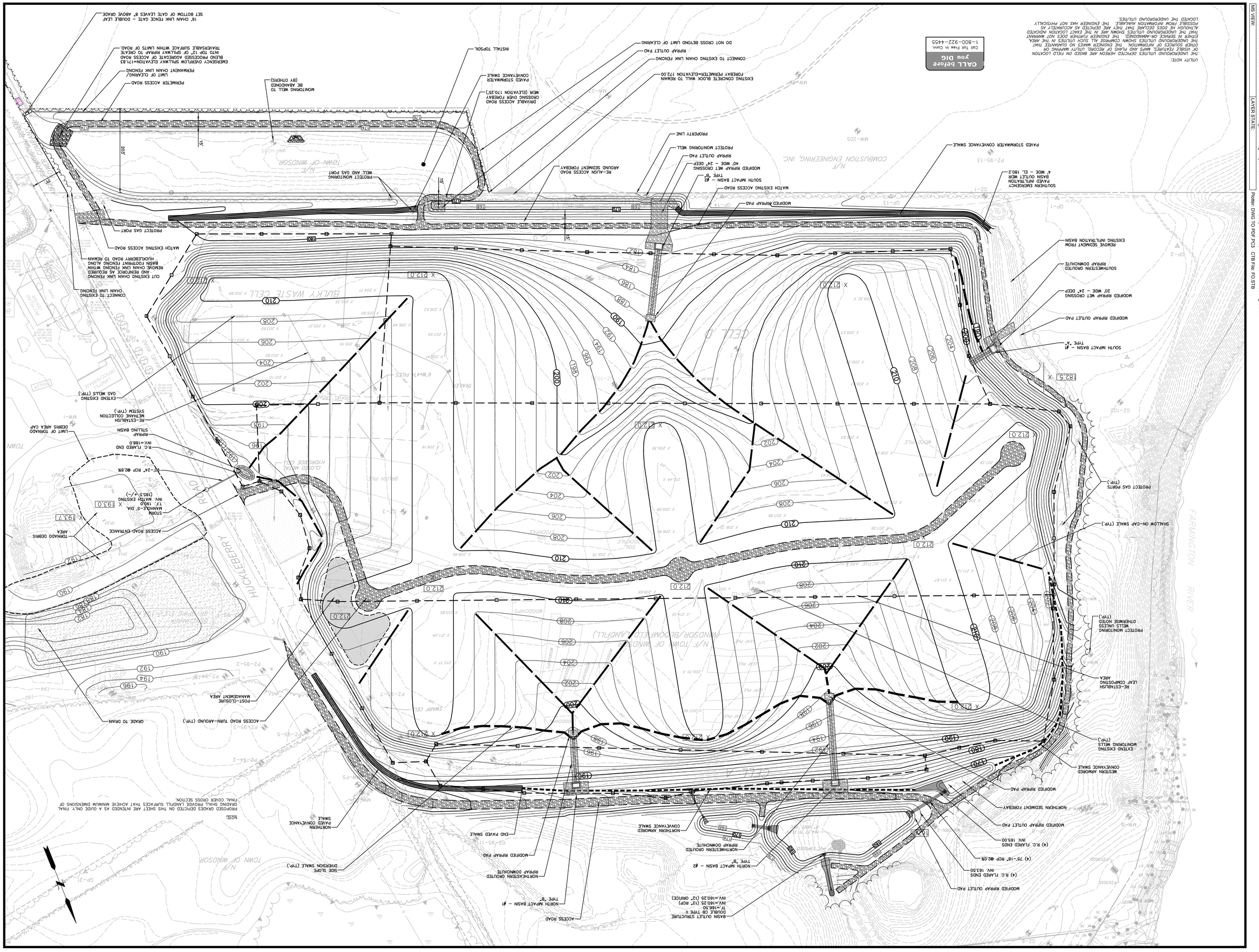

WINDSOR-BLOOMFIELD LANDFILL
TOP OF FINAL COVER PLAN
FINAL CLOSURE SYSTEM DESIGN

WINDSOR CONNECTICUT

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MANCHESTER, CONNECTICUT 06040
860-646-2469
www.fuss&o'neill.com

SCALE: HORZ.: 1" = 80' VERT.:
DATUM: HORZ.: NAD 27 VERT.: NGVD 28
GRAPHIC SCALE 80 40 0 80

SEAL

SEAL

No.	DATE	REVISIONS PER 3RD PARTY REVIEW	DESCRIPTION	DESIGNER / REVIEWER
1.	9/30/2015			

CS-101

DATE: 01/31/2014
PROJ. No.: 1993.126.B14

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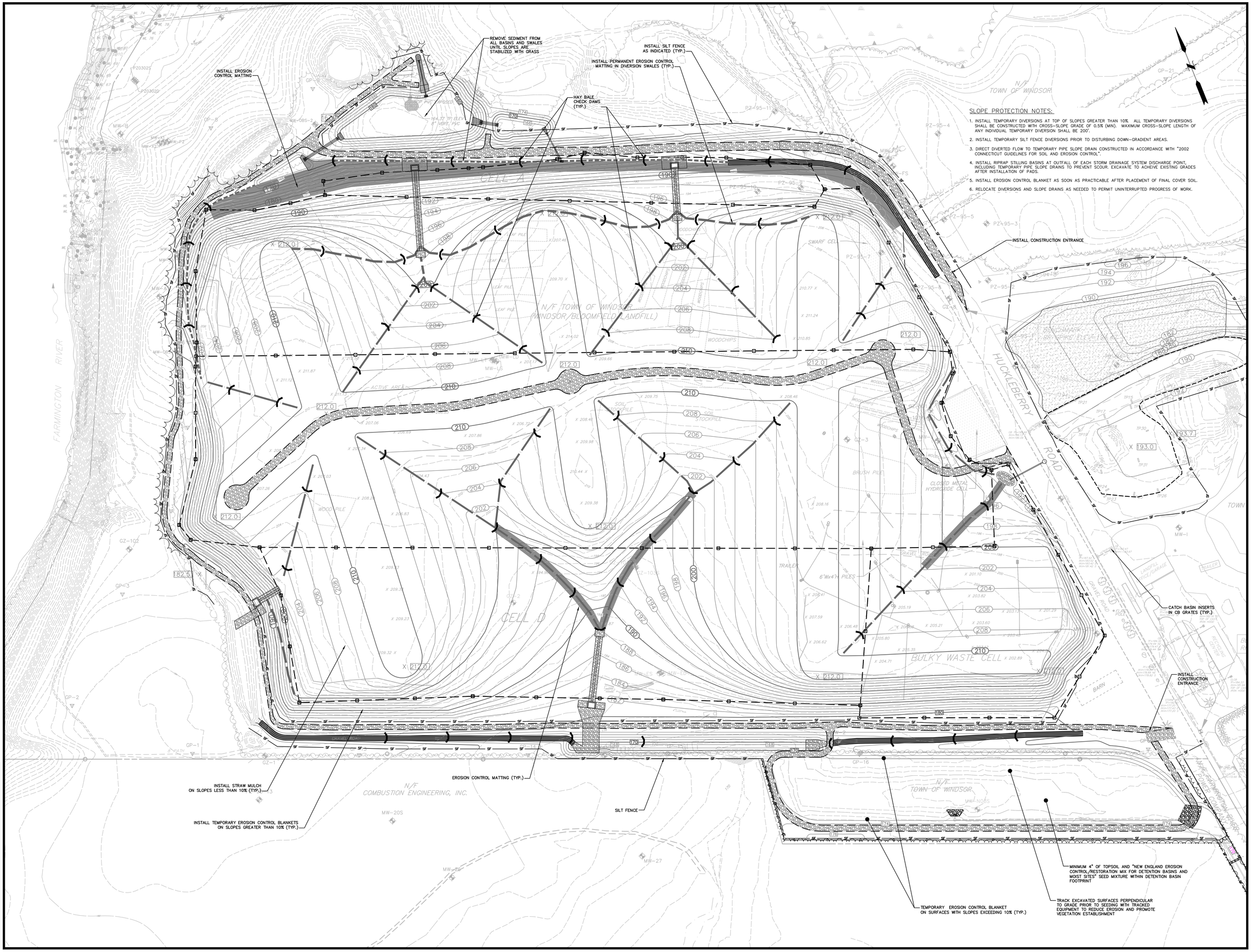

SLOPE PROTECTION NOTES:

1. INSTALL TEMPORARY DIVERSIONS AT TOP OF SLOPES GREATER THAN 10%. ALL TEMPORARY DIVERSIONS SHALL BE CONSTRUCTED WITH CROSS-SLOPE GRADE OF 0.5% (MIN). MAXIMUM CROSS-SLOPE LENGTH OF ANY INDIVIDUAL TEMPORARY DIVERSION SHALL BE 200'.
2. INSTALL TEMPORARY SILT FENCE DIVERSIONS PRIOR TO DISTURBING DOWN-GRADIENT AREAS.
3. DIRECT DIVERTED FLOW TO TEMPORARY PIPE SLOPE DRAIN CONSTRUCTED IN ACCORDANCE WITH "2002 CONNECTICUT GUIDELINES FOR SOIL AND EROSION CONTROL".
4. INSTALL RIPRAP STILLING BASINS AT OUTFALL OF EACH STORM DRAINAGE SYSTEM DISCHARGE POINT, INCLUDING TEMPORARY PIPE SLOPE DRAINS TO PREVENT SCOUR. EXCAVATE TO ACHEIVE EXISTING GRADES AFTER INSTALLATION OF PADS.
5. INSTALL EROSION CONTROL BLANKET AS SOON AS PRACTICABLE AFTER PLACEMENT OF FINAL COVER SOIL.
6. RELOCATE DIVERSIONS AND SLOPE DRAINS AS NEEDED TO PERMIT UNINTERRUPTED PROGRESS OF WORK.

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.	9/30/2015	REVISIONS PER 3RD PARTY REVIEW		

SEAL

SEAL

SCALE: HORZ.: 1" = 80' VERT.:

DATUM: HORZ.: NAD 27 VERT.: NGVD 29

80 40 0 80 GRAPHIC SCALE

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WINDSOR-BLOOMFIELD LANDFILL
EROSION & SEDIMENT CONTROL PLAN
FINAL CLOSURE SYSTEM DESIGN
WINDSOR CONNECTICUT

PROJ. No.: 1993 126.B14
DATE: 01/31/2014

CS-102

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SLOPE PROTECTION NOTES:

1. INSTALL EROSION CONTROL MEASURES PRIOR TO DISTURBING DOWN-GRADIENT AREAS.
2. RELOCATE DIVERSIONS SWALES AND BERMS AS NEEDED TO PERMIT UNINTERRUPTED PROGRESS OF WORK.

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.	9/30/2015	REVISIONS PER 3RD PARTY REVIEW		

SEAL

SEAL

SCALE: HORZ.: 1" = 80'
VERT.:

DATUM: HORZ.: NAD 27
VERT.: NGVD 29

80 40 0 80
GRAPHIC SCALE

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WINDSOR-BLOOMFIELD LANDFILL
CONSTRUCTION EROSION & SEDIMENT CONTROL PLAN
FINAL CLOSURE SYSTEM DESIGN
WINDSOR CONNECTICUT

PROJ. No.: 1993 126.B14
DATE: 01/31/2014

CS-102A

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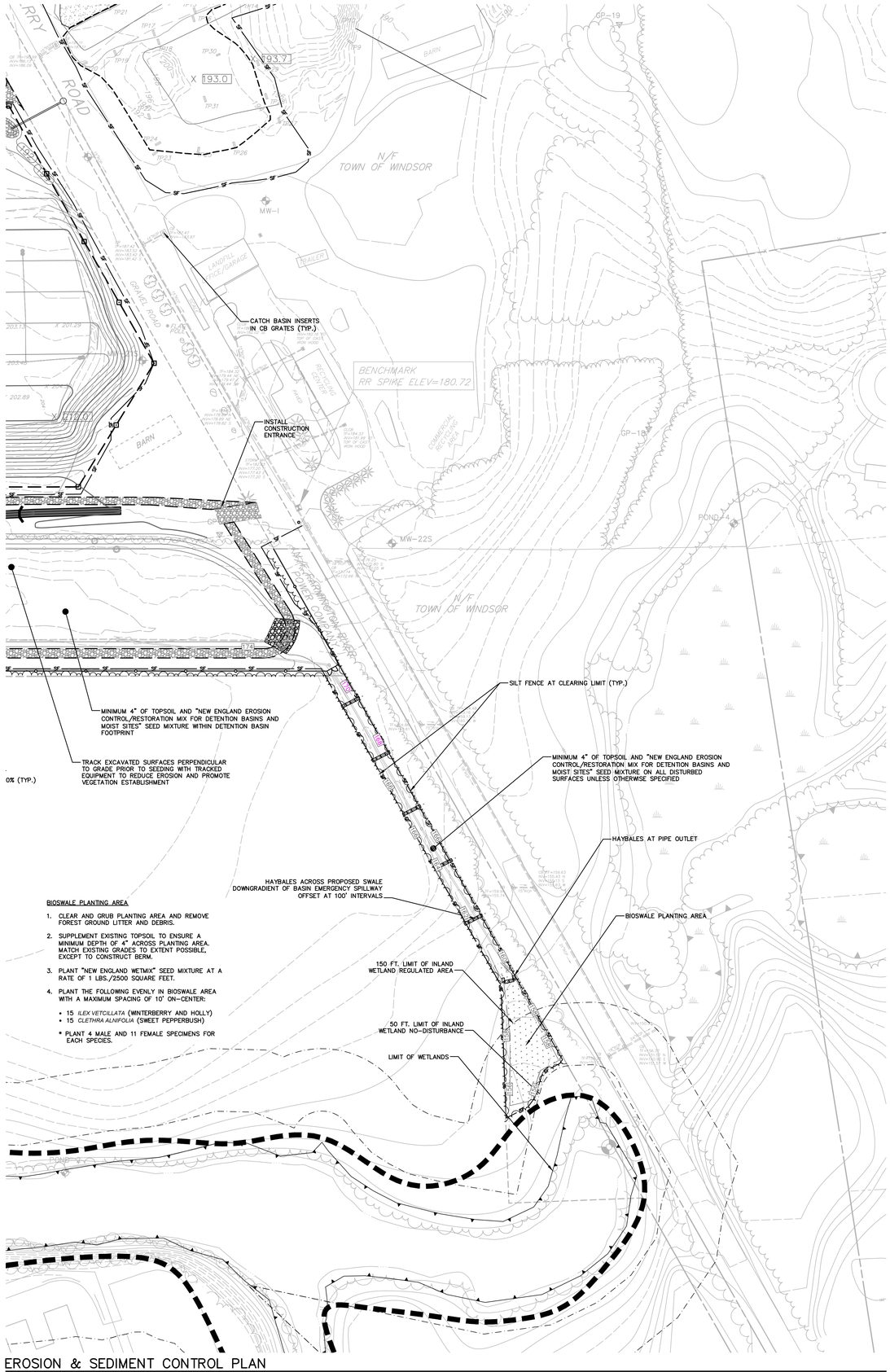
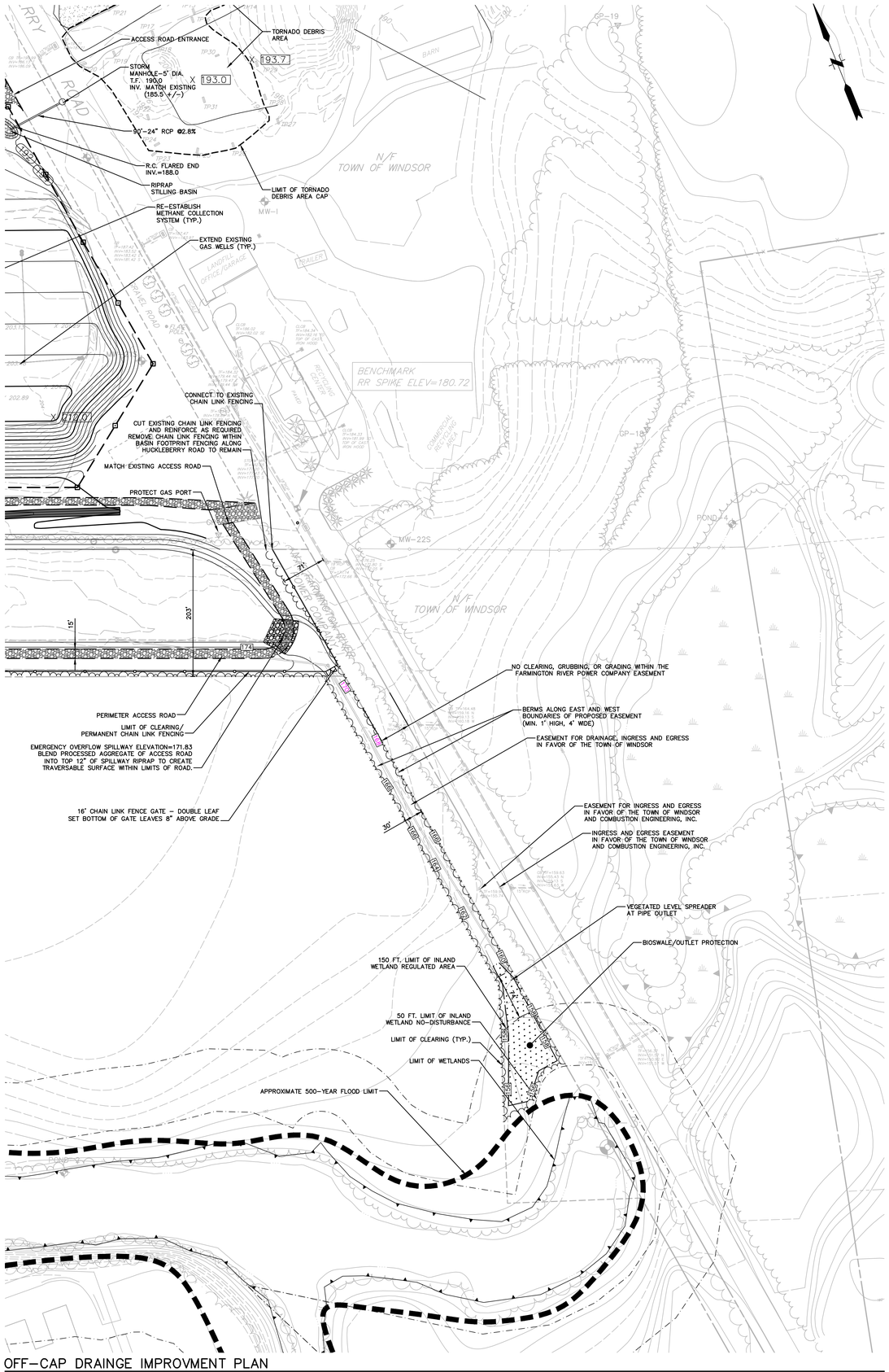


EROSION & SEDIMENT CONTROL PLAN

SCALE: 1" = 80'



OFF-CAP DRAINGE IMPROVMENT PLAN

SCALE: 1" = 80'

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
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SEAL

SEAL

SCALE: HORZ.: 1" = 80' VERT.:

DATUM: HORZ.: NAD 27 VERT.: NGVD 29

GRAPHIC SCALE 80 40 0 80

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WINDSOR-BLOOMFIELD LANDFILL

OFF-CAP DRAINAGE CONTINUATION PLAN

FINAL CLOSURE SYSTEM DESIGN

WINDSOR CONNECTICUT

PROJ. No.: 1993 126.B14

DATE: 01/31/2014

CS-103

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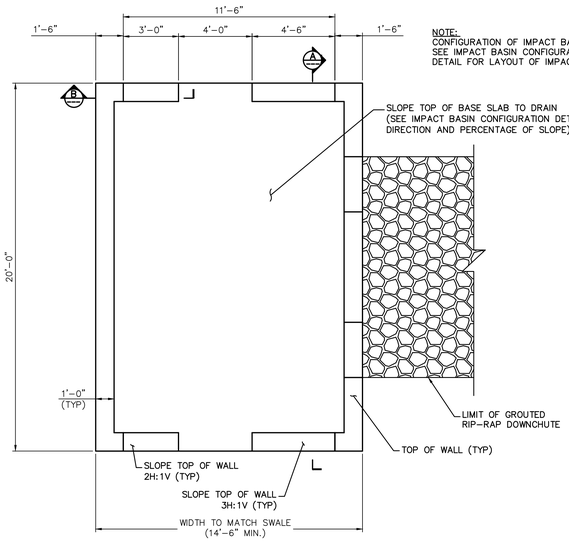
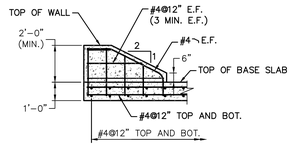


NOTE:
CONFIGURATION OF IMPACT BASINS VARY. SEE IMPACT BASIN CONFIGURATION DETAIL FOR LAYOUT OF IMPACT BASINS.

PLAN
SCALE: ⅜"=1'-0"



SECTION B
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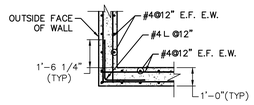

CORNER REINFORCEMENT
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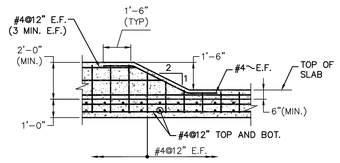


DOWNCHUTE INVERT REINFORCEMENT
SCALE: ⅜"=1'-0"

STRUCTURAL NOTES:

THE WORK SHOWN ON THESE DRAWINGS HAS BEEN DESIGNED IN ACCORDANCE WITH THE STRUCTURAL REQUIREMENTS OF THE STATE OF CONNECTICUT 2005 STATE BUILDING CODE, INCLUDING THE 2005 INTERNATIONAL BUILDING CODE EXCEPT AS AMENDED, ALTERED OR DELETED BY THE ADDITIONAL PROVISIONS IN THE CONNECTICUT STATE BUILDING CODE.

ALLOWABLE DESIGN STRESSES:
CONCRETE: $f'c$ = 4,000 PSI
REINFORCEMENT: ASTM A615 GRADE 60 (f_y = 60,000 PSI)

DIMENSIONS:
THE OVERALL DIMENSIONS OF THE IMPACT BASINS SHOWN ON THESE DETAILS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR FOR PROPER FIT AND FINISH OF THE PROPOSED WORK. REQUIRED ADJUSTMENTS IN ANY OVERALL DIMENSION FOR THE PROPER FIT AND FINISH OF THE PROPOSED WORK ARE THE RESPONSIBILITY OF THE CONTRACTOR. IN NO CASE SHALL THE WALL THICKNESS OR SLAB THICKNESS BE CHANGED.

EXPOSED EDGES:
EXPOSED EDGES OF CONCRETE SHALL BE BEVELED 1"x1" UNLESS DIMENSIONED OTHERWISE.

CONCRETE:
1. 4,000 PSI CONCRETE SHALL BE USED THROUGHOUT.

2. AIR ENTRAINMENT SHALL BE 5% ±1%

3. UNLESS OTHERWISE SHOWN ON THE PLANS, ALL REINFORCING SHALL BE LAPPED ACCORDING TO THE FOLLOWING CHART.

MINIMUM REINFORCING LAPS

BAR SIZE	LAP
#4	18"

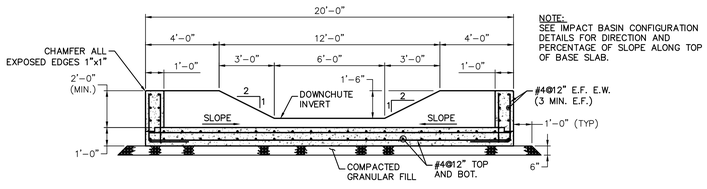
NOTE: THE LAPS LISTED ABOVE ARE FOR NON-CRITICAL SPLICES (AASHTO CLASS A SPLICE) WHERE BAR SPACING IS GREATER THAN SIX INCHES. ALL CRITICAL SPLICES SHALL BE AS SHOWN ON THE PLANS.

4. ALL REINFORCING BARS SHALL HAVE THE FOLLOWING MINIMUM COVER:
- COVER CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
- STIRRUPS, TIES AND SPIRALS: 1 1/2"
- ALL OTHER BARS 2"

5. CONSTRUCTION JOINTS OTHER THAN THOSE SHOWN ON PLANS WILL NOT BE PERMITTED WITHOUT A WRITTEN REQUEST BY THE CONTRACTOR AND PRIOR AUTHORIZATION BY THE ENGINEER.

6. ALL METAL TIES OR ANCHORAGES WHICH ARE REQUIRED FOR CONCRETE FORMWORK SHALL BE SO CONSTRUCTED THAT THEY CAN BE REMOVED TO AT LEAST TWO INCHES FROM THE EXPOSED SURFACE OF THE CONCRETE WITHOUT CAUSING DAMAGE TO THE CONCRETE SURFACE. SNAP TIES MAY BE USED ONLY IF APPROVED BY THE ENGINEER. IF A CONTRACTOR PROPOSES TO USE SNAP TIES, A CATALOG CUT AND OTHER NECESSARY INFORMATION MUST BE SUBMITTED TO THE ENGINEER TO DEMONSTRATE THAT THE TIES WILL SNAP-OFF FAR ENOUGH INTO THE CONCRETE TO ALLOW FOR PROPER PATCHING. SNAP TIES MUST PROVIDE ADEQUATE STRENGTH TO SUPPORT THE FORMS. ALL CAVITIES SHALL BE FILLED WITH AN APPROVED CEMENT MORTAR TO THE SATISFACTION OF THE ENGINEER.

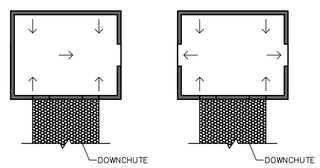
REINFORCEMENT:
ALL REINFORCEMENT SHALL BE ASTM A615 GRADE 60



NOTE:
SEE IMPACT BASIN CONFIGURATION DETAILS FOR DIRECTION AND PERCENTAGE OF SLOPE ALONG TOP OF BASE SLAB.

SECTION A
SCALE: ⅜"=1'-0"

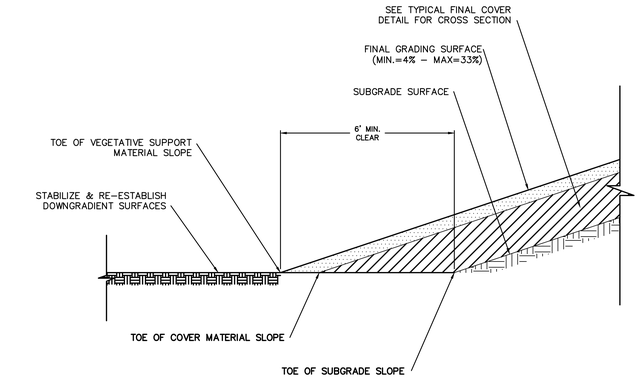
NOTE:
SLOPE IMPACT BASIN SLABS AS SHOWN. ALL SLOPES TO BE AT ½%



TYPE A TYPE B

IMPACT BASIN CONFIGURATIONS
SCALE: N.T.S.

IMPACT BASIN
NOT TO SCALE

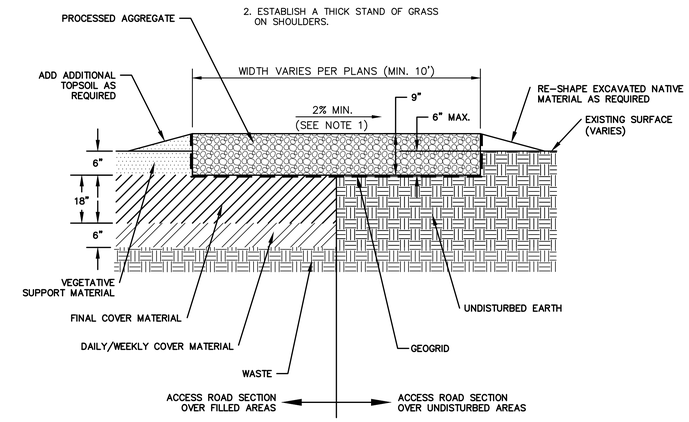


TOE OF SLOPE DETAIL
NOT TO SCALE

NOTES:

1. PITCH ROAD SURFACE AWAY FROM LANDFILL SLOPES WHERE POSSIBLE.

2. ESTABLISH A THICK STAND OF GRASS ON SHOULDERS.



ACCESS ROAD SECTION
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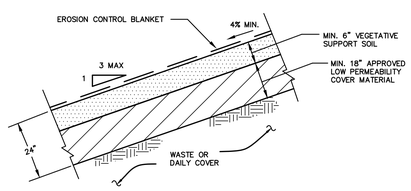

TYPICAL COVER SECTION
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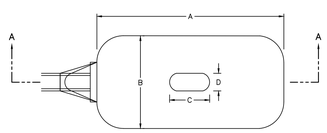
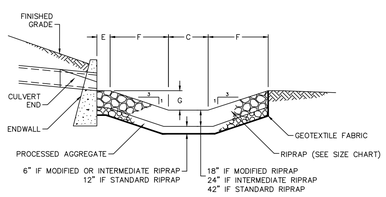


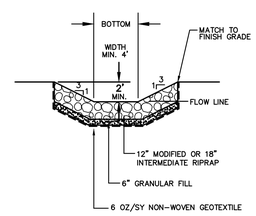
PLAN



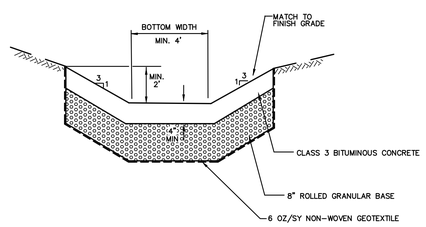
SECTION A–A

PIPE SIZE	A	B	C	D	E	F	G	RIPRAP TYPE
12" OR LESS	10'	8'	3'	2'	1'	3'	1'	MODIFIED
15"	12'	10'	4'	2–6"	1'	3'–9"	1–3"	MODIFIED
18"	14'–6"	12'	4'–6"	3'	1'	4'–6"	1'–6"	INTERMEDIATE
21"	17'	14'	5'–6"	3'–6"	1'	5'–3"	1'–9"	INTERMEDIATE
24"	19'	16'	6'	4'	1'	6'	2'	INTERMEDIATE
30"	23'–6"	20'	7'–6"	5'	1'	7'–6"	2'–6"	STANDARD
36"	28'	24'	9'	6'	1'	9'	3'	STANDARD

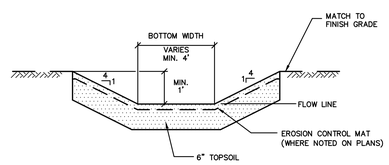
STILLING BASIN
NOT TO SCALE



ARMORED CONVEYANCE SWALE
NOT TO SCALE



PAVED STORMWATER CONVEYANCE SWALE
NOT TO SCALE



SHALLOW ON-CAP SWALE
NOT TO SCALE

No.	DATE	REVISIONS PER 3RD PARTY REVIEW	DESCRIPTION	DESIGNER	REVIEWER
1.	9/30/2015				

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WINDSOR-BLOOMFIELD LANDFILL
SITE DETAILS
FINAL COVER SYSTEM DESIGN
WINDSOR CONNECTICUT

PROJ. No.: 1993 126.B14
DATE: 01/31/2014

CD-501

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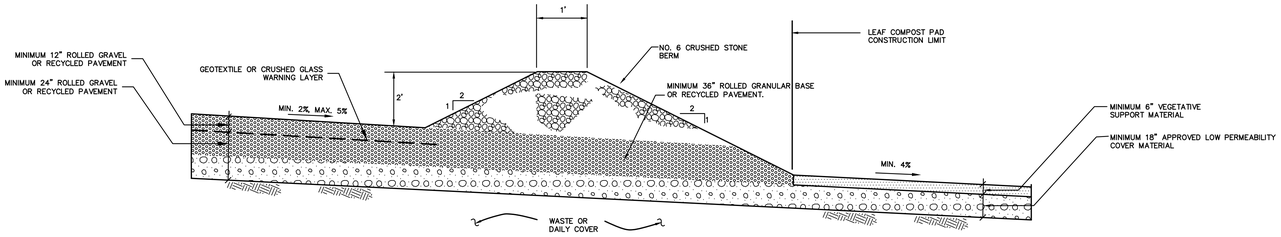


TYPICAL LEAF COMPOST PAD/ COVER SECTION

N.T.S.

CONSTRUCTION NOTES:

1) REINSTALL ACCESS ROAD AND CONSTRUCT CAST–IN–PLACE IMPACT BASINS AND DRAINAGE FEATURES PRIOR TO DISTURBING LANDFILL SLOPES.

2) CLEAR AND GRUB WITHIN CONTRACT LIMITS. STRIP EXISTING TOPSOIL AND STOCKPILE IN AN ON–SITE LOCATION TO BE DETERMINED BY THE OWNER.

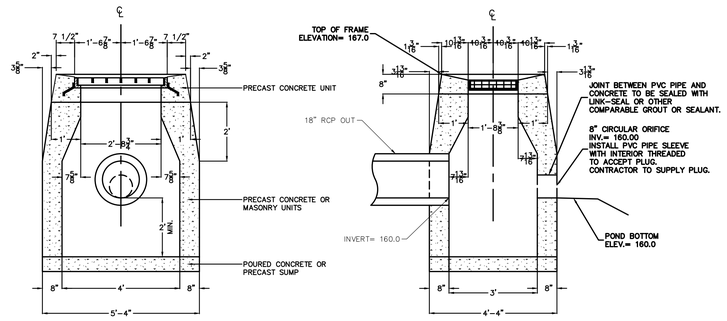
3) RESHAPE AND RECOMPACT EXISTING LANDFILL COVER MATERIAL SO THAT GRADES ARE UNIFORM. CONTRACTOR WILL ENSURE THAT ALL SURFACES MEET SLOPE REQUIREMENTS (4% – 33%).

4) INSTALL COVER MATERIAL AS REQUIRED TO ACHEIVE MINIMUM FINAL COVER DEPTH. PROPOSED GRADES MAY BE ALTERED IN THE FIELD BASED ON DEPTH OF EXISTING COVER MATERIAL.

5) PROPOSED GRADES ON THIS SHEET ARE INTENDED AS A GUIDE ONLY. FINAL GRADING SHALL PROVIDE LANDFILL SURFACES THAT ACHEIVE MINIMUM DIMENSIONS OF FINAL COVER CROSS SECTION.

6) PROPOSED GRADES DEPICTED ON THIS SHEET ARE 2' ABOVE SUBGRADE CONTOURS. THEY DO NOT DEPICT ADDITIONAL RELIEF REQUIRED TO INSTALL DIVERSION SWALES, DOWNCHUTES, ETC. SEE APPROPRIATE DETAILS FOR THIS INFORMATION.

7) REMOVE ACCUMULATED SEDIMENT FROM ALL SWALES, DITCHES, CHANNELS, ENERGY DISSIPATERS, AND IMPACT BASINS AFTER ALL UPLAND SURFACES HAVE BEEN STABILIZED.

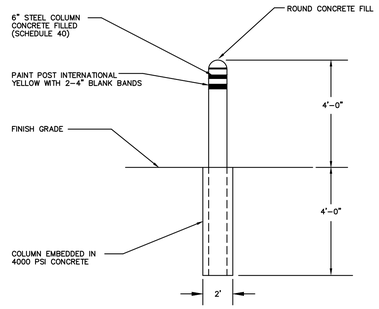


FRONT ELEVATION

SIDE ELEVATION

TYPE "C–L" CATCH BASIN OUTLET STRUCTURE

NOT TO SCALE

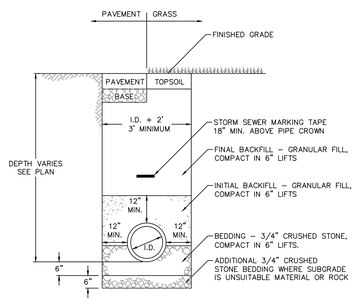


LANDFILL LIMIT MARKER

NOT TO SCALE

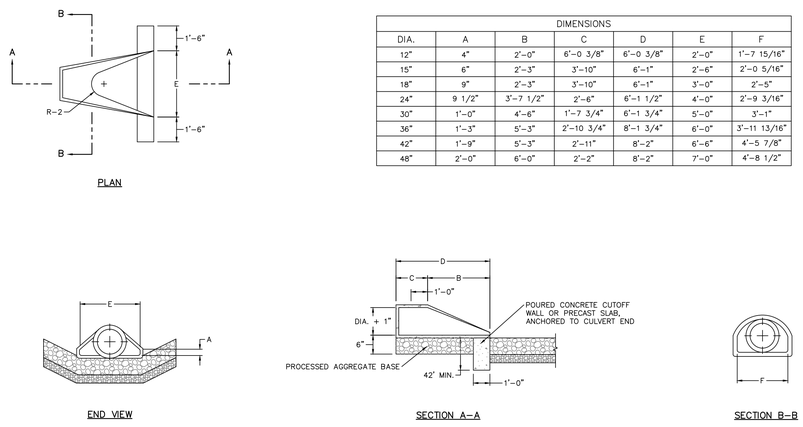
NOTES:

1. LOCATE LANDFILL LIMIT MARKERS AT THE LATERAL FILL LIMITS AROUND THE ENTIRE LANDFORM.
2. NEIGHBORING MARKERS MUST BE EASILY SEEN FROM EACH MARKER.



STORM SEWER TRENCH

NOT TO SCALE



DIMENSIONS						
DIA.	A	B	C	D	E	F
12"	4"	2'–0"	6'–0 3/8"	6'–0 3/8"	2'–0"	1'–7 15/16"
15"	6"	2'–3"	3'–10"	6'–1"	2'–6"	2'–0 5/16"
18"	9"	2'–3"	3'–10"	6'–1"	3'–0"	2'–5"
24"	9 1/2"	3'–7 1/2"	2'–6"	6'–1 1/2"	4'–0"	2'–9 3/16"
30"	1'–0"	4'–6"	1'–7 3/4"	6'–1 3/4"	5'–0"	3'–1"
36"	1'–3"	5'–3"	2'–10 3/4"	8'–1 3/4"	6'–0"	3'–11 13/16"
42"	1'–9"	5'–3"	2'–11"	8'–2"	6'–6"	4'–5 7/8"
48"	2'–0"	6'–0"	2'–2"	8'–2"	7'–0"	4'–8 1/2"

CONCRETE CULVERT END

NOT TO SCALE

No.	DATE	REVISIONS PER 3RD PARTY REVIEW DESCRIPTION	DESIGNER	REVIEWER
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WINDSOR-BLOOMFIELD LANDFILL
SITE DETAILS
FINAL COVER SYSTEM DESIGN
WINDSOR CONNECTICUT

PROJ. No.: 1993 126.B14
DATE: 01/31/2014

CD-502

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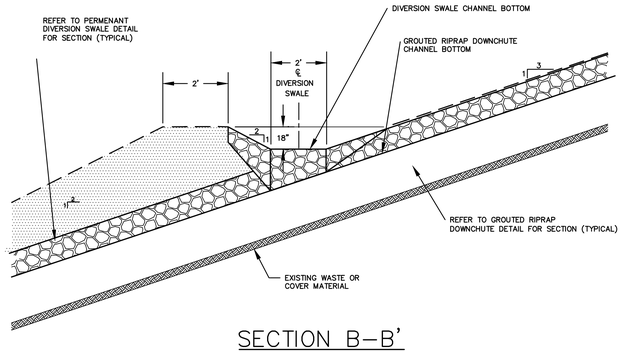
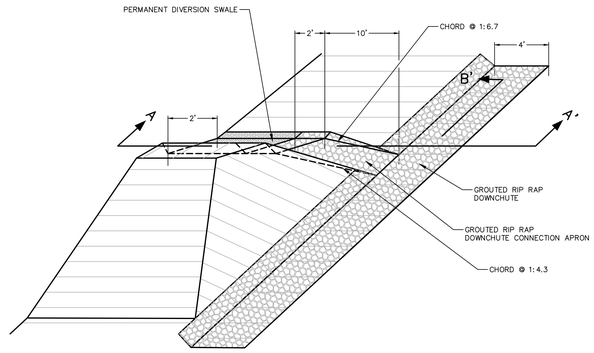


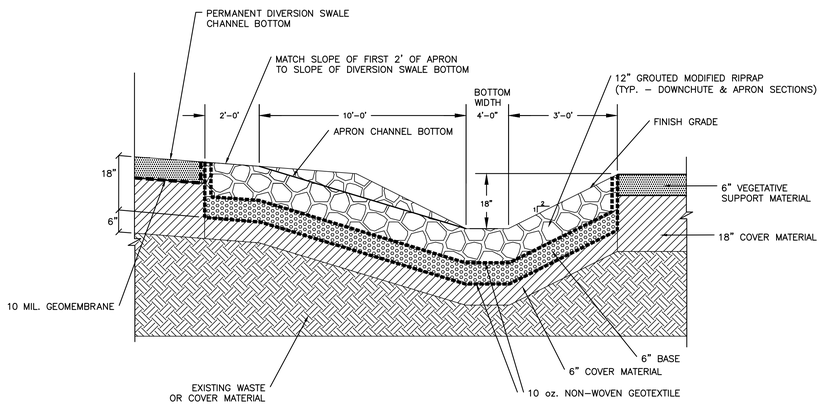
SECTION B–B'

NOT TO SCALE



ISOMETRIC VIEW

NOT TO SCALE

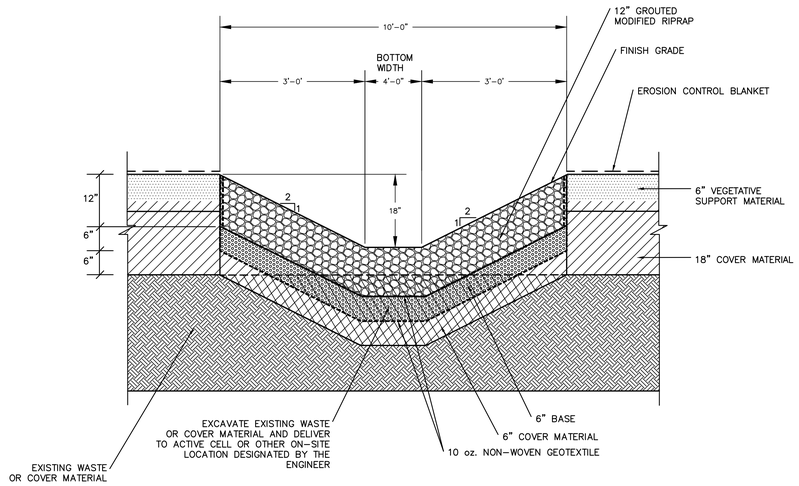


SECTION A–A'

NOT TO SCALE

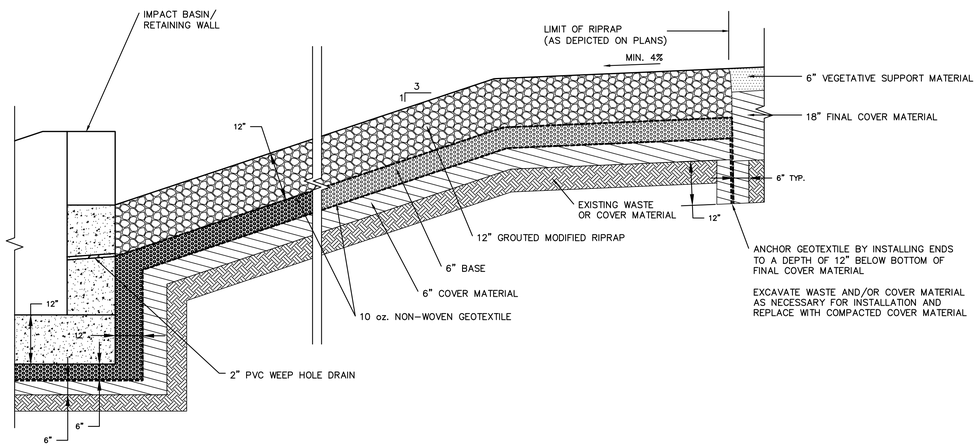
GROUTED RIPRAP DOWNCHUTE AT INTERSECTION WITH CONVEYANCE SWALE

NOT TO SCALE



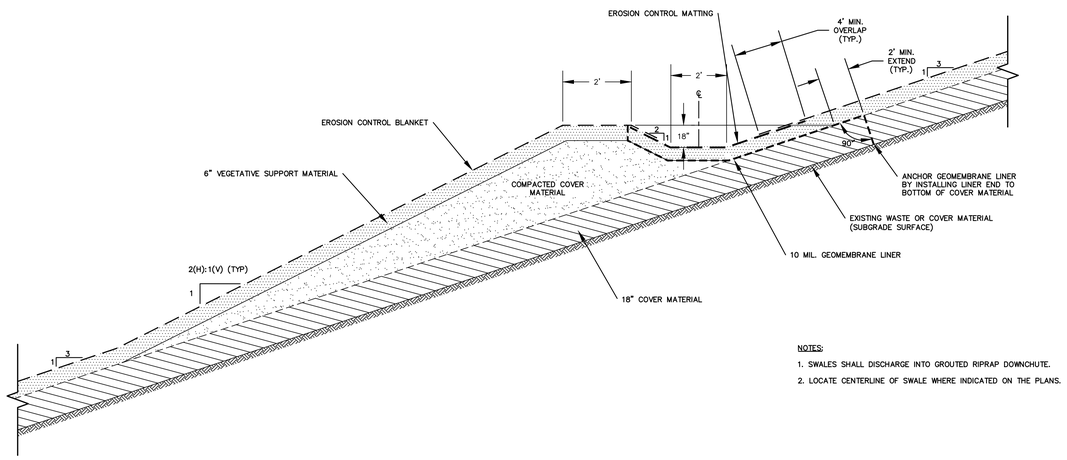
GROUTED RIPRAP DOWNCHUTE SECTION

NOT TO SCALE



GROUTED RIPRAP DOWNCHUTE PROFILE

NOT TO SCALE



NOTES:

1. SWALES SHALL DISCHARGE INTO GROUTED RIPRAP DOWNCHUTE.
2. LOCATE CENTERLINE OF SWALE WHERE INDICATED ON THE PLANS.

PERMANENT DIVERSION SWALE

NOT TO SCALE

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.	9/30/2015	REVISIONS PER 3RD PARTY REVIEW		

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WINDSOR-BLOOMFIELD LANDFILL
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WINDSOR CONNECTICUT

PROJ. No.: 1993 126.B14
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CD-503

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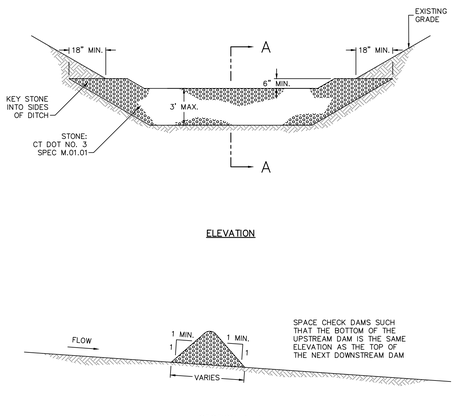
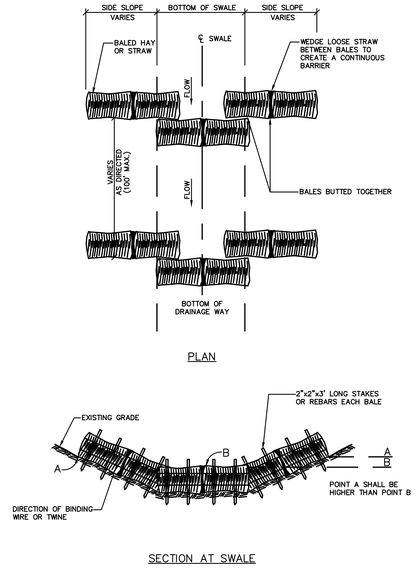


STONE CHECK DAM
NOT TO SCALE



HAY BALES
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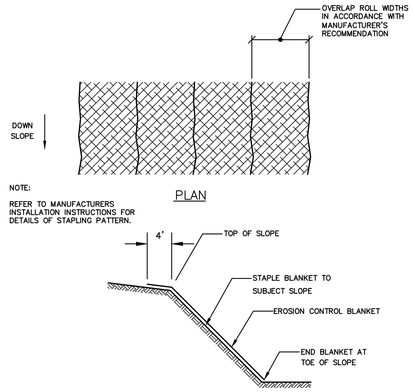


EROSION CONTROL BLANKET
NOT TO SCALE

EROSION & SEDIMENT CONTROL NOTES

1. CONSTRUCTION STANDARDS – CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE MOST RECENT EDITION OF THE "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" (CT DEP BULLETIN 34). ALL MEASURES SHALL BE MAINTAINED AND UPGRADED TO ACHIEVE PROPER SEDIMENT CONTROL DURING CONSTRUCTION.

2. PLAN IMPLEMENTATION – IMPLEMENT THIS EROSION AND SEDIMENT CONTROL PLAN. THIS IMPLEMENTATION INCLUDES THE INSTALLATION AND MAINTENANCE OF CONTROL MEASURES UNTIL PERMANENT STABILIZATION IS ACHIEVED, INFORMING ALL SUBCONTRACTORS OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN, AND NOTIFYING THE PROPER MUNICIPAL AGENCY OF ANY TRANSFER OF THIS RESPONSIBILITY. THE OWNER SHALL BE RESPONSIBLE FOR CONVEYING A COPY OF THE EROSION AND SEDIMENT CONTROL PLAN TO THE NEW OWNER IF THE TITLE OF THE LAND IS TRANSFERRED PRIOR TO ACHIEVING PERMANENT STABILIZATION.

3. INSTALLATION SCHEDULE – INSTALL THE CONSTRUCTION ENTRANCE BEFORE CONSTRUCTION TRAFFIC INTO AND OUT OF THE PROJECT AREA BEGINS. INSTALL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO STUMP REMOVAL AND CONSTRUCTION. INSTALL ADDITIONAL CONTROL MEASURES DURING THE CONSTRUCTION PERIOD, IF DEEMED NECESSARY BY THE OWNER, HIS AGENTS OR AGENTS OF THE MUNICIPALITY.

4. FUGITIVE DUST – CONTROL FUGITIVE DUST USING WATER SPRAYS OR CALCIUM CHLORIDE ON SOIL SURFACES, SWEEPING PAVED AREAS, TEMPORARY WINDBREAKS OR NON–ASPHALTIC SOIL TACKIFIERS.

5. HAY BALE LIFE SPAN – INSTALL HAY BALES WHERE PROTECTION AND EFFECTIVENESS IS REQUIRED FOR LESS THAN 90 DAYS. OTHERWISE, INSTALL SILT FENCE.

6. CATCH BASINS – PROTECT CATCH BASINS WITH PROPER CONTROLS THROUGHOUT THE CONSTRUCTION PERIOD UNTIL ALL DISTURBED AREAS ARE PERMANENTLY STABILIZED.

7. STOCKPILES – ENCIRCLE STOCKPILES OF ERODIBLE SOIL WITH A HAY BALE OR SILT FENCE BARRIER. THE SIDE SLOPES OF ERODIBLE STOCKPILED MATERIAL SHALL BE NO STEEPER THAN 2:1. STOCKPILES THAT ARE NOT TO BE USED WITHIN 30 DAYS SHALL BE SEEDED AND MULCHED IMMEDIATELY AFTER THEY ARE FORMED.

8. TOE OF SLOPE – ESTABLISH AN EROSION CONTROL BARRIER (SILT FENCE OR HAY BALE BARRIER) APPROXIMATELY 5 TO 10 FEET FROM THE PROPOSED TOE OF THE CUT OR FILL AREA PRIOR TO BEGINNING EARTHWORK.

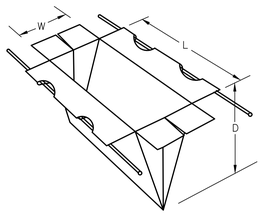
9. SEDIMENT REMOVAL – SEDIMENT REACHING ½ THE HEIGHT OF THE EROSION CONTROL BARRIER SHALL BE REMOVED. REMOVE AND DISPOSE OF SEDIMENT IN A MANNER CONSISTENT WITH THE INTENT OF THE PLAN.

10. SOIL STABILIZATION SCHEDULE – APPLY PERMANENT SOIL STABILIZATION MEASURES TO ALL GRADED AREAS WITHIN 7 DAYS OF ESTABLISHING FINAL GRADE. APPLY TEMPORARY SOIL STABILIZATION MEASURES IF FINAL GRADING IS TO BE DELAYED MORE THAN 30 DAYS.

11. TEMPORARY SEEDING – TEMPORARILY SEED ERODIBLE SOILS THAT WILL BE EXPOSED GREATER THAN 1 BUT LESS THAN 12 MONTHS WITHIN THE FIRST 7 DAYS OF SUSPENDING GRADING OPERATIONS. APPLY LIME AT A RATE OF 90 LBS/1000 SQ. FT. APPLY 10–10–10 FERTILIZER AT A RATE OF 7 ½ LBS/1000 SQ. FT. APPLY PERENNIAL RYE GRASS AT A RATE OF 2 LBS/1000 SQ. FT. TO A DEPTH OF ½ INCH. OPTIMUM SEEDING DATES ARE MARCH 15 TO JULY 1 AND AUGUST 1 TO OCTOBER 15. MULCH FOR SEED APPLIED WITHIN THE OPTIMUM SEEDING DATES SHALL BE APPLIED EVENLY SUCH THAT IT PROVIDES 80%–95% SOIL COVERAGE. MULCH FOR SEED APPLIED OUTSIDE OF THE OPTIMUM SEEDING DATES SHALL BE APPLIED EVENLY SUCH THAT IT PROVIDES 95%–100% COVERAGE.

12. PERMANENT SEEDING – SEED PERMANENT LAWN AREAS IN ACCORDANCE WITH THE SPECIFICATIONS.

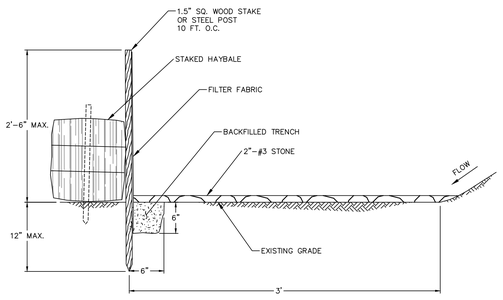
13. INSPECTION – THE OWNER SHALL SECURE THE SERVICES OF A SOIL SCIENTIST OR PROFESSIONAL ENGINEER TO VERIFY IN THE FIELD THAT THE CONTROLS REQUIRED BY THIS PLAN ARE PROPERLY INSTALLED AND MAINTAINED. THESE INSPECTIONS SHALL BE NOT LESS FREQUENTLY THAN WEEKLY AND WITHIN 24 HOURS OF THE END OF A STORM HAVING A RAINFALL AMOUNT OF 0.1 INCH OR GREATER. FOLLOWING THESE INSPECTIONS, A WRITTEN REPORT SHALL BE PREPARED, INFORMING THE OWNER OR HIS AGENT NOT LESS FREQUENTLY THAN WEEKLY AND THE MUNICIPALITY NOT LESS FREQUENTLY THAN MONTHLY OF OBSERVATIONS, MAINTENANCE, AND CORRECTIVE ACTIVITIES UNDERTAKEN.



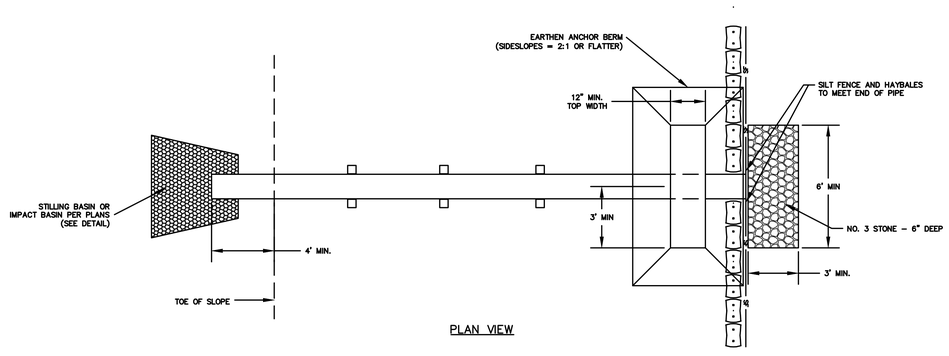
NOTES

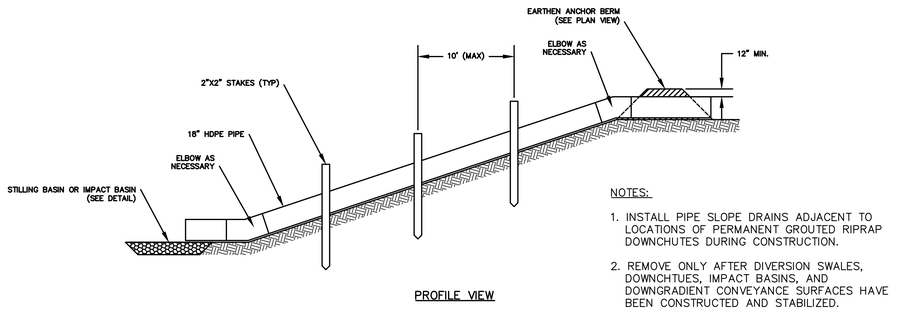
1. SIZED TO FIT ANY SIZE OR SHAPE CATCH BASIN.
2. ALL SEAMS DOUBLE STITCHED.
3. PERMEABILITY:
   REGULAR FLOW SILTSACK: 40 GAL./MIN./SQ. FT.

CATCH BASIN INSERT
NOT TO SCALE



TEMPORARY SILT FENCE DIVERSION
NOT TO SCALE

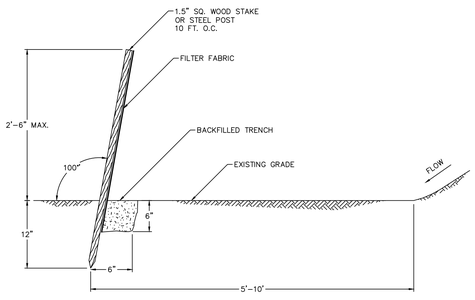




NOTES:

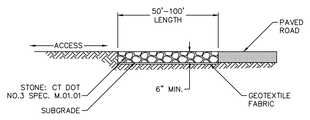
1. INSTALL PIPE SLOPE DRAINS ADJACENT TO LOCATIONS OF PERMANENT GROUTED RIPRAP DOWNCHUTES DURING CONSTRUCTION.
2. REMOVE ONLY AFTER DIVERSION SWALES, DOWNCHTUES, IMPACT BASINS, AND DOWNGRADIENT CONVEYANCE SURFACES HAVE BEEN CONSTRUCTED AND STABILIZED.

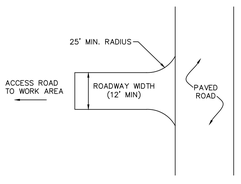
TEMPORARY PIPE SLOPE DRAIN
NOT TO SCALE



SILT FENCE
NOT TO SCALE

N.T.S.





CONSTRUCTION ENTRANCE
NOT TO SCALE

No.	DATE	REVISIONS PER 3RD PARTY REVIEW	DESIGNER	REVIEWER
1.	9/30/2015			

SEAL

SEAL

SCALE: HORZ.: VERT.:
DATUM: HORZ.: VERT.:
0 GRAPHIC SCALE

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WINDSOR-BLOOMFIELD LANDFILL
SITE DETAILS
FINAL COVER SYSTEM DESIGN
WINDSOR CONNECTICUT

PROJ. No.: 1993 126.B14
DATE: 01/31/2014

CD-504

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