STORMWATER POLLUTION CONTROL PLAN TEMPLATE

Occum Maintenance Facility
Occum, CT

State Project No.: 103-247

Connecticut Department of Transportation

October 2014

This Stormwater Pollution Control Plan (SPCP) is prepared to comply with the requirements for the General Permit for Stormwater Discharges (GPSD) from Construction Activities. Also to be considered part of the SPCP are the proposed construction plans, special provisions, and the Connecticut Department of Transportation's "Standard Specifications for Roads, Bridges and Incidental Construction" (Form 816) including supplements thereto and the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control

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1. Site Description

Site Description

This project consists of the replacement of the existing maintenance facility and renovation of the existing salt shed at 125 Taftville Occum Road in the Occum section of Norwich. The purpose of project is to replace a functionally obsolete facility.

The project involves the demolition of the existing maintenance facility and construction of a new 20,000 square foot maintenance facility, repairs to the existing salt shed, replacement of underground storage tanks, and corresponding site improvements. The purpose of the replacement the motor fuel underground storage tanks with an aboveground storage tank is to upgrade the storage tanks in order to comply with the Department of Energy and Environmental Protection regulations.

Estimated Disturbed Area

The total area for this project site is 5.09 acres. Of this area, 5.07 acres will be disturbed by construction activities.

Estimated Runoff Coefficient

The runoff coefficient assumed for pavement 0.9, for the building's roof 1.0, and 0.7 for compacted gravel. For the pervious areas a coefficient of 0.2 was assumed for turf. The weighted runoff coefficient for the site has been reduced from 0.658 to 0.631.

Table 1: Pre-Construction Drainage Conditions

Outlet ID	Drainage Area (ac.)		
	Paved	Roof	Unpaved
1	2.42	0.36	2.29
Total	2.42	0.36	2.29

Pre-Construction Composite Runoff Coefficient:

$$\frac{(0.77 \text{ ac. x } 0.2)+(0.85 \text{ ac. x } 0.2)+(2.42 \text{ ac. x } 0.9)+(0.67 \text{ ac. x } 0.7)+(0.36 \text{ ac. x } 1.0)}{0.77 \text{ ac. } + 0.85 \text{ ac. } + 2.42 \text{ ac.} + 0.67 \text{ ac. } + 0.36 \text{ ac.}} = 0.658$$

Table 2: Post-Construction Drainage Conditions

Outlet ID	Drainage Area (ac.)		
	Paved	Roof	Unpaved
1	2.48	0.56	2.03
Total	2.48	0.56	2.03

Post-Construction Composite Runoff Coefficient:

$$\frac{(2.03 \text{ ac. x } 0.2)+(0.56 \text{ ac. x } 1.0)+(2.48 \text{ ac. x } 0.9)}{2.03 \text{ ac.} + 0.56 \text{ ac.} + 2.48 \text{ ac.}} = 0.631$$

The estimated runoff coefficients, with the corresponding contributing areas, are shown on Figures 2 and 3.

Receiving Waters

The site drainage, both pre-construction and post-construction, ties into an adjacent state roadway drainage system which discharges into the Shetucket River.

Extent of Wetlands on Site

The existing Occum Maintenance Facility site has few wetlands within and adjacent to the existing maintenance facility site. Only one relatively small wetland area of 0.04 acres located within the construction limits of the project will be impacted by construction.

2. Construction Sequencing

The contractor will be given approximately fifteen month for the construction of all phases of the project.

The suggested sequence of construction is as follows:

1. Conduct a preconstruction meeting.
2. Install erosion controls at the effected inlets and at limits of disturbed slopes.
3. Perform clearing and grubbing activities.
4. Begin cut and fill operations for floodplain storage and building foundation.
5. Construct building.

6. Continue cut and fill operations for paved areas. Install site utilities, drainage, storage tanks, stormwater system and pavement structure.
7. Demolition of the existing building and storage tanks.
8. Continue to install site utilities, drainage, stormwater system, and pavement structure.
9. Grade grass slopes and immediately stabilize. Establish turf, per plan, on all remaining disturbed areas. Remove erosion controls when it is determined that disturbed areas have been stabilized. (This determination will be made by the Engineer).
10. All post-construction stormwater structures shall be cleaned of construction sediment and any remaining silt fence shall be removed prior to the filing of the "Notice of Termination Form".
11. Perform project cleanup.

The construction sequencing activities for the project shall not create an area of disturbance more than two (2) acres.

If the construction sequencing activities create an area of disturbance between two (2) acres and five (5) acres per discharge point, the Contractor must submit to the Engineer a revised SWPCP for review and approval. The SWPCP must include locations of the temporary sedimentation trap per discharge point with a capacity to contain 134 cubic yards per acre of material in accordance with the 2002 Guidelines. The Contractor shall provide an inspection and maintenance plan for the temporary sedimentation trap as part of the amended SWPCP.

If the area of disturbance has a potential to reach more than five (5) acres per discharge point, the contractor must submit to the Engineer a revised SWPCP for review and approval. The SWPCP must include locations of the temporary sedimentation basin designed and installed in accordance with the guidelines. The contractor shall provide an inspection and maintenance plan for the temporary sedimentation basin as part of the amended SWPCP.

3. Control Measures

Erosion and Sedimentation Controls

CT DOT will have construction inspection personnel assigned to the project in order to oversee the Contractor's operations to ensure compliance with the provisions of the Standard Specifications. Further CT DOT oversight is provided by the District 2 Environmental Coordinator and the Office of Environmental Planning.

The following timelines will be followed for the proposed construction activities:

- If construction activities are complete or have been temporarily halted for more than seven (7) days, stabilization activities will be implemented within three (3) days.

- Areas that remain disturbed but inactive for at least 30 days shall receive temporary seeding or soil protection within seven (7) days.

- Disturbed areas that do not establish a vegetative cover within 30 days of seeding shall have erosion control blankets installed. Prior to the erosion control blanket installation, the soil would be prepared with the application of lime, fertilizer, and seed.

- Areas that will be disturbed past the planting season will be covered with a long-term, non-vegetative stabilization method that will provide protection through the winter.

- Stabilization practices will be implemented as quickly as possible in accordance with the Guidelines.

- The Contractor shall stabilize disturbed areas with temporary or permanent measures as quickly as possible after the land is disturbed. Requirements for soil stabilization are detailed in Form 816 Section 1.10.03, Best Management Practices.

Temporary Stabilization Practices

- Erosion Control Matting: On slopes steeper than 2:1 erosion control matting shall be used to stabilize the topsoil.

- Silt Fence: Silt fence shall be placed at the base of embankment

- Dust Control: Routine sweeping and application of dust suppression agents, including water and calcium chloride, over exposed sub base shall be completed for dust control.

- Temporary Seeding: On soils to be exposed for a period greater than 1 month but less than 1 year, temporary seeding shall be used to temporarily stabilize the soil until permanent stabilization is be established.

- Catch Basin Inlet Protection: Catch basin inlet protection shall be used to reduce the amount of sediment entering the storm drainage system during construction.

- Anti-Tracking Pads: Construction entrances (gravel anti-tracking pads) shall be constructed at truck access points to off –road route.

- Hay Bales at Catch Basin: Hay Bales shall be used to reduce the amount of sediment entering the storm drainage system during construction.

- Stone Check Dam: A temporary stone check dam shall be constructed as shown on the plans to reduce the potential for sediment transport during construction.

Stabilization practices shall be implemented no more than three days after completion, as final grades are reached, or if work has been suspended for more than seven days.

Temporary seeding shall be spread over any disturbed areas which will remain inactive for at least 30 days. Areas to remain disturbed through winter shall be protected with non-vegetative stabilization measures. The Contractor must provide an Erosion and Sedimentation Control plan for each winter season during construction operations.

The Contractor may use other controls in the project as necessary if they conform to the *2002 Connecticut Guidelines for Erosion and Sediment Control* and are approved by the Engineer. The Contractor will be required to provide the necessary details for any erosion controls not specifically called for on the project plans.

During construction, all areas disturbed by the construction activity that have not been stabilized, structural control measures, and locations where vehicles enter or exit the site shall be inspected at least once every seven calendar days. These areas shall also be inspected within 24 hours following any storm in which 0.5 inches or greater of rain occurs.

Permanent Stabilization Practices

During construction, the following methods of permanent stabilization shall be installed:

- Permanent Seeding: Once soils have been brought to final grade, permanent seeding shall be used to stabilize the soil with a vegetative cover.

- Topsoiling: In conjunction with permanent seeding, once final grades have been established, topsoil shall be applied to provide a suitable growth medium for vegetation.

All new embankments disturbed by construction and unpaved areas that are graded or disturbed by construction will receive erosion control matting, topsoil and/or turf establishment. The Contractor may use other permanent stabilization practices approved by the Engineer and conforming to the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*.

Structural Measures

The following structural measures shall be used to divert flows, limit runoff, and minimize the discharge of pollutants:

- Minimal Curbing: Curbing shall be avoided wherever possible to maximize overland sheet flow and enhance infiltration.

- Outlet Protection: Riprap outlet protection shall be used at the proposed outlet to decrease velocity and the potential for erosion.

- Catch Basins: Catch basins (2-foot sump) shall be used to intercept pollutants and debris and will be cleaned on an annual basis or as needed.

- Hydrodynamic separator: Due to the fact that the entire site has been designated "Areas of Environmental Concern (AoEC's), the application of LID practices are not practical within the footprint of the project, due to contaminated soils. However secondary treatment has been incorporated within the proposed drainage system using Hydrodynamic Stormwater Treatment. The new drainage system for the salt shed area includes the hydrodynamic separator which will be installed and connect to the portion of the drainage system conveying the water to the outlet. The hydrodynamic separator will act as pre-treatment which will encourage infiltration and allow for a reduction in sediment leaving the site.

Maintenance

All construction activities and related activities shall conform to the requirements of Section 1.10 "Environmental Compliance" of CTDOT's Standard Specifications, Form 816. In general, all construction activities shall proceed in such a manner so as not to pollute any wetlands, watercourses, water bodies, and conduits carrying stormwater. The Contractor shall limit, in so far as possible, the surface area of earthen materials exposed by construction activity and immediately provide temporary and permanent pollution control to prevent soil erosion and contamination on the site. Water pollution control provisions and best management practices per Section 1.10.03 of the Standard Specifications shall be administered during construction. Control measures shall be inspected and maintained in accordance with the *2002 Guidelines* and as directed by the Engineer.

The Contractor will be responsible to implement, operate, monitor and perform the required maintenance of the E&S control measures described, shown and detailed on the Construction Documents. The Contractor will be familiar with all aspects of the named control measures and be responsible for the correction of any failures by repair or modifications as may be recommended by an E&S professional and in coordination with CTDOT District 1 Construction, CTDOT Office of Environmental Planning, and the Department of Energy and Environmental Protection.

The following Maintenance practices will be completed as part of this Contract:

- All E&S controls will be inspected within 24 hours of a storm event (0.1 inches) to ensure they are still properly located and anchored and in good working condition. All necessary repairs and/or replacements will be made promptly by the Contractor as needed. Sediment and debris build-up will be removed by the Contractor as required based upon the outcome

of inspection.

- Perimeter sediment control systems will be inspected daily to ensure they are properly secured and functioning as designed. Cleaning will occur when accumulated sediments reach one-half of the original height of the silt or hay bale fence or as directed by the Engineer. If perimeter fencing is breached at any location, the breach will immediately be repaired by the Contractor, and the repair will be verified by the Engineer and/or the inspecting agent.

- Following the completion of construction, the Contractor will repair any eroded areas as directed by the Engineer. The Contractor will repair all eroded slopes, displaced riprap, or geotextile matting and will clean any sediment from exposed riprap surfaces.

- The Contractor will clear sediment and debris from all drainage structures and pipes as required in order to keep the system functioning properly during construction.

- Following final stabilization, the Contractor will remove all silt fencing.

- In the event of flooding, storage of materials that could be injurious to human health or the environment will be located outside of the 100-year flood zone. Other material or equipment may be stored below the 500 year flood elevation such that the material or equipment is not subject to major damage by floods, and that such material or equipment will be firmly anchored, restrained or enclosed to prevent it from floating away or that such material or equipment can be removed prior to flooding.

4. Dewatering Wastewaters

Dewatering Guidelines

If encountered, dewatering wastewaters will be infiltrated into the ground unless otherwise directed by the Engineer. When dewatering is necessary, pumps used shall not be allowed to discharge directly into a wetland or watercourse. Prior to any dewatering, the Contractor must submit to the Engineer a written proposal for specific methods and devices to be used, and must obtain the Engineer's written approval of such methods and devices, including, but not limited to, the pumping of water into a temporary sedimentation basin, providing surge protection at the inlet or outlet of pumps, floating the intake of a pump, or any other method for minimizing and retaining the suspended solids. If the Engineer determines that a pumping operation is causing turbidity problems, the Contractor shall halt said operation until a means of controlling the turbidity is submitted by the Contractor in writing to the Engineer, approved in writing by the Engineer and implemented by the Contractor. No discharge of dewatering wastewater shall

contain or cause a visible oil sheen, floating solids or foaming in the receiving water. If required, all activities are to be performed in compliance with ConnDOT Form 816.

5. Post-Construction Stormwater Management

Post-Construction Guidelines

After the project is complete, the Department will perform the following maintenance and restorative measures:

- Litter/debris will be removed from the site regularly.
- Mowing and maintenance of the turf areas and vegetated areas will occur as needed.
- Riprap outlet protection will be inspected and repaired annually or as needed.
- Outlets will be checked for excessive scour and repaired as needed.
- Catch basin sumps and hydrodynamic separators will be vacuumed annually or as needed.

Post-Construction Performance Standards

The project site is an existing maintenance facility and currently is greater than 40% impervious and therefore the project would be considered redevelopment. The following values were calculated for the post-construction site conditions:

Effective Impervious Cover:

$$\text{Effective Impervious Cover} = \frac{\text{Impervious Area of Site (acre)}}{\text{Total Area of Site (acre)}} \times 100\%$$

$$= \frac{3.04 \text{ acres}}{5.07 \text{ acres}} \times 100\%$$

$$= 59.96\%$$

Water Quality Volume:

(Full) Water Quality Volume = 0.249 ac-ft

WQV = (1")(0.05+0.009I)(A) / 12

WQV = Water Quality Volume
I = Percent Impervious Cover (%)

A = Area (acre)

WQV = (1")[0.05+0.009 x ((3.04/5.07) x 100%)] x 5.07/12

Though the impervious area of the site will increase slightly due to the scope of the site reconstruction, the weighted runoff coefficient for the site has been reduced from 0.658 to 0.631.

The proximity to the wetland, high water table (varies mostly from 2' to 5.5'), right of way limitations, and overall sight constrains provide limited opportunity for runoff reduction and low impact development (LID). Additionally, the whole site has been classified as areas of (AoEC's) and the use of primary stormwater treatment practices and application of LID practices are not practical within the footprint of the project. Infiltration may cause a migration of the contaminated soils (AoEC's) outside the project site, therefore it is not recommended.

Runoff reduction and options for LOW Impact Development (LID) measures are limited.
The use of primary stormwater treatment practices, such as to make the retention and infiltration of the water quality volume via traditional above ground storage or underground detention is infeasible for the project site. Stormwater treatment options at this site are limited to secondary treatment.

Stormwater retention and treatment, though not at standards, will be applied to the maximum extent possible. All of the control measures to be installed will be an improvement to existing conditions.

Runoff Reduction

One technique that will be used, to minimize runoff and incorporate LID methodologies, is to eliminate the use of curbing throughout the project area, thereby maximizing overland sheet flow and promoting stormwater infiltration.

Suspended Solids and Floatables Removal

The following measures have been employed with the goal of capturing suspended solids and floatables and velocity dissipation:
A goal of 50% to 80% removal of the average annual post-construction total suspended solids load was used in designing secondary stormwater management measures (HDS). The new drainage system for the salt shed area includes the hydrodynamic separator which will be installed and connect to the portion of the drainage system conveying the water to the existing drainage system.

Velocity Dissipation

To address stormwater velocity and discharge, a riprap apron will be installed at the outlet to

dissipate velocity and prevent ground erosion. Sizing calculations for the riprap apron can be found in Appendix B.

6. Other Controls

Waste Disposal

Construction site waste shall be properly managed and disposed of during the entire construction period. Additionally,

- A waste collection area will be designated. The selected area will minimize truck travel through the site and will not drain directly to the adjacent wetlands.
- Waste collection shall be scheduled regularly to prevent the containers from overfilling.
- Spills shall be cleaned up immediately.
- Defective containers that may cause leaks or spills will be identified through regular inspection. Any found to be defective will be repaired or replaced immediately.
- Any stockpiling of materials should be confined to the designated area as defined by the engineer.

Washout Areas

Washout of applicators, containers, vehicles and equipment for concrete shall be conducted in a designated washout area, as shown on Drawing SD-006, Appendix C. No surface discharge of washout wastewaters from the area will be allowed. All concrete washwater will be directed into a container or pit such that no overflows can occur. Washout shall be conducted in an entirely self-contained system and will be clearly designed and flagged or signed where necessary. The washout area shall be located outside of any buffers and at least 50 feet from any stream, wetland or other sensitive water or natural resources as determined or designated by CTDOT Office of Environmental Planning.

The designated area shall be designed and maintained such that no overflows can occur during rainfall or after snowmelt. Containers or pits shall be inspected at least once a week to ensure structural integrity, adequate holding capacity and will be repaired prior to future use if leaks are present. The contractor shall remove hardened concrete waste when it accumulates to a height of ½ of the container or pit or as necessary to avoid overflows. All concrete waste shall be disposed of in a manner consistent will all applicable laws, regulations and guidelines.

Anti-tracking Pads and Dust Control

Off –site vehicle tracking of sediments and the generation of dust shall be minimized.
Temporary anti-tracking pads from the active work site to the existing pavement will be installed and maintained at the locations shown on the plans. The contractor shall:

- Maintain the entrance in a condition which will prevent tracking and washing of sediment onto paved surfaces.
- Provide periodic top dressing with additional stone or additional length as conditions demand.
- Repair any measures used to trap sediment as needed.
- Immediately remove all sediment spilled, dropped, washed or tracked onto paved surfaces.
- Ensure roads adjacent to a construction site are left clean at the end of each day.

If the construction entrance is being properly maintained and the action of a vehicle traveling over the stone pad is not sufficient to remove the majority of the sediment, then the contractor shall either:

- Increase the length of the construction entrance,
- Modify the construction access road surface, or
- Install washing racks and associated settling area or similar devices before the vehicle enters a paved surface.

For construction activities which cause airborne particulates, wet dust suppression shall be utilized. Construction site dust will be controlled by sprinkling the ground surface with water until it is moist on an as-needed basis. The volume of water sprayed shall be such that it suppresses dust yet also prevents the runoff of water.

Dust Control

For construction activities which cause airborne particulates, wet dust suppression shall be utilized. Construction site dust will be controlled by sprinkling the ground surface with water until it is moist on an as-needed basis. The volume of water sprayed shall be such that it suppresses dust yet also prevents the runoff of water.

Post-Construction

Upon completion of construction activities and stabilization of the site, all post-construction stormwater structures, including the catch basins shall be cleaned of construction sediment and any remaining silt fence shall be removed prior to acceptance of the project by CTDOT. Sediment shall be properly disposed of in accordance with all applicable laws, regulations and guidelines.

Maintaining and Storing Vehicles and Equipment

The contractor shall take measures to prevent any contamination to wetlands and watercourses while maintaining and storing construction equipment on the site. All chemical and petroleum containers stored on site 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 stored in containers of 100 gallon capacity or more, in which case double-walled tanks will suffice.

7. Inspections

Inspection Guidelines

All construction activities shall be inspected initially for Plan implementation and then weekly for Routine Inspections.

During construction, all areas disturbed by the construction activity that have not been 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 shall be inspected for evidence of, or the potential for, pollutants entering the drainage system and impacts to receiving waters at least once every seven calendar days and within 24 hours of the end of a storm that generates a discharge.

For storms that end on a weekend, holiday or other time in which 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 lesser storms, inspection shall occur immediately upon the start of subsequent normal working hours.

Where sites have been temporarily or finally stabilized, such inspection shall be conducted at least once every month for three months.

Qualified personnel provided by the DOT District 2 Office shall conduct Inspections.

Items to be inspected: the following items shall be inspected as described below:

Item	Procedure
Silt Fence	Silt fence shall be inspected to ensure that the fence line is intact with no breaks or tears. The fence shall be firmly anchored to the ground. Areas where the fence is excessively sagging or where support posts are broken or uprooted shall be noted. Depth of sediment behind the fence shall be noted.
Catch Basin Protection	Protective measures shall be inspected to ensure that

	sediment is not entering the catch basins. Catch basin sumps shall be monitored for sediment deposition. Hay bales shall be inspected to ensure they have not clogged.
Vehicle Entrances / Exits	Locations where vehicles enter or exit the site shall be inspected for evidence of off-site tracking.
General	Construction areas and the perimeter of the site shall be inspected for any evidence of debris that may blow or wash off site or 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.
Hydrodynamic separator	Hydrodynamic separator will be inspected during construction regularly and after storm events to assure it has not filled with sediment.

8. Keeping Plans Current

Revisions to Stormwater Pollution Control Plans:

CTDOT shall amend the Plan if the actions required by the Plan fail to prevent pollution or otherwise comply with provisions of the General Permit. The Plan shall also be amended whenever there is a change in contractors or sub-contractors at the site. If the results of the inspections require modifications to the Stormwater Pollution Control Plan, the plans shall be revised as soon as practicable after the inspection. Such modifications shall provide for a timely implementation of any changes to non-engineered controls on the site within 24 hours and implementation of any changes to the plan within 3 (three) calendar days following the inspection. For Engineered measures, corrective actions shall be implemented on site within 7 (seven) days and incorporated into a revised Plan within 10 (ten) days of the date of inspection

In no event shall the requirements to keep the Plan current or update a Plan, relieve the permittee and their contactor(s) of the responsibility to properly implement any actions required to protect the waters of the State and to comply with all conditions of the permit.

9. Monitoring Requirements

A written report summarizing the scope of the inspection, the name(s) and qualifications of inspection personnel, the date and time of the inspection, major observations relative to the implementation of the Pollution Control Plan, and actions taken shall be completed within 24 hours of the inspection. This report shall be retained as part of the Stormwater Pollution Control Plan for at least five years after the date of the inspection.

Turbidity monitoring shall be conducted at the outfall # PO-1 as depicted in Figure 4 utilizing a procedure consistent with 40 CFR Part 136 (http://www.epa.gov/region9/qa/pdfs/40cfr136_03.pdf) and may be taken manually or by an in-situ turbidity probe or other automatic sampling device equipped to take individual turbidity readings. The first sample shall be taken within the first hour of stormwater discharge from the site and at least three grab samples shall be taken during a storm event and shall be representative of the flow and characteristics of the discharge. Sampling shall be conducted at least monthly 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.

Samples shall be taken during normal working hours, which for this project shall be defined as *Monday through Friday, 7 am to 4 pm.* If a storm continues past working hours, sampling shall resume the following morning or the morning of the next working day following a weekend or Holiday, as long as the discharge continues. Sampling may be temporarily suspended when conditions exist that may reasonably pose a threat to the safety of the person taking the sample.

Within 30 days following the end of each month, the stormwater sampling results shall be submitted on the Stormwater Monitoring Report (SMR) and submit in accordance with Net DMR. If there is no stormwater discharge during a month, sampling is not required, however, SMR's indicating "no discharge" shall still be submitted as required.

10. Contractors

General

This section shall identify all Contractors and Subcontractors who will perform on site actions which may reasonably be expected to cause or have the potential to cause pollution of the waters of the State.

Certification Statement

All contractors and subcontractors must sign the attached statement. All certification will be included in the Stormwater Pollution Control Plan.

State Project No. 103-247

Occum Maintenance Facility
Occum, CT

"I certify under penalty of law that I have read and understand the terms and conditions of the general permit for the discharge of stormwater associated with construction activity. I understand that as Contractor on the project, I am covered by this general permit, and must comply with the terms and conditions of this permit, including, but not limited to, the requirements of the Stormwater Pollution Control Plan prepared for this project."

GENERAL CONTRACTOR

Signed:_____ Date:_____

Title:_____

Firm:_____ Telephone:_____

Address:_____

_____

_____

SUBCONTRACTOR

Signed:_____ Date:_____

Title:_____

Firm:_____ Telephone:_____

Address:_____

_____

_____

List of Applicable Figures and Forms:

Appendix A – Figures

Aerial Photo	Figure 1
Pre-Constructions AI Conditions-	Figure 2
Post-Constructions AI Conditions-	Figure 3
Disturbed/Erodible Areas-	Figure 4

Appendix B – Drainage Calculations

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Existing Drainage Areas	Figure 6
Proposed Drainage Calculations	Figure 7
Proposed Drainage Areas	Figure 8
Riprap Apron Sizing Calculations	Figure 9
Hyrodynamic Separator Calculations	Figure 10
Water Quality Volume Computations	Figure 11

Appendix C – Plan Sheets

Existing Conditions & Boring Locations-	SD-002
Boring Logs -1-	SD-003
Site Plan-	C-004
Drainage Plan-	C-005
Grading Plan-	C-007
Miscellaneous Details -2 -	C-010
Const. Areas & Sed. And Erosion Control -	SD-006
Environmental Impact Areas -	SD-007
Soil Area of Environmental Concern -	ENV-002

Appendix D – Stormwater Monitoring Report Form

Appendix E – Notice of Termination Form

APPENDIX A

Figures
State Project No. 103-247

Project No. 103-247
Occum
Maintenance Facility
FIGURE 1

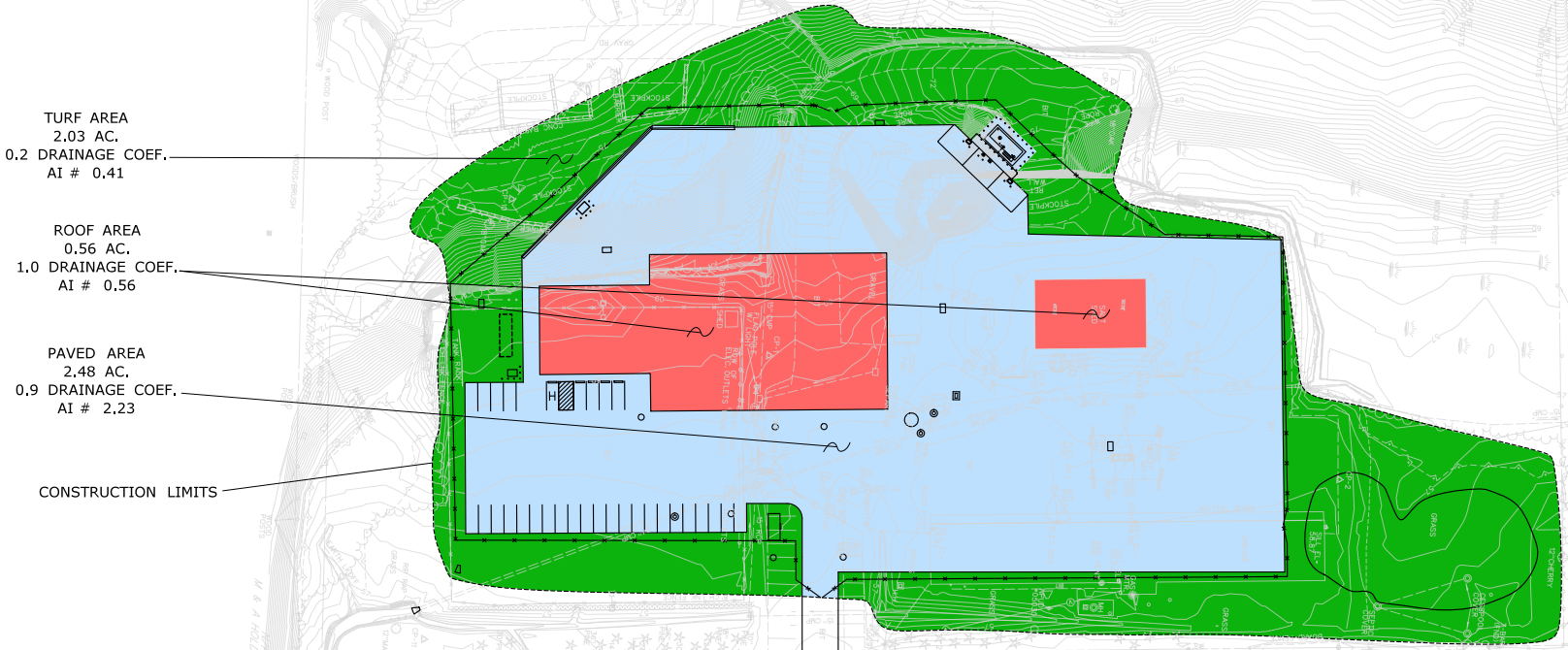
ESTIMATED RUNOFF COEFFICIENT = $\frac{(0.77)(0.2)+(0.85)(0.2)+(2.42)(0.9)+(0.67)(0.7)+(0.36)(1.0)}{0.77+0.85+2.42+0.67+0.36}$ = 0.658

SCALE 1" = 80'

80 0 80

FIGURE 2

OCCUM MAINTENANCE FACILITY
STATE PROJECT #103-247
EXISTING CONDITION



PROPOSED TOTAL AI# 3.20

ESTIMATED RUNOFF COEFFICIENT = $\frac{(2.03)(0.2)+(0.56)(1.0)+(2.48)(0.9)}{2.03+0.56+2.48}$ = 0.631

SCALE 1" = 80'

80 0 80

FIGURE 3

OCCUM MAINTENANCE FACILITY
STATE PROJECT #103-247
PROPOSED CONDITION

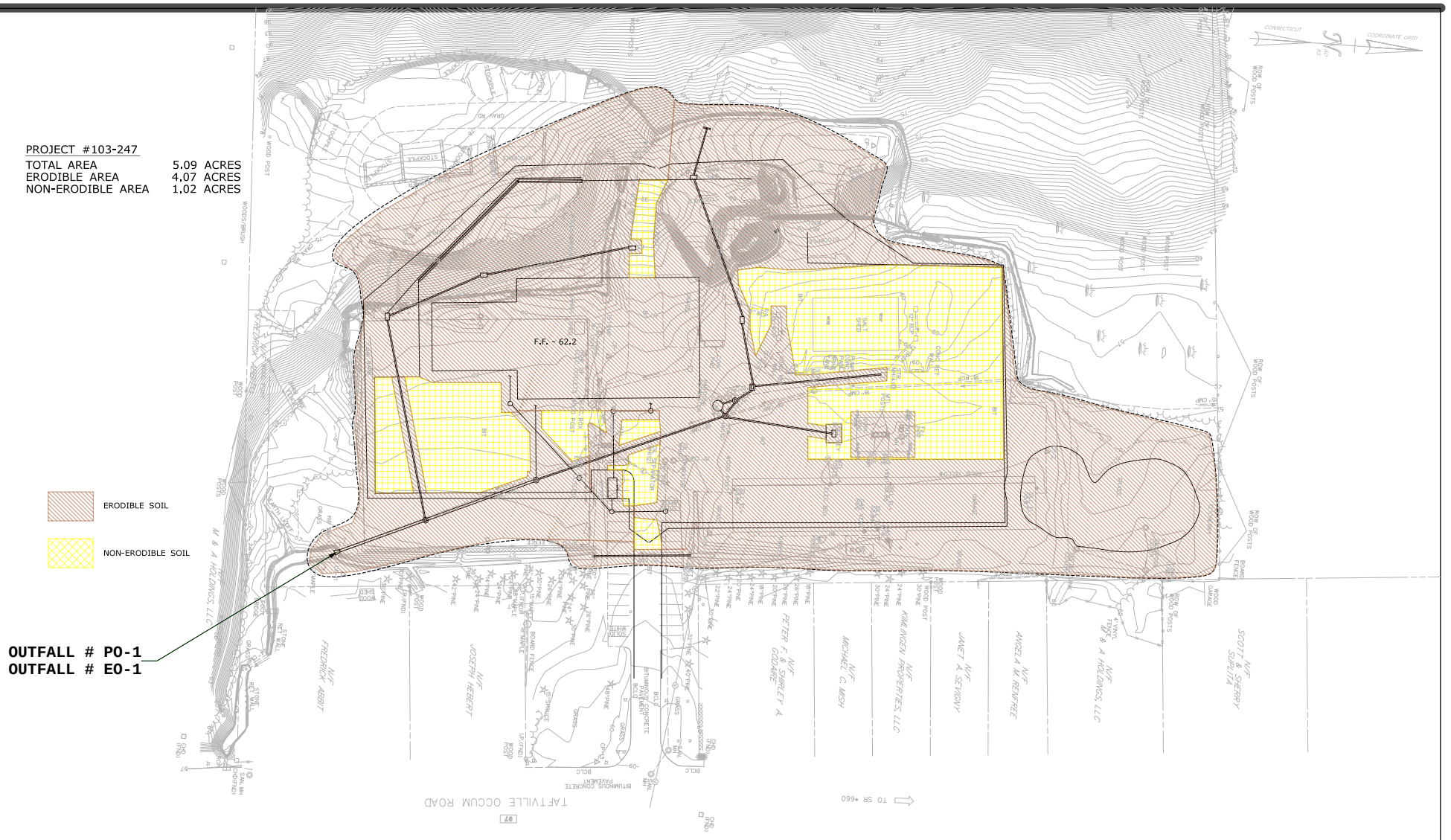


FIGURE 4

OCCUM MAINTENANCE FACILITY
STATE PROJECT #103-247
DISTURBED/ ERODIBLE
AREAS

APPENDIX B

Drainage Calculations
State Project No. 103-247

Project No.: 103-247 Computed By: Malissa Carvalho Date: 4/15/2015
Town: Occum
Route: Checked By: Date:
System:

Existing Storm Drainage System (25 year storm)

Station		A Drainage Area (acres)		C - Runoff Coefficient	AC		T_c Flow Time (min)			I - Rainfall Intensity	Q in System	Pipe			Q_F - Full Capacity (cfs)	Velocity (fps)		Invert Elevations (ft)		Headwater	
From	To	Increment	Total		Increment	Total	To Inlet	In Pipe	Accumulated			Size (in.)	Length (ft.)	Slope (ft/ft)		V_F Flowing Full	V Design Flow	Uppper End	Lower End		"n"
A	B	0.076	0.076	0.66	0.050	0.050	10.00	0.16	10.16	5.5	0.28	12	21	0.007	3.13	3.7	2.1	55.72	55.58	0.5	0.013
B	C	0.021	0.097	0.9	0.019	0.069	10.16	0.25	10.41	5.5	0.38	12	36.7	0.007	3.22	3.8	2.4	55.53	55.27	0.5	0.013
C	D	0.155	0.252	0.93	0.144	0.213	10.41	0.65	11.06	5.4	1.16	12	117	0.005	2.61	3.1	3.0	55.22	54.68	0.5	0.013
E	F	0.113	0.113	0.8	0.090	0.090	10.00	0.38	10.38	5.5	0.50	15	31.8	0.001	2.47	1.9	1.4	55.27	55.23	0.6	0.013
F	G	0.218	0.331	0.8	0.174	0.265	10.38	0.05	10.43	5.4	1.44	15	15.4	0.020	9.71	7.4	5.2	55.18	54.88	0.6	0.013
G	D	0.038	0.369	0.9	0.034	0.299	10.43	0.30	10.73	5.4	1.62	15	52.9	0.004	4.27	3.2	3.0	54.83	54.63	0.7	0.013
D	MH	0.463	1.08	0.9	0.417	0.93	11.06	0.05	11.11	5.3	4.91	15	20.8	0.015	8.62	6.6	6.8	54.88	54.56	0.9	0.013
MH	H	0.000	1.08	0	0.000	0.93	11.11	0.48	11.59	5.3	4.90	18	113	0.004	6.80	3.6	3.9	54.01	53.60	0.8	0.013
I	J	0.073	0.073	0.76	0.055	0.055	10.00	1.15	11.15	5.5	0.31	15	130	0.005	4.87	3.7	1.9	56.02	55.38	0.6	0.013
J	K	0.406	0.48	0.8	0.325	0.38	11.15	0.48	11.63	5.3	2.01	15	75.7	0.002	3.29	2.5	2.6	54.48	54.31	0.6	0.013
L	K	0.393	0.393	0.39	0.153	0.153	10.00	0.46	10.46	5.5	0.84	15	79.3	0.004	5.37	4.1	2.9	56.39	56.11	0.6	0.01
K	H	0.124	1.00	0.59	0.073	0.61	11.63	0.19	11.82	5.2	3.14	15	52.8	0.008	6.12	4.7	4.7	54.21	53.80	0.6	0.013
M	H	0.261	0.261	0.61	0.159	0.159	10.00	0.54	10.54	5.5	0.88	15	85.2	0.005	4.76	3.6	2.6	54.60	54.20	0.6	0.013
H	N	0.233	2.574	0.77	0.179	1.874	11.82	1.16	12.99	5.1	9.63	24	238	0.002	9.86	2.9	3.4	53.55	53.16	1.0	0.013

FIGURE 5

P:\100_0171\drainage\Occum Drainage 04.14.15 (existing)

DRAINAGE AREAS

A- 0.076 acres
B- 0.021 acres
C- 0.155 acres
D- 0.463 acres
E- 0.113 acres
F- 0.218 acres
G- 0.038 acres
H- 0.233 acres
I- 0.073 acres
J- 0.406 acres
K- 0.124 acres
L- 0.393 acres
M- 0.261 acres

Total Area- 2.57 acres

SCALE 1" = 80'

80 0 80

FIGURE 6

OCCUM MAINTENANCE FACILITY
STATE PROJECT #103-247
Existing Drainage Areas

Project No.: 103-247 Computed By: Malissa Carvalho Date: 4/15/2015
Town: Occum
Route: Checked By: Date:
System:

Proposed Storm Drainage System (25 year storm)

Station		A Drainage Area (acres)		C - Runoff Coefficient	AC		T_c Flow Time (min)			I - Rainfall Intensity	Q in System	Pipe			Q_F - Full Capacity (cfs)	Velocity (fps)		Invert Elevations (ft)		Headwater	
From	To	Increment	Total		Increment	Total	To Inlet	In Pipe	Accumulated			Size (in.)	Length (ft.)	Slope (ft/ft)		V_F Flowing Full	V Design Flow	Upper End	Lower End		"n"
A1	A	0.025	0.025	0.2	0.005	0.005	10.00	0.68	10.68	5.5	0.03	12	42	0.055	8.97	10.7	1.0	62.50	60.20	0.5	0.013
A	B	0.110	0.135	0.23	0.025	0.030	10.68	1.14	11.81	5.4	0.16	12	126	0.007	3.20	3.8	1.8	56.20	55.32	0.5	0.013
B	C	0.736	0.871	0.63	0.464	0.494	11.81	0.24	12.06	5.1	2.54	12	54	0.005	2.71	3.2	3.7	55.32	55.05	0.5	0.013
D	E	0.039	0.039	0.93	0.036	0.036	10.00	0.19	10.19	5.5	0.20	12	21	0.007	3.13	3.7	1.9	55.72	55.58	0.5	0.013
E	F	0.045	0.084	0.9	0.041	0.077	10.19	0.25	10.43	5.5	0.42	12	37	0.007	3.21	3.8	2.5	55.53	55.27	0.5	0.013
F	C	0.053	0.137	0.93	0.049	0.126	10.43	0.70	11.13	5.4	0.68	12	110	0.005	2.69	3.2	2.6	55.22	54.68	0.6	0.013
C	G	0.117	1.13	0.9	0.105	0.73	12.06	0.06	12.12	5.1	3.69	15	15	0.005	4.75	3.6	4.0	54.79	54.72	0.9	0.013
G	I	0.000	1.13	0	0.000	0.73	12.12	0.02	12.14	5.1	3.69	15	15	0.085	20.22	15.4	11.2	55.67	54.40	0.6	0.013
J	I	0.390	0.390	0.91	0.355	0.355	10.00	0.58	10.58	5.5	1.95	12	122	0.005	2.71	3.2	3.5	55.10	54.49	0.5	0.013
I	K	0.000	1.52	0	0.000	1.08	12.14	0.78	12.92	5.1	5.49	18	168	0.003	5.91	3.1	3.6	54.10	53.64	0.8	0.013
L	K	0.476	0.476	1	0.476	0.476	5.00	0.16	5.16	6.7	3.19	12	62	0.010	4.98	5.9	6.3	54.26	53.64	0.5	0.01
K	P	0.000	1.99	0	0.000	1.56	12.92	0.41	13.33	5.0	7.79	24	97	0.003	12.60	3.7	3.9	53.64	53.38	1.0	0.013
M	N	0.275	0.275	0.61	0.168	0.168	10.00	0.73	10.73	5.5	0.92	12	125	0.005	2.72	3.2	2.9	59.20	58.57	0.5	0.013
N	O	0.188	0.463	0.9	0.169	0.337	10.73	0.41	11.14	5.4	1.80	12	86	0.005	2.71	3.2	3.5	58.57	58.14	0.5	0.013
O	P	0.256	0.719	0.22	0.056	0.393	11.14	0.53	11.67	5.3	2.07	12	174	0.016	4.90	5.8	5.5	58.14	55.30	0.5	0.013
P	Outlet	0.000	2.71	0	0.000	1.95	13.33	0.33	13.66	4.9	9.62	24	82	0.003	12.60	3.7	4.2	53.38	53.16	1.0	0.013

FIGURE 7

DRAINAGE AREAS

A1- 0.025 acres
A- 0.110 acres
B- 0.736 acres
C- 0.117 acres
D- 0.039 acres
E- 0.045 acres
F- 0.053 acres
J- 0.390 acres
L- 0.476 acres
M- 0.275 acres
N- 0.188 acres
O- 0.256 acres

Total Area- 2.71 acres

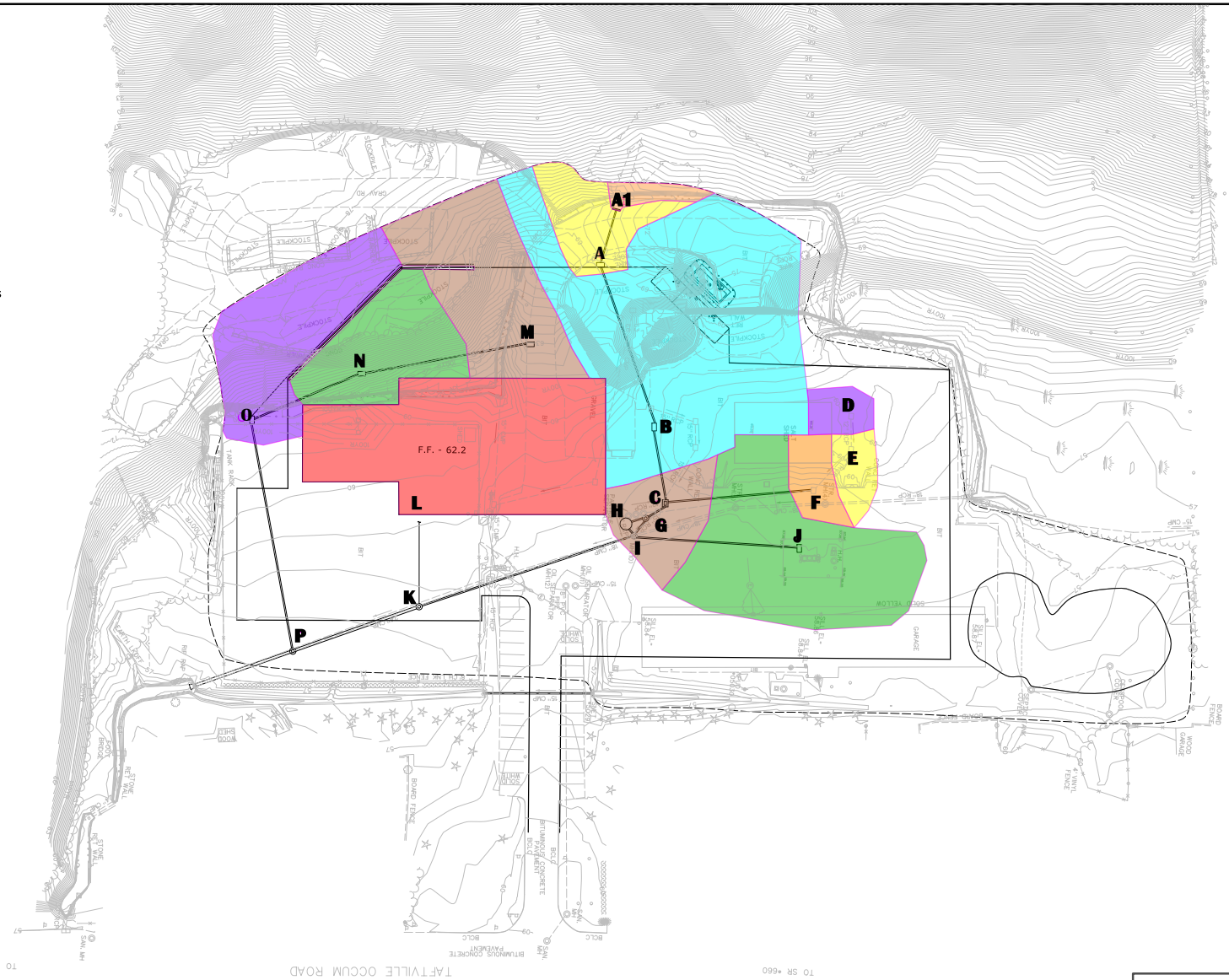


FIGURE 8

OCCUM MAINTENANCE FACILITY
STATE PROJECT #103-247
Proposed Dralnage Areas

Appendix A – Outlet Protection Form

OUTLET PROTECTION

Project No.: 103-247 **Designed By:** M. Carvalho **Date:** 05/15/15
Town: Occum **Checked By:** _____ **Date:** _____
Route: _____ **Station:** _____

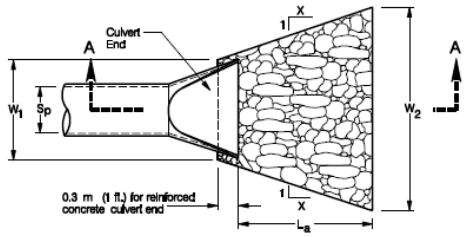
1. Assess the erosion potential at the outlet and other critical site factors

Describe the conditions at the outlet location:

_____
_____
_____
_____
_____
_____

☒ No well-defined channel
☐ Well-defined channel

Sketch



CULVERT END PLAN VIEW

2. Determine the tailwater (TW) conditions at the outlet

TW depth: _____ TW elevation: _____
TW computational method: _____
Channel bed elevation: _____ Estimated velocity in channel: _____

3. Calculate and evaluate the outlet velocity for the design discharge

Design Discharge: 8.25 cfs Design Frequency: 10 yr
Outlet Pipe Size: 24 in. Type: RCP
Length: 82 ft Slope: 0.3% Outlet Invert Elevation: 53.16 ft
Outlet Velocity at design discharge: 4 fps
Velocity computational method: ConnDOT Drainage Manual

4. Select the type of outlet protection

☒ Riprap Apron
(See Figures 11-13 & 11-14)

Type A (A,B,C)

Riprap type: Modified
Length (L_a): 21 ft
Width (W_1): 8 ft
Width (W_2): 27 ft
Width-Type C (W_3): _____

☐ Preformed Scour Hole
(See Figure 11-15)

	Type 1	Type 2
d_{50}	_____	_____
F	_____	_____
C	_____	_____
B	_____	_____
S_p	_____	_____

Proposed Type: _____
Riprap Type: _____

Project No.: 103-247 Computed By: Malissa Carvalho Date: 4/15/2015
Town: Occum
Route: Checked By: Date:
System:

Proposed Storm Drainage System (10 year storm)

Station		A Drainage Area (acres)		C - Runoff Coefficient	AC		T_c Flow Time (min)			I - Rainfall Intensity	Q in System	Pipe			Q_F - Full Capacity (cfs)	Velocity (fps)		Invert Elevations (ft)		Headwater	
From	To	Increment	Total		Increment	Total	To Inlet	In Pipe	Accumulated			Size (in.)	Length (ft.)	Slope (ft/ft)		V_F Flowing Full	V Design Flow	Upper End	Lower End		"n"
A1	A	0.025	0.025	0.2	0.005	0.005	10.00	0.68	10.68	4.8	0.02	12	42	0.055	8.97	10.7	1.0	62.50	60.20	0.5	0.013
A	B	0.110	0.135	0.23	0.025	0.030	10.68	1.42	12.10	4.7	0.14	12	126	0.007	3.20	3.8	1.5	56.20	55.32	0.5	0.013
B	C	0.736	0.871	0.63	0.464	0.494	12.10	0.25	12.35	4.5	2.21	12	54	0.005	2.71	3.2	3.6	55.32	55.05	0.5	0.013
D	E	0.039	0.039	0.93	0.036	0.036	10.00	0.19	10.19	4.8	0.17	12	21	0.007	3.13	3.7	1.9	55.72	55.58	0.5	0.013
E	F	0.045	0.084	0.9	0.041	0.077	10.19	0.26	10.45	4.8	0.37	12	37	0.007	3.21	3.8	2.4	55.53	55.27	0.5	0.013
F	C	0.053	0.137	0.93	0.049	0.126	10.45	0.74	11.19	4.8	0.60	12	110	0.005	2.69	3.2	2.5	55.22	54.68	0.6	0.013
C	G	0.117	1.13	0.9	0.105	0.73	12.35	0.06	12.41	4.4	3.21	15	15	0.005	4.75	3.6	3.9	54.79	54.72	0.9	0.013
G	I	0.000	1.13	0	0.000	0.73	12.41	0.02	12.43	4.4	3.20	15	15	0.085	20.22	15.4	10.9	55.67	54.40	0.6	0.013
J	I	0.390	0.390	0.91	0.355	0.355	10.00	0.60	10.60	4.8	1.70	12	122	0.005	2.71	3.2	3.4	55.10	54.49	0.5	0.013
I	K	0.000	1.52	0	0.000	1.08	12.43	0.80	13.23	4.4	4.77	18	168	0.003	5.91	3.1	3.5	54.10	53.64	0.8	0.013
L	K	0.476	0.476	1	0.476	0.476	5.00	0.18	5.18	4.8	2.28	12	62	0.010	4.98	5.9	5.8	54.26	53.64	0.5	0.01
K	P	0.000	1.99	0	0.000	1.56	13.23	0.43	13.66	4.3	6.66	24	97	0.003	12.60	3.7	3.8	53.64	53.38	1.0	0.013
M	N	0.275	0.275	0.61	0.168	0.168	10.00	0.77	10.77	4.8	0.81	12	125	0.005	2.72	3.2	2.7	59.20	58.57	0.5	0.013
N	O	0.188	0.463	0.9	0.169	0.337	10.77	0.43	11.20	4.7	1.59	12	86	0.005	2.71	3.2	3.3	58.57	58.14	0.5	0.013
O	P	0.256	0.719	0.22	0.056	0.393	11.20	0.55	11.75	4.7	1.83	12	174	0.016	4.90	5.8	5.3	58.14	55.30	0.5	0.013
P	Outlet	0.000	2.71	0	0.000	1.95	13.66	0.34	14.00	4.2	8.25	24	82	0.003	12.60	3.7	4.0	53.38	53.16	1.0	0.013

FIGURE 9-2

Hydrodynamic Separator Calculations

The area contributing to the separator is 1.125 acres, of which 0.707 is impervious.

WQV = (1") (0.05 + 0.009 I) (A) / 12

WQV = Water Quality Volume, acres ft
R = Volumetric Runoff Coefficient = .05+.009(I)
I = Percent of Impervious Cover (%)
A = Site Area, acres

WQV = (1") [0.05 + 0.009 x ((0.707/1.125) x 100%)] x 1.125/ 12 = 0.0577 acre-ft

Q = (WQV)(12 in/ft) / A

Q = runoff depth, in.
WQV = Water Quality Volume, ac-ft
A = drainage area, acres

Q = (.0577*12)/1.125 = 0.62 in

$CN= 1000/[10+5P+10Q-10(Q^2+1.25QP)^{1/2}]$

CN= Runoff Curve Number
P = design precipitation, inches (1" for water quality storm)
Q = runoff depth (in watershed inches)

$CN= 1000/[10 + 5*1 + 10*0.62 – 10*(.62^2 + 1.25*0.62*1)^{1/2}] = 95.88$

I_a = 0.229" *(from Table 4-1 TR-55 Manual)*

q_u = 960 csm/in (Type III storm) *(from Exhibit 4-11 TR55 Manual)*

$WQF = (q_u)*(A)*(Q)$

WQF = water quality flow (cfs)
qu = unit peak discharge (cfs/mi^2/inch)
A = drainage area (mi^2)
Q = runoff depth (in watershed inches)

WQF = (960)*(.0018)*(.62) = 1.07 cfs

Water Quality Volume Computations

Occum Maintenance Facility

The hydrodynamic separator to be installed at the access drive to the salt shed service area a total of basin receives flow from a total of 1.125 acres, of which 0.707 acres is impervious. The required storage for the "first flush" is as follows:

WQV = (1")(0.05+0.009I)(A) / 12

WQV = Water Quality Volume
I = Percent Impervious Cover (%)
A = Area (acre)

WQV = (1")[0.05+0.009 x ((0.707/1.125) x 100%)] x 1.125/12

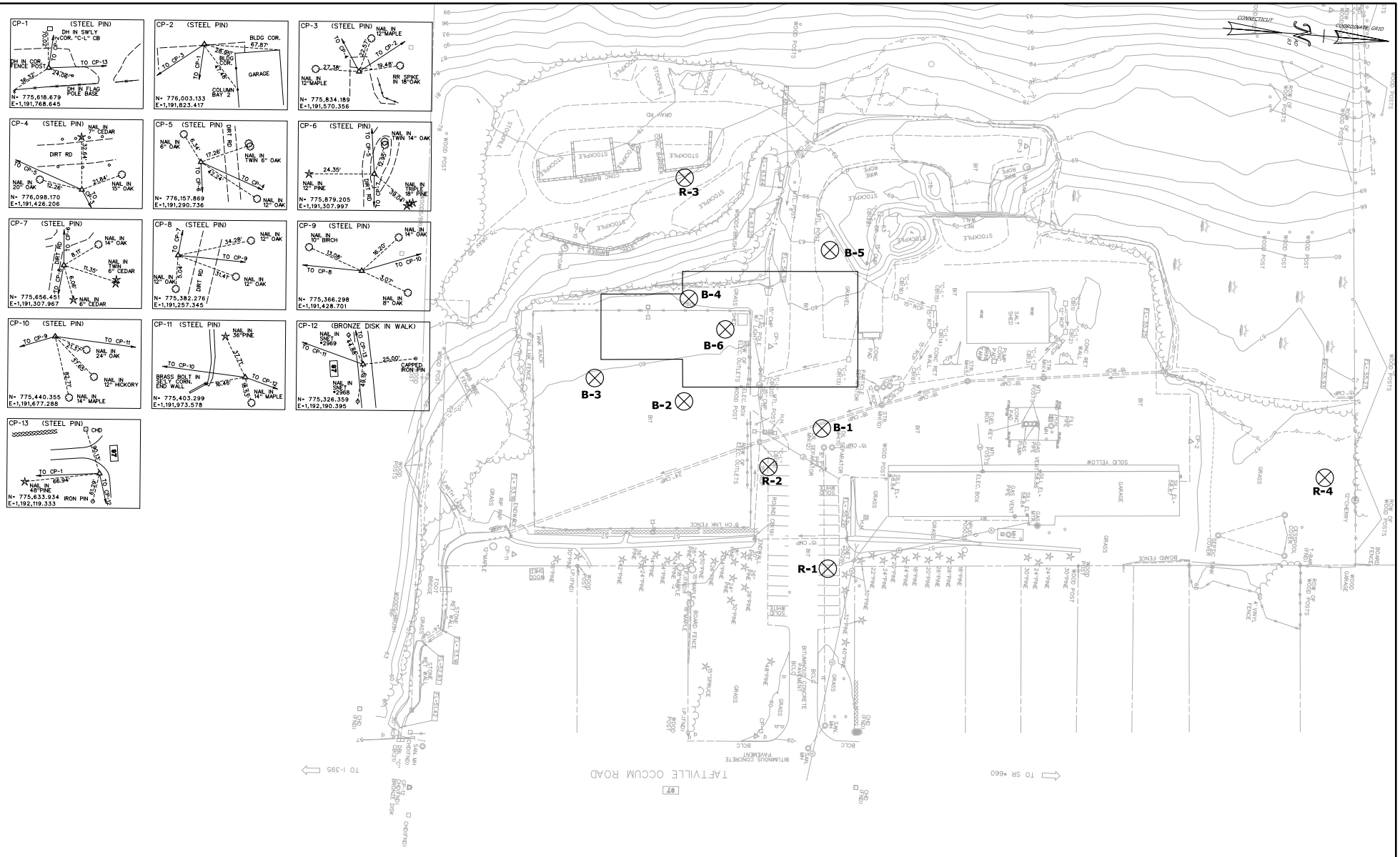
WQV = 2,514 cf

The hydrodynamic separator will be sized to accommodate the flow (WQF) associated with this volume, 1.07 cfs. The special provision for the hydrodynamic separator included in the contract documents also requires that the unit can accommodate a minimum of 1.5 cubic yards of sediment storage in the sump. This requirement will result in the installation of a unit which can treat a larger flow than what is required.

FIGURE 11

APPENDIX C

Plan Sheets
State Project No. 103-247



REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Plotted Date: 8/12/2015

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

DESIGNER/DRAFTER: ME
CHECKED BY: SK
SCALE IN FEET
0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FD_MSH_CIV_0103_0247_SD002.dgn

SIGNATURE/BLOCK:
OFFICE OF ENGINEERING
APPROVED BY:

PROJECT TITLE:
OCCUM MAINTENANCE FACILITY

TOWN: OCCUM

DRAWING TITLE:
EXISTING CONDITIONS & BORING LOCATIONS

PROJECT NO. 103-247
DRAWING NO. SD-002
SHEET NO.

Driller: T. Roe	**Connecticut DOT Boring Report**		Hole No.: B-1
Inspector: A. Hare	Town: Norwich		Stat./Offset:
Engineer: A. Hare	Project No.: 0103-0247		Northing: 775671.627
Start Date: 11-7-14	Route No.:		Easting: 1191827.719
Finish Date: 11-7-14	Bridge No.:		Surface Elevation: 57.8
Project Description: New Maintenance Facility			
Casing Size/Type: 4"	Sampler Type/Size: 2" SS		Core Barrel Type: NQ2
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @5 after 0 hours			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	22 26 27 21	24	15 4		PAVEMENT STRUCTURE/ MISC. FILL	Brown f-c SAND, little f-c gravel, tr. silt Subbase gravel	55
5	S-2	13 17 8 5	24	14 2		SAND and GRAVEL	Brown f-c SAND, tr. silt Dark brown f SAND, some silt	50
10	S-3	21 50/4"	10	2			Brown f-c SAND and f-c GRAVEL	45
15	S-4	34 11 20 21	24	8		GLACIAL TILL	Gray f SAND little c gravel	40
20	C-1		60	62	92	BEDROCK	Gray GNEISS, medium grained, slightly weathered, slightly fractured, joints spaced 1 to 10 inches, hard.Core times: 5, 5, 5,5, 6, 7,5 min.	35
25	C-2		60	57			Gray GNEISS, medium grained, slightly weathered, slightly fractured, joints spaced 0 to 9 inches, hard.Core times: 6, 5,5, 6.5, 6, 7 min.	30
30							END OF BORING 29ft	25
35								20
40								15
45								10
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Pison V = Vane Shear Test
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 18.5ft Rock: 10.5ft	NOTES: Solid Stem Augers to 10 ft, 4" Casing to depth.	Sheet 1 of 1
No. of Soil Samples: 4 No. of Core Runs: 2		SM-001-M REV. 1/02

Driller: T. Roe	**Connecticut DOT Boring Report**		Hole No.: B-3
Inspector: A. Hare	Town: Norwich		Stat./Offset:
Engineer: A. Hare	Project No.: 0103-0247		Northing: 775458.216
Start Date: 11-3-14	Route No.:		Easting: 1191813.275
Finish Date: 11-4-14	Bridge No.:		Surface Elevation: 59.8
Project Description: New Maintenance Facility			
Casing Size/Type: 4"	Sampler Type/Size: 2" SS		Core Barrel Type: NQ2
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @4.5 after 0 hours			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	20 50 18 16	24	12		PAVEMENT STRUCTURE/ MISC FILL	Brown f-c SAND, tr. c gravel	55
5	S-2	6 5 5 7	24	8		SAND AND GRAVEL	Brown f-c SAND, little c gravel	50
10	S-3	16 22 26 30	24	5			Orangeish brown f-c SAND and c GRAVEL, tr. silt	45
15	S-4	8 8 6 6	24	8			Brown f-m SAND, tr. silt	40
20	S-5	16 18 25 50	24	6		GLACIAL TILL	Brown f SAND, tr. silt Dark brown f-c SAND, some f-c gravel, tr. silt	35
25	C-1		60	58	46	WEATHERED BEDROCK/ BEDROCK	Gray GNEISS, medium grained, amythest inclusions interbedded with granite. Core times: 3, 3,5, 3,5, 4, 5.	30
30	C-2		60	62	100		Gray GNEISS, medium grained, amythest inclusions interbedded with granite. Core times: 3,5, 3,5, 4, 4,5, 4,5 min.	25
35							END OF BORING 36ft	20
40								15
45								10
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 24ft Rock: 12ft	NOTES: Solid Stem Augers to 10 ft. 4" Casing to depth.	Sheet 1 of 1
No. of Soil Samples: 5 No. of Core Runs: 2		SM-001-M REV. 1/02

Driller: T. Roe	**Connecticut DOT Boring Report**		Hole No.: B-2
Inspector: A. Hare	Town: Norwich		Stat./Offset:
Engineer: A. Hare	Project No.: 0103-0247		Northing: 775531.379
Start Date: 11-3-14	Route No.:		Easting: 1191819.896
Finish Date: 11-3-14	Bridge No.:		Surface Elevation: 59.6
Project Description: New Maintenance Facility			
Casing Size/Type: 4"	Sampler Type/Size: 2" SS		Core Barrel Type: NQ2
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @4.5 after 0 hours			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	18 19 29 50	24	19		PAVEMENT STRUCTURE/ MISC FILL	Brown f-c SAND, some f-c gravel, tr. silt, cobbles present	55
5	S-2	3 5 6 9	24	12		SAND AND GRAVEL	Brown f-c SAND, tr. c gravel, tr. silt	50
10	S-3	21 26 44 50/5"	23	15			Brown f-c SAND, some c gravel, tr silt, with cobbles	45
15	S-4	11 11 11 11	24	16		GLACIAL TILL	Gray f SAND, little f gravel, tr. silt	40
20	S-5	50/1"	1	0			No Recovery,	35
25	C-1		60	58	93	BEDROCK	Gray GNEISS, medium grained, fresh, unweathered fractures, joints spaced 2 to 20 inches, hard. Core times: 4, 5, 4.5, 5, 4 min.	30
30	C-2		60	57	69		Gray GNEISS, medium-grained, top 42 inches fresh unweathered joints spaced 12 to 23 inches, bottom 15 inches highly fractures moderately weathered, joints spaced 0 to 3 inches, medium hardness. Core times: 4.5, 4, 5, 3.5, 3.5 min.	25
35							END OF BORING 35ft	20
40								15
45								10
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 23.75ft Rock: 11.25ft	NOTES: Solid Stem Augers to 10 ft, 4" Casing to depth.	Sheet 1 of 1
No. of Soil Samples: 5 No. of Core Runs: 2		SM-001-M REV. 1/02

Driller: T. Roe	**Connecticut DOT Boring Report**		Hole No.: B-4
Inspector: A. Hare	Town: Norwich		Stat./Offset:
Engineer: A. Hare	Project No.: 0103-0247		Northing: 775543.577
Start Date: 11-5-14	Route No.:		Easting: 1191734.938
Finish Date: 11-5-14	Bridge No.:		Surface Elevation: 59.9
Project Description: New Maintenance Facility			
Casing Size/Type: 4"	Sampler Type/Size: 2" SS		Core Barrel Type: NQ2
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @2 after 0 hours			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	2 5 5 10	24	12 8		TOPSOIL/ MISC FILL	TOPSOIL Brown f-c SAND, little f-c gravel, t.silt	55
5	S-2	5 4 4 5	24	9		SAND AND GRAVEL	Brown f-c SAND, little f-c gravel, tr. silt, with cobbles	50
10	S-3	23 28 31	18				Brown f-c SAND, some f-c gravel, tr. silt, with cobbles	45
15	S-4	33 50/5"	11	10		BEDROCK	Brown f SAND, some c gravel, tr. silt, with cobbles	40
20	C-1		60	57	90		Gray GNEISS, medium grained, slightly fractured, slightly weathered, joints spaced 3 to 13,5 inches, hard, Core times: 4,5, 5, 5,5, 6, 6,5 min.	35
25	C-2		60	54	54		Gray GNEISS, medium grained, slightly fractured, slightly weathered, joints spaced 0 to 14 inches, hard. Core times: 4.5, 3.5, 5.5, 5, 4.5 min.	30
30							END OF BORING 26.5ft	25
35								20
40								15
45								10
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 16.5ft Rock: 10ft	NOTES: Solid Stem Augers to 10 ft. 4" Casing to depth.	Sheet 1 of 1
No. of Soil Samples: 4 No. of Core Runs: 2		SM-001-M REV. 1/02

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 8/12/2015

DESIGNER/DRAFTER: **ME**
CHECKED BY: **SK**
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\PD_MSH_CIV_0103_0247_SD003.dgn

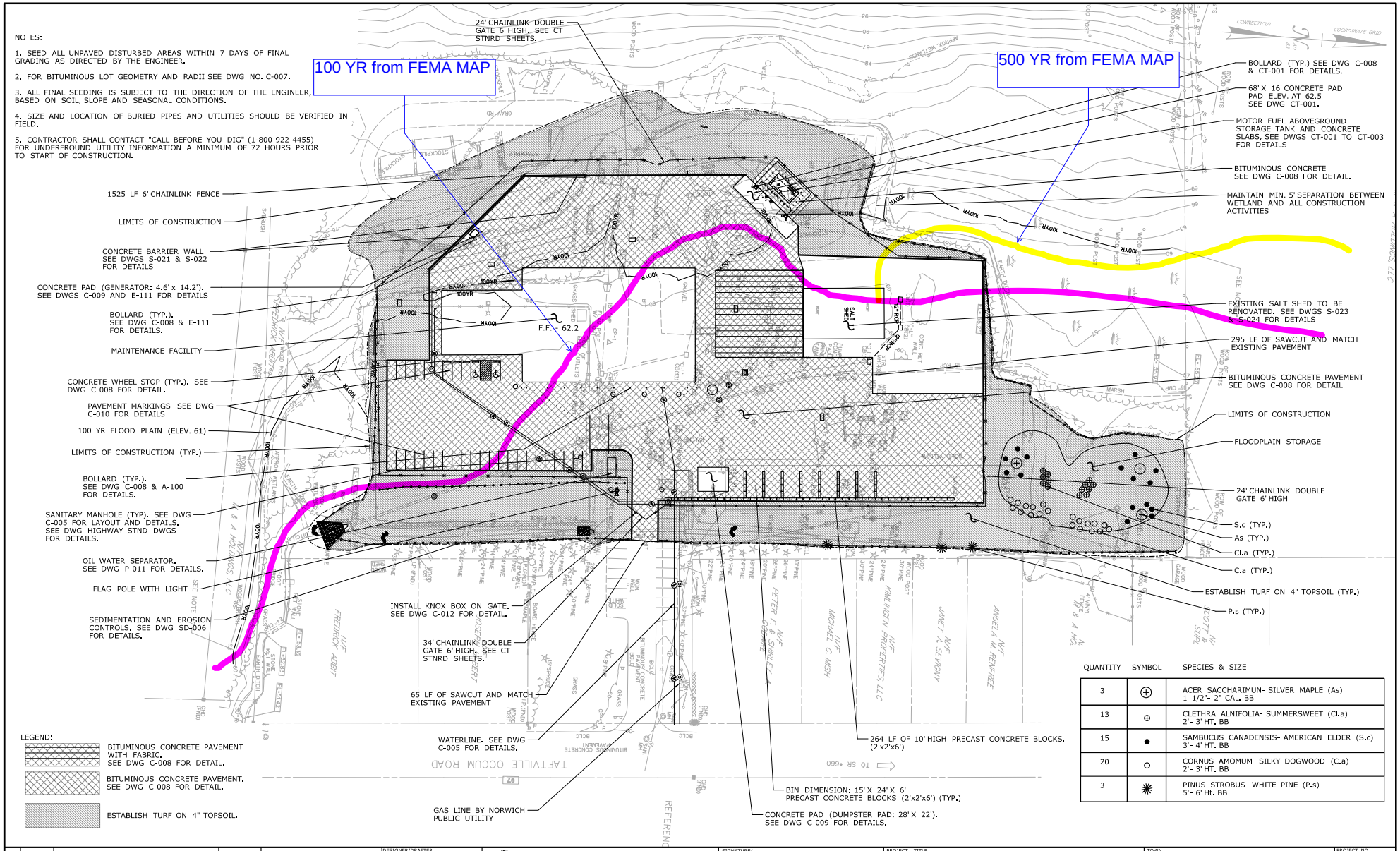
SIGNATURE/ BLOCK:
OFFICE OF ENGINEERING
APPROVED BY:

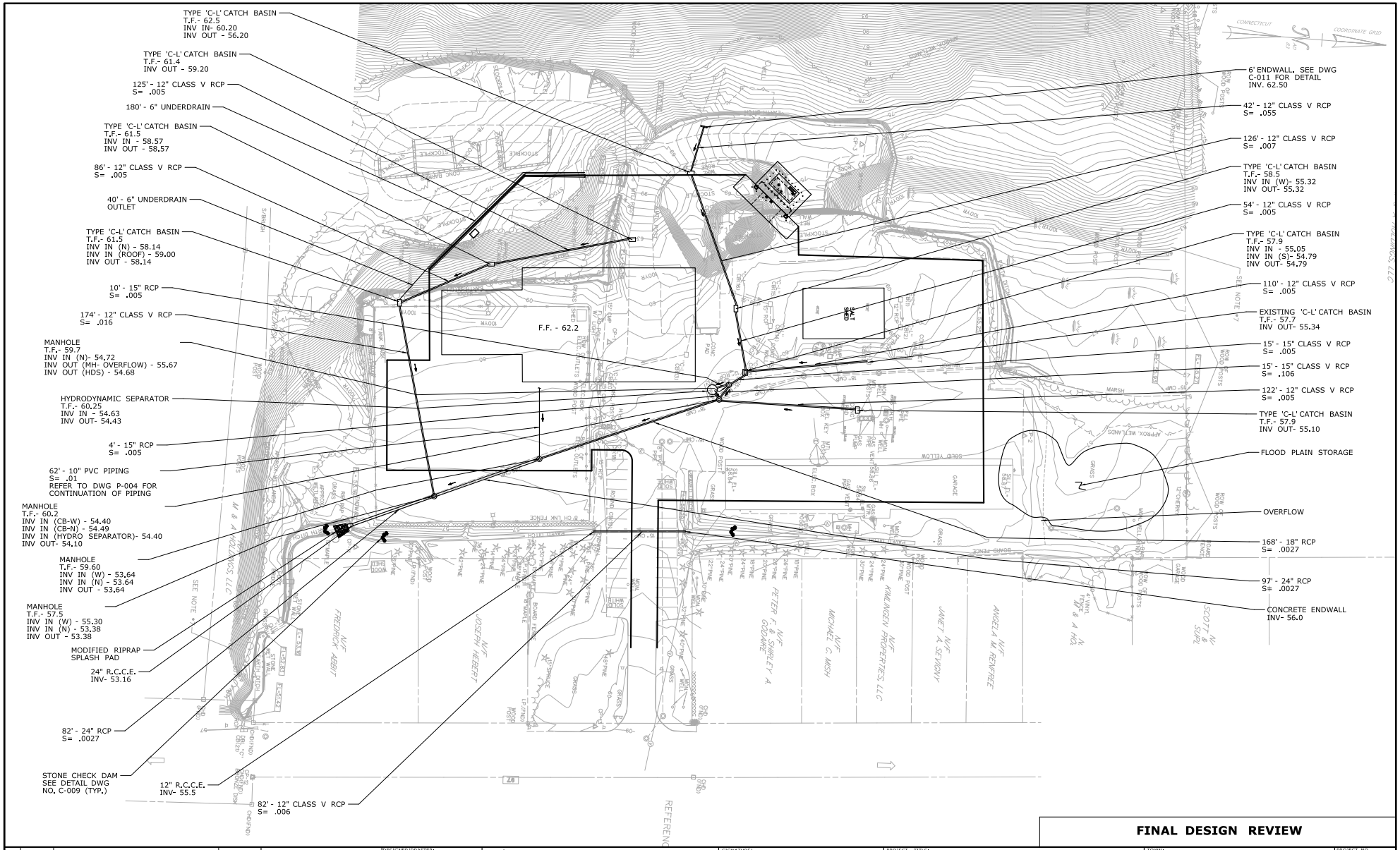
PROJECT TITLE:
OCCUM MAINTENANCE FACILITY

TOWN: **OCCUM**

DRAWING TITLE: **BORING LOGS- 1**

PROJECT NO. **103-247**
DRAWING NO. **SD-003**
SHEET NO.


NOTES:
1. SEED ALL UNPAVED DISTURBED AREAS WITHIN 7 DAYS OF FINAL GRADING AS DIRECTED BY THE ENGINEER.
2. FOR BITUMINOUS LOT GEOMETRY AND RADII SEE DWG NO. C-007.
3. ALL FINAL SEEDING IS SUBJECT TO THE DIRECTION OF THE ENGINEER, BASED ON SOIL, SLOPE AND SEASONAL CONDITIONS.
4. SIZE AND LOCATION OF BURIED PIPES AND UTILITIES SHOULD BE VERIFIED IN FIELD.
5. CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" (1-800-922-4455) FOR UNDERFROUND UTILITY INFORMATION A MINIMUM OF 72 HOURS PRIOR TO START OF CONSTRUCTION.
100 YR from FEMA MAP
500 YR from FEMA MAP
24' CHAINLINK DOUBLE GATE 6' HIGH. SEE CT STNRD SHEETS.
1525 LF 6' CHAINLINK FENCE
LIMITS OF CONSTRUCTION
CONCRETE BARRIER WALL SEE DWGS S-021 & S-022 FOR DETAILS
CONCRETE PAD (GENERATOR: 4.6' x 14.2'). SEE DWGS C-009 AND E-111 FOR DETAILS
BOLLARD (TYP.). SEE DWG C-008 & E-111 FOR DETAILS.
MAINTENANCE FACILITY
CONCRETE WHEEL STOP (TYP.). SEE DWG C-008 FOR DETAIL.
PAVEMENT MARKINGS- SEE DWG C-010 FOR DETAILS
100 YR FLOOD PLAIN (ELEV. 61)
LIMITS OF CONSTRUCTION (TYP.)
BOLLARD (TYP.). SEE DWG C-008 & A-100 FOR DETAILS.
SANITARY MANHOLE (TYP). SEE DWG C-005 FOR LAYOUT AND DETAILS. SEE DWG HIGHWAY STND DWGS FOR DETAILS.
OIL WATER SEPARATOR. SEE DWG P-011 FOR DETAILS.
FLAG POLE WITH LIGHT
SEDIMENTATION AND EROSION CONTROLS. SEE DWG SD-006 FOR DETAILS.
F.F. - 62.2
INSTALL KNOX BOX ON GATE. SEE DWG C-012 FOR DETAIL.
34' CHAINLINK DOUBLE GATE 6' HIGH. SEE CT STNRD SHEETS.
65 LF OF SAWCUT AND MATCH EXISTING PAVEMENT
WATERLINE. SEE DWG C-005 FOR DETAILS.
GAS LINE BY NORWICH PUBLIC UTILITY
264 LF OF 10' HIGH PRECAST CONCRETE BLOCKS. (2'x2'x6')
BIN DIMENSION: 15' X 24' X 6' PRECAST CONCRETE BLOCKS (2'x2'x6') (TYP.)
CONCRETE PAD (DUMPSTER PAD: 28' X 22'). SEE DWG C-009 FOR DETAILS.
BOLLARD (TYP.) SEE DWG C-008 & CT-001 FOR DETAILS.
68' X 16' CONCRETE PAD PAD ELEV. AT 62.5 SEE DWG CT-001.
MOTOR FUEL ABOVEGROUND STORAGE TANK AND CONCRETE SLABS, SEE DWGS CT-001 TO CT-003 FOR DETAILS
BITUMINOUS CONCRETE SEE DWG C-008 FOR DETAIL.
MAINTAIN MIN. 5' SEPARATION BETWEEN WETLAND AND ALL CONSTRUCTION ACTIVITIES
EXISTING SALT SHED TO BE RENOVATED. SEE DWGS S-023 & S-024 FOR DETAILS
295 LF OF SAWCUT AND MATCH EXISTING PAVEMENT
BITUMINOUS CONCRETE PAVEMENT SEE DWG C-008 FOR DETAIL
LIMITS OF CONSTRUCTION
FLOODPLAIN STORAGE
24' CHAINLINK DOUBLE GATE 6' HIGH
S.c (TYP.)
As (TYP.)
Cl.a (TYP.)
C.a (TYP.)
ESTABLISH TURF ON 4" TOPSOIL (TYP.)
P.s (TYP.)
LEGEND:
BITUMINOUS CONCRETE PAVEMENT WITH FABRIC. SEE DWG C-008 FOR DETAIL.
BITUMINOUS CONCRETE PAVEMENT. SEE DWG C-008 FOR DETAIL.
ESTABLISH TURF ON 4" TOPSOIL.
QUANTITY SYMBOL SPECIES & SIZE
3 ACER SACCHARIMUN- SILVER MAPLE (As) 1 1/2"- 2" CAL. BB
13 CLETHRA ALNIFOLIA- SUMMERSWEET (Cl.a) 2'- 3' HT. BB
15 SAMBUCUS CANADENSIS- AMERICAN ELDER (S.c) 3'- 4' HT. BB
20 CORNUS AMOMUM- SILKY DOGWOOD (C.a) 2'- 3' HT. BB
3 PINUS STROBUS- WHITE PINE (P.s) 5'- 6' Ht. BB
THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.
REV. DATE REVISION DESCRIPTION SHEET NO.
Plotted Date: 9/10/2015
DESIGNER/DRAFTER: ME
CHECKED BY: SK
SCALE IN FEET
0 40 80
SCALE 1"=40'
STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
Filename: ..\FD_MSH_CIV_0103_0247_C003.dgn
SIGNATURE/ BLOCK:
OFFICE OF ENGINEERING
APPROVED BY:
PROJECT TITLE:
OCCUM MAINTENANCE FACILITY
TOWN: OCCUM
DRAWING TITLE: SITE PLAN
PROJECT NO. 103-247
DRAWING NO. C-003
SHEET NO.



FINAL DESIGN REVIEW

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 4/21/2015

DESIGNER/DRAFTER: ME
CHECKED BY: SK
SCALE IN FEET
0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FD_MSH_CIV_0103_0247_C005.dgn

SIGNATURE/BLOCK:
OFFICE OF ENGINEERING
APPROVED BY:

PROJECT TITLE:
OCCUM MAINTENANCE FACILITY

TOWN: OCCUM

DRAWING TITLE: DRAINAGE PLAN

PROJECT NO. 103-247
DRAWING NO. C-004
SHEET NO.

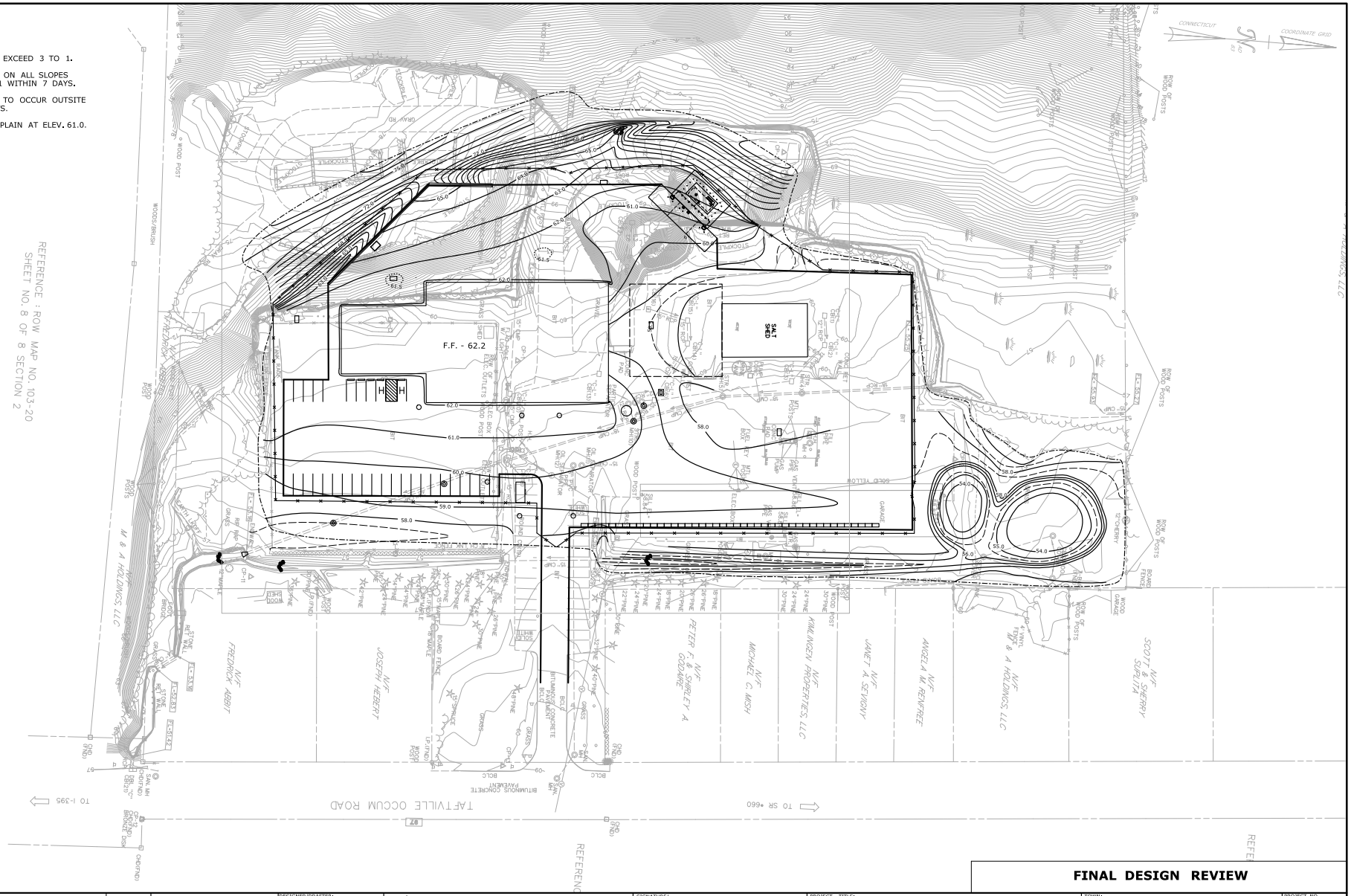
NOTE

1. SLOPES NOT TO EXCEED 3 TO 1.

2. ESTABLISH TURF ON ALL SLOPES EXCEEDING 4 TO 1 WITHIN 7 DAYS.

3. ALL EARTHWORK TO OCCUR OUTSITE OF WETLAND LIMITS.

4. 100 YR FLOOD PLAIN AT ELEV. 61.0.



FINAL DESIGN REVIEW

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 4/21/2015

DESIGNER/DRAFTER: ME
CHECKED BY: SK
SCALE IN FEET
0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FD_MSH_CIV_0103_0247_C007.dgn

SIGNATURE/BLOCK:
OFFICE OF ENGINEERING
APPROVED BY:

PROJECT TITLE:
OCCUM MAINTENANCE FACILITY

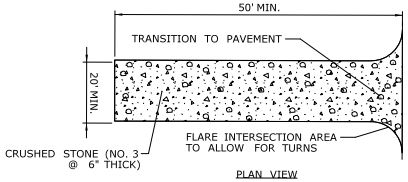
TOWN: OCCUM

DRAWING TITLE: GRADING PLAN

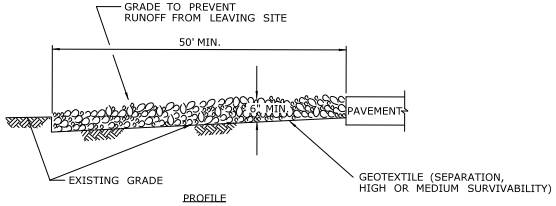
PROJECT NO. 103-247

DRAWING NO. C-006

SHEET NO.



PLAN VIEW

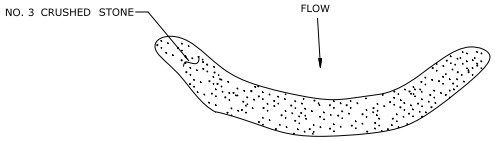


PROFILE

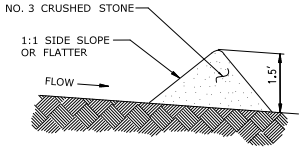
ANTI-TRACKING PAD

NOTE:

1. LOCATION TO BE APPROVED BY ENGINEER
2. ADJACENT PAVED ACCESS TO BE CLEANED ONCE A DAY.
3. MUD MUST BE REMOVED FROM ALL CONSTRUCTION VEHICLES BEFORE ENTERING PUBLIC ROADS.
4. PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP SEDIMENT BEFORE IT IS CARRIED OFF-SITE.



TOP VIEW



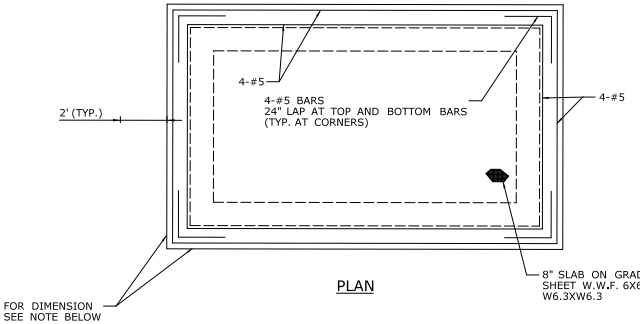
SIDE VIEW

NOTES:

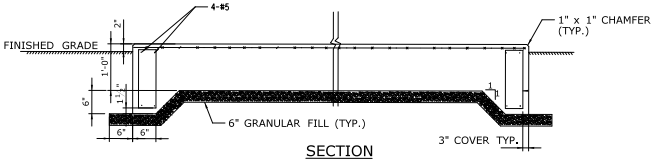
1. STONE CHECK DAM SHALL EXTEND THE FULL WIDTH OF THE BASIN, PLUS 18 INCHES KEYED INTO THE BANKS ON EACH SIDE.
2. THE HEIGHT OF THE CENTER OF THE CHECK DAM SHALL BE 6 INCHES LOWER THAN THE HEIGHT OF THE OUTER EDGES.

STONE CHECK DAM

NOT TO SCALE



PLAN

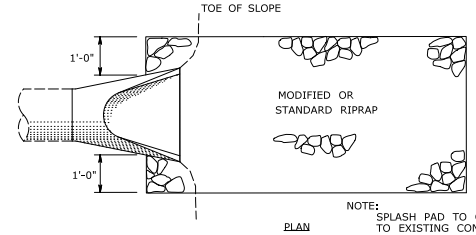


SECTION

NOTE:
1. GENERATOR PAD TO BE 4.6' X 14.2'. REFER TO DWG C-004 AND C-008 FOR PAD LOCATION.
2. CONCRETE SHALL BE CLASS F. REINFORCING SHALL BE EPOXY COATED ASTM A615 GRADE 60.

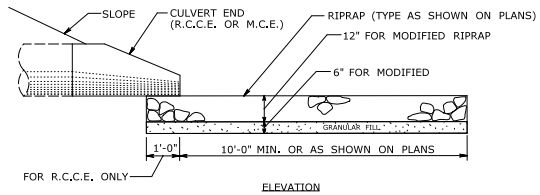
CONCRETE PAD

NOT TO SCALE



PLAN

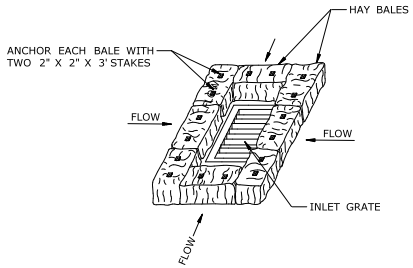
NOTE: SPLASH PAD TO CONFORM TO EXISTING CONTOURS.



ELEVATION

SPLASH PAD DETAIL (CULVERT END)

NOT TO SCALE



HAY BALE INSTALLATION AT CATCH BASIN

NOT TO SCALE

FINAL DESIGN REVIEW

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 4/24/2015

DESIGNER/DRAFTER: ME
CHECKED BY: SK
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FD_MSH_CIV_0103_0247_C010.dgn

SIGNATURE/BLOCK:
OFFICE OF ENGINEERING
APPROVED BY:

PROJECT TITLE:
OCCUM MAINTENANCE FACILITY

TOWN: OCCUM

DRAWING TITLE:
MISCELLANEOUS DETAILS - 2

PROJECT NO. 103-247
DRAWING NO. C-009
SHEET NO.

NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL MEET OR EXCEED THE REQUIREMENTS OF THE D.E.P. 2002 E&S GUIDELINES AND THE 2004 STORMWATER QUALITY MANUAL.

2. INSTALL ANTI-TRACKING PAD. SEE SHEET C-009 FOR DETAIL.

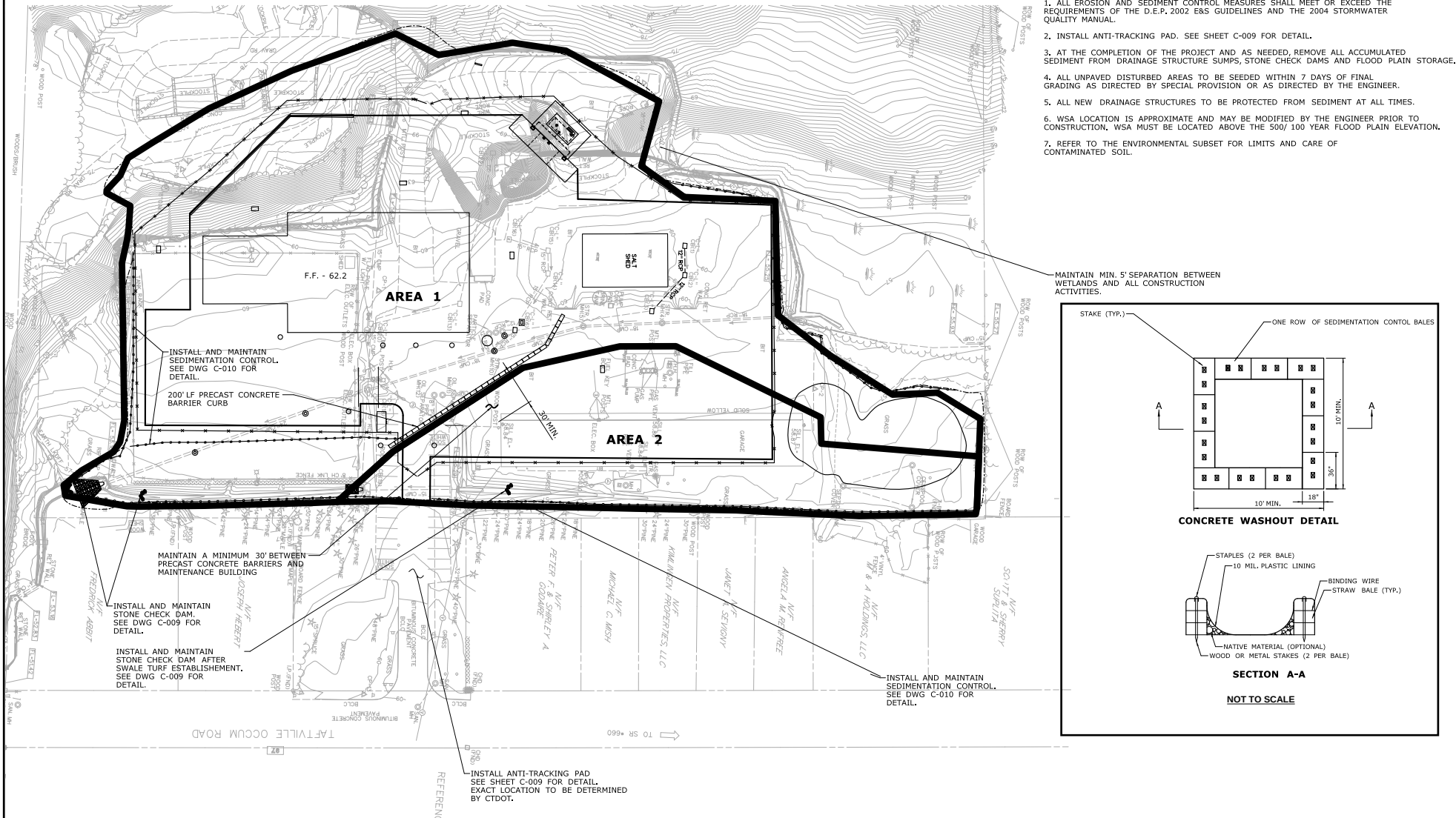
3. AT THE COMPLETION OF THE PROJECT AND AS NEEDED, REMOVE ALL ACCUMULATED SEDIMENT FROM DRAINAGE STRUCTURE SUMPS, STONE CHECK DAMS AND FLOOD PLAIN STORAGE.

4. ALL UNPAVED DISTURBED AREAS TO BE SEEDED WITHIN 7 DAYS OF FINAL GRADING AS DIRECTED BY SPECIAL PROVISION OR AS DIRECTED BY THE ENGINEER.

5. ALL NEW DRAINAGE STRUCTURES TO BE PROTECTED FROM SEDIMENT AT ALL TIMES.

6. WSA LOCATION IS APPROXIMATE AND MAY BE MODIFIED BY THE ENGINEER PRIOR TO CONSTRUCTION. WSA MUST BE LOCATED ABOVE THE 500/ 100 YEAR FLOOD PLAIN ELEVATION.

7. REFER TO THE ENVIRONMENTAL SUBSET FOR LIMITS AND CARE OF CONTAMINATED SOIL.



REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 9/10/2015

DESIGNER/DRAFTER: ME
CHECKED BY: SK
SCALE IN FEET
0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FD_MSH_CIV_0103_0247_SD006.dgn

SIGNATURE/BLOCK: OFFICE OF ENGINEERING
APPROVED BY:

PROJECT TITLE: OCCUM MAINTENANCE FACILITY

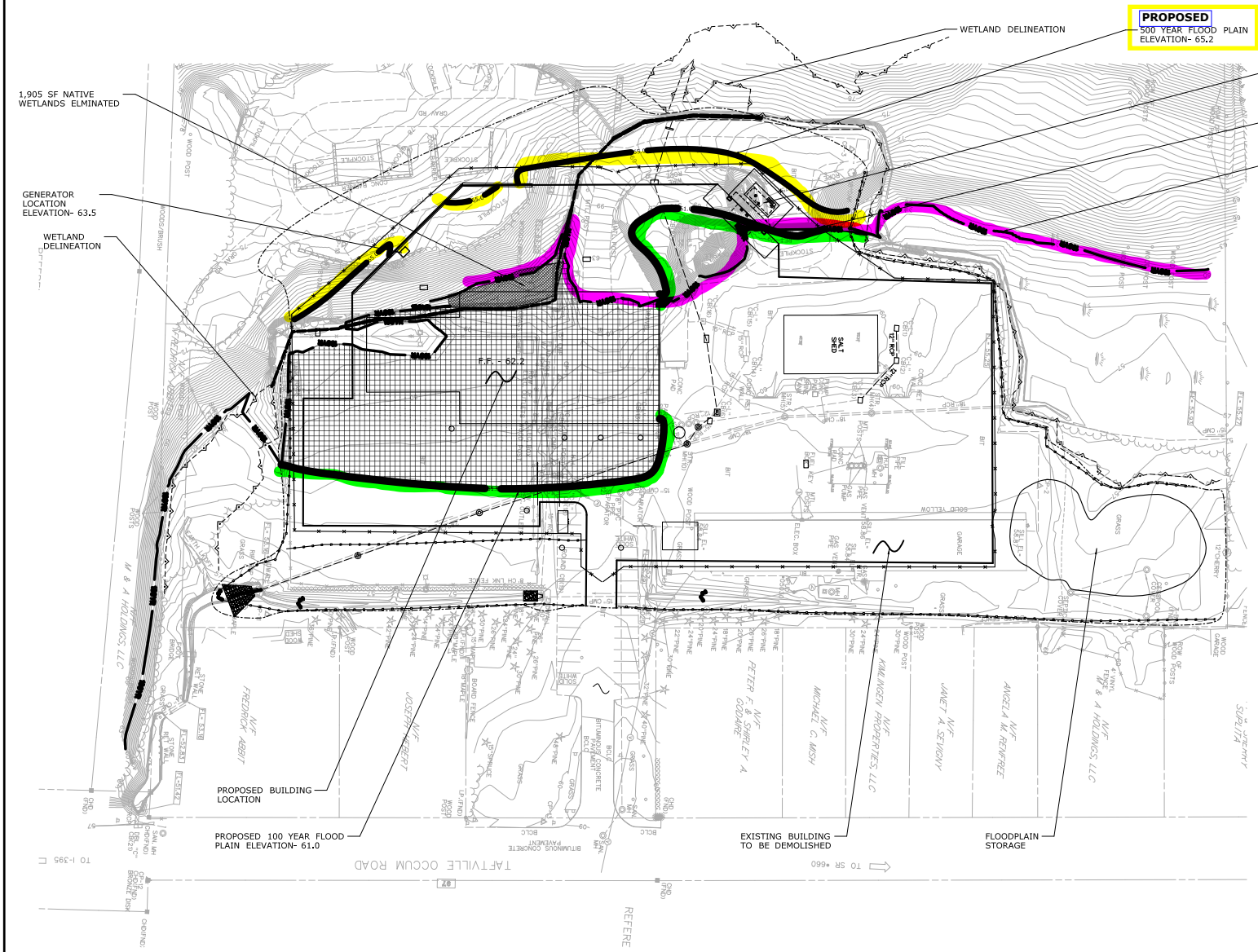
TOWN: OCCUM

DRAWING TITLE: CONST. AREAS & SED. AND EROSION CONTROL

PROJECT NO. 103-247

DRAWING NO. SD-006

SHEET NO.



LEGEND

- FILL WITH IN EXISTING FLOODPLAIN
- WETLANDS IMPACTED
- IMPACTED WATERCOURSE
- PROPOSED WATERCOURSE

IMPACTED VS PROPOSED WATERCOURSE

	TOTAL AREA
IMPACTED	1,170 SF
PROPOSED	1,194 SF

FILL VS. CUT WITHIN FLOODPLAIN

FILL- FLOODPLAIN BELOW ELEV. 61.0

	AREA	AVE. ΔELEV.	VOLUME (CY)
LOT/ TURF	43,900	0.8	1,300.7
NEW BLDG	19,750	1.49	1,089.9
		TOTAL	2,390.6 CY

CUT- FLOODPLAIN TO ELEV. 61.0 AND LOWER

	AREA	AVE. ΔELEV.	VOLUME (CY)
DEMO BLDG	10,800.0	2.2	880.0
LOT	4,450.0	0.5	82.4
FLOODPLAIN STORAGE	14,800.0	2.7	1480.0
		TOTAL	2,442.4 CY

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

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Plotted Date: 9/10/2015

DESIGNER/DRAFTER: ME
CHECKED BY: SK
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

SIGNATURE/ BLOCK:
OFFICE OF ENGINEERING
APPROVED BY:

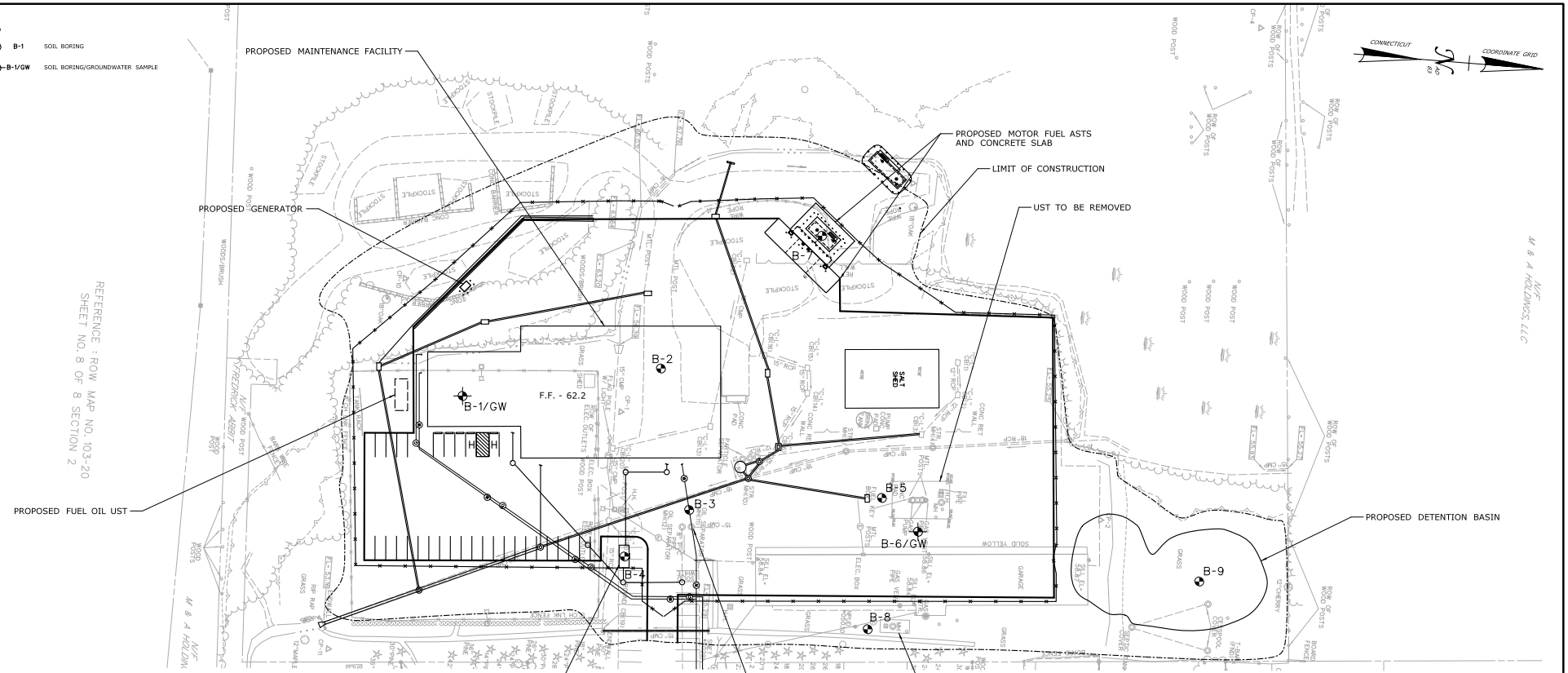
Filename: ...\FD_MSH_CIV_0103_0247_SD007.dgn

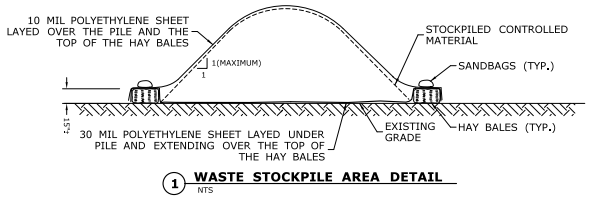
PROJECT TITLE:
OCCUM MAINTENANCE FACILITY

TOWN: OCCUM

DRAWING TITLE:
ENVIRONMENTAL IMPACT AREAS

PROJECT NO. 103-247
DRAWING NO. SD-007
SHEET NO.





1 **WASTE STOCKPILE AREA DETAIL**
NTS

NOTES:

1. THIS SHEET IS FOR ENVIRONMENTAL WORK ASSOCIATED WITH THE OCCUM MAINTENANCE FACILITY REHABILITATION PROJECT. FOR ALL OTHER INFORMATION, SEE CONSTRUCTION PLANS PREPARED BY OTHERS.
2. THE BASE MAP FOR THIS ENVIRONMENTAL PLAN WAS PROVIDED TO BL COMPANIES BY CONNDOT.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION, MAINTENANCE, AND REPAIR OF ALL COMPONENTS OF THE TEMPORARY WSA AND DURING WSA OPERATIONS.
4. POLYETHYLENE STOCKPILE UNDERLAYMENT AND COVER SHALL REMAIN IN PLACE AT ALL TIMES OTHER THAN DURING LOAD-IN OR LOAD-OUT OPERATIONS.
5. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN A SEDIMENT CONTROL SYSTEM ALONG THE PERIMETER OF THE TEMPORARY WSA, AT ALL TIMES.
6. TEMPORARY WSA LOCATION(S) SHALL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION.
7. UST = UNDERGROUND STORAGE TANK

ENTIRE PROJECT AREA IS AN AREA OF ENVIRONMENTAL CONCERN (AOEC)

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

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Plotted Date: 8/6/2015

DESIGNER/DRAFTER: JO/JK
CHECKED BY: MF
SCALE IN FEET
0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\HW_HWY_14EC0018_BOR_LOC.dgn

SIGNATURE/ BLOCK:

BL COMPANIES, INC.
355 RESEARCH PARKWAY
MERIDEN, CT 06450

PROJECT TITLE:
OCCUM MAINTENANCE FACILITY REHABILITATION

TOWN: **OCCUM**

DRAWING TITLE:
SOIL AREA OF ENVIRONMENTAL CONCERN

PROJECT NO. **103-247**
DRAWING NO. **ENV-002**
SHEET NO. **11.02**

APPENDIX D

Stormwater Monitoring Report Form
State Project No. 103-247