STORMWATER POLLUTION CONTROL PLAN

Reconstruction of Route 195
Tolland, CT

State Project No.: 142-146

Connecticut Department of Transportation

Prepared by: Alfred Benesch & Co.

February 2015

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,

Table of Contents

1. Site Description 4
Site Description 4
Estimated Disturbed Area 5
Estimated Runoff Coefficient 6
Receiving Waters 6
Extent of Wetlands on Site 7

2. Construction Sequencing 7

3. Control Measures 10
Erosion and Sedimentation Controls 10
Temporary Stabilization Practices 11
Permanent Stabilization Practices 12
Maintenance 12

4 Dewatering Wastewaters 13
Dewatering Guidelines 13

5. Post-Construction Stormwater Management 13
Post-construction Guidelines 13
Post Construction Performance Standards 14
Velocity Dissipation 14

6. Other Controls 14
Waste Disposal 14
Washout Areas 14
Anti-tracking Pads and Dust Control 15
Post-Construction 15
Maintaining and Storing Vehicles and Equipment 15

7. Inspections 16

Inspection Guidelines..... 16

8. Keeping Plans Current.....17
Revisions to Stormwater Pollution Control Plans: 17

9. Monitoring Requirements.....17

10. Contractors.....18
General 18
Certification Statement 18
General: 20

List of applicable Figures / Plans: 20
Appendix A - Figures..... 20
Appendix B – Drainage Calculations..... 20
Appendix C – Plan Sheets..... 20
Appendix D – Stormwater Monitoring Report Form..... 21

1. Site Description

Site Description

The project is located in the Town of Tolland on Route 195 from 200' north of the I-84 Eastbound Ramps to approximately 900' south of the intersection with Goose Lane and Rhodes Road. A distance of 3475' (0.66 miles). The I-84 Eastbound Off Ramp to Route 195 will also be widened from the Route 195 intersection westerly for a distance of 650'.

The project involves the widening the I-84 Exit 68 Eastbound off-ramp from two to three lanes to accommodate the substantial volume of traffic exiting the interstate for special events at the University of Connecticut, causing backup onto Interstate 84. Route 195 will also be widened to provide two 11' wide southbound lanes and two 11' wide northbound beginning at the eastbound ramps and extending southerly through the Goose Lane/Rhodes Road intersection. Turn lanes will also be provided at Fieldstone Commons Drive and Rhodes Road/ Goose Lane. Double 12' right-turn lanes and a 12' wide left turn lane will be constructed on the proposed I-84 Eastbound Off-Ramp onto Route 195. In addition a left turn lane on Route 195 Southbound will be provided onto the I-84 Eastbound On Ramp north of the intersection.

Much of the existing roadway surface will be milled and overlayed with 2" of Hot Mix Asphalt. A full depth roadway construction will be used in the widening areas. The majority of roadway widening will be located on the east side of Route 195 and the south side of the I-84 off ramp to minimize sloping and property impacts on the west side of Route 195.

The bridge carrying Route 195 over the Skungamaug River which is hydraulically inadequate and scour critical will be replaced. The existing bridge has an approximate span of 20' and is 44' wide, carrying a single lane of traffic southbound and two lanes northbound. There is also a sidewalk adjacent to the southwest curbline. The bridge consists of a reinforced concrete superstructure and reinforced concrete abutments supported on spread footings.

Two lanes southbound will continue over Bridge No. 1530 along with an adjacent concrete sidewalk. The proposed bridge will also accommodate two 12' northbound lanes and an exclusive right turn lane (to the I-84 Eastbound On-Ramp). Bridge No. 1530 will be replaced by a three sided precast concrete bridge. The bridge will be lengthened by 36' to the upstream for a total proposed width of 87.5, to accommodate the proposed widening of Route 195

The proposed bridge will maintain and preserve existing fish passage within this section of the Skungamaug River. The proposed structure type has been reviewed by the CT DEEP Fisheries Division.

The west side of Route 195 is continuously developed along the south side of the roadway. From the off ramp heading southerly on Route 195 there is a gas station, Fieldstone Commons Drive a town road which accesses a shopping plaza, a commercial property with direct access to

Route 195, and Meeting House Commons another shopping plaza with direct access to Route 195. At the intersection of Route 195 and Goose Lane there are gas stations located on both sides of Goose Lane. There is one residential property between the gas station and the end of the project.

The access drive to the Meeting House Commons Plaza will be relocated approximately 200 ‘ to the north to move the existing drive further away from the Rhodes Road/Goose Lane Intersection.

The east side of is also almost completely developed along the length of the project. With the exception of open space for an existing Condominium complex, there is a residential property, bank building Town Fire Station and Training complex, another bank and shopping plaza.

The amount of development along the project corridor limit the ability to provide infiltration and dictate the areas available for potential retention through the project limits.

The purpose of this project is to alleviate the queue lengths on the I-84 East Bound Exit 68 ramp to Route 195. The ramp experiences long queue lengths at the signalized intersection that back up onto I-84 when there are events at the University of Connecticut. Route 195 Merrow Road is classified as a Multi-Lane Rural Principal Arterial. Traffic primarily consists of commuting vehicles traveling to and from the University of Connecticut as well as vehicles with destinations within and near the project such as shopping plazas, grocery stores, a bank, several gas stations, restaurants and a near by high school. During certain events at UConn, traffic exiting I-84 Eastbound to Merrow Road builds and eventually backs up on to I-84 mainline.

Estimated Disturbed Area

The total area for this project site is 8.94 acres. Of this area, a total of 5.27 acres will be disturbed by construction activities.

In Stage 1 construction, multiple drainage areas which drain to several different discharge points will be disturbed during construction activities. See Figures 4-1 thru 4-5 in Appendix A for the delineated areas. The tabulated areas are:

Ramp – Distrubance	0.19 Acres	
Outfall A –	0.07 Acres	
Outfall B –	0.15 Acres	
Outfall C –	0.20 Acres	
Outfall E –	0.49 Acres	
Outfall F –	0.30 Acres	
Outfall G –	0.36 Acres	
Outfall H –	0.56 Acres	
Outfall I –	0.51 Acres	
Total	2.83 Acres -	Stage 1 Disturbance

In Stage 2 construction, there also will be multiple drainage areas which drain to several different discharge points disturbed during construction activities. See Figures 5-1 thru 5-5 in Appendix A for the delineated areas. The tabulated areas are:

Ramp – Distrubance	0.44 Acres	
Outfall C –	0.08 Acres	
Outfall D –	0.18 Acres	
Outfall E –	0.06 Acres	
Outfall F –	0.20 Acres	
Outfall G –	0.50 Acres	
Outfall H –	0.89 Acres	
Outfall I –	0.40 Acres	
Outfall I –	0.01 Acres	
Total	2.75 Acres -	Stage 2 Disturbance

Estimated Runoff Coefficient

The runoff coefficient assumed for pavement is 0.9 and for the pervious areas, a coefficient of 0.3 was assumed.

Pre Construction

$$\frac{(14.60 \text{ ac. x } 0.3)+(4.83 \text{ ac. x } 0.9)}{14.6 \text{ ac.} + 4.83 \text{ ac.}} = 0.449$$

Post-Construction

$$\frac{(13.07 \text{ ac. x } 0.3)+(6.37 \text{ ac. x } 0.9)}{13.07 \text{ ac.} + 6.37 \text{ ac.}} = 0.496$$

The estimated runoff coefficients, with the corresponding contributing areas, are shown on Figures 2-1 thru 2-2 and 3-1 thru 3-2 in Appendix A.

Receiving Waters

From the northern limit of the project at Station 749+26 to the project highpoint at Station 767+01, the receiving waters for the project runoff is the Skungamaug River.

From the highpoint of the Route 195 at Station 767+01 to the eastern project limit at Station 784+00 the receiving waters for project runoff is an unnamed swamp which ultimately drains to the Skungamaug River.

There are no regulated floodways or floodplains within the project limits.

Extent of Wetlands on Site

Within the project limits there are wetlands located near the Skungamaug River. The wetland impact of this project is limited to the construction of the new Bridge Structure over the River. The wetland impact has been estimated to be 0.072 acres (3170 sq. ft.). A temporary wetland impact of 0.002 Ac (87SF) for the construction of an abutment for a temporary pedestrian bridge on the southwest stream bank.

Wetland impacts at this location will be mitigated by the planting of sidestream vegetative plantings to mitigate loss of instream habitats in the vicinity of the new bridge widening. These plantings were coordinated with the CT DEEP Fisheries Division.

There is another small vegetated wetland within the project limits located approximately 350 feet east of the Goose Lane intersection. There is a wetland impact of 0.003 Acres (140 sq. ft.) at this location

2. Construction Sequencing

The contractor will be given approximately two construction seasons for the construction of all phases of the project. The construction is anticipated to begin June 22, 2015.

The construction has been broken into two stages to maintain the existing number of travel lanes throughout the construction of the project

The suggested sequence of construction is as follows:

1. Conduct a preconstruction meeting.

STAGE 1

2. Install erosion controls at the effected inlets and at limits of disturbed slopes.
3. Perform clearing and grubbing activities.
4. Place traffic control devices
5. Construct embankment and pavement to widen the I-84 East Bound Off Ramp to the north.
6. Remove existing roadway and sidewalk on Route 195 north of the I-84 Eastbound Ramps.
7. Construct proposed drainage:
   - System A – Construct Entire System
   - System B – Construct Entire System
   - System C – Construct Entire System
   - System E - Construct Catch Basins and pipe runs along north curbline. Construct outlet and riprap splash pad
   - System F – Construct pipe from approximate CL of Route 195, outlet and riprap splash pad

System G – Construct pipe from approximate CL of Route 195, Catch Basin at North curbline, outlet and riprap splash pad
System H – Construct catchbasins and pipe system along north curbline and connect to existing drainage system
System I - Construct catchbasins and pipe system along north curbline and outlet with riprap splash pad on Goose Lane.

8. Construct proposed sidewalk and widened pavement.
9. Shift traffic to the newly constructed roadway.
10. Construct roadway embankment on the east side of Route 195. Grade grass slopes and immediately stabilize. Establish turf, per plan, on all disturbed areas.
11. Coordinate utility relocation.
12. Upon completion of Utility relocation. Begin construction of shield at Route 195 over the Skungamaug River to prevent construction debris from the removal of the existing bridge superstructure falling to the river below.
13. Construct Stage 1 cofferdam to facilitate construction of the bridge foundation. Pumping of the cofferdams will be required and will be discharged to sedimentation basins outside the limits of wetlands.
14. Remove existing foundation and perform excavation for proposed bridge footing.
15. Drive piles for foundation of new bridge.
16. Construct new footings for bridge and wingwalls.
17. Perform channel grading and remove Stage 1 cofferdam
18. Install new precast 3-sided concrete structure.
19. Construct new bridge parapets and wingwalls.
20. While construction is ongoing at the new bridge location Construct drainage on the east side of Route 195.
21. Construct new pavement on the east side of Route 195.
22. Upon Completion of Stage 1 construction shift traffic to the widened roadway.

It is anticipated that the construction of the first stage of the new bridge over the Skungamaug will be completed in 13 weeks of construction. It is likely the bridge construction will extend over the winter 2015/2016 construction shut down.

Disturbance to erodible soils for Stage 1 totals 2.83 Acres

STAGE 2

1. Install erosion controls at the effected inlets and at limits of disturbed slopes.
2. Perform clearing and grubbing activities
3. Place traffic control devices
4. Construct embankment and pavement to widen the I-84 East Bound Off Ramp to the south. Grade grass slopes and immediately stabilize. Establish turf, per plan, on all disturbed areas.
5. Construct roadway embankment on the west side of Route 195. Grade grass slopes and immediately stabilize. Establish turf, per plan, on all disturbed areas.

6. Begin construction of shield at Route 195 over the Skungamaug River to prevent construction debris from the removal of the existing bridge superstructure falling to the river below.
7. Construct Stage 2 cofferdam to facilitate construction of the bridge foundation. Pumping of the cofferdams will be required and will be discharged to sedimentation basins outside the limits of wetlands.
8. Remove existing foundation and perform excavation for proposed bridge footing.
9. Drive piles for foundation of new bridge.
10. Construct new footings for bridge and wingwalls.
11. Perform channel grading and remove Stage 2 cofferdam
12. Install new precast 3-sided concrete structure.
13. Construct new bridge parapets and wingwalls.
14. While construction is ongoing at the new bridge location Construct drainage on the west side of Route 195.

    System D – Construct entire system along south curbline
    System E - Construct Catch Basins and pipe runs along south curbline. Connect to outlet constructed in previous stage.
    System F – Construct pipe from approximate CL of Route 195 and catchbasin at south curbline, connect to outlet constructed in previous stage
    System G – Construct pipe from approximate CL of Route 195 and catchbasin at south curbline, connect to outlet constructed in previous stage
    System H – Construct catchbasins and pipe system along south curbline and connect to existing drainage system
    System I - Construct catchbasins and pipe system along south curbline and connect to outlet constructed in previous stage.
    System J – Construct entire new portions of system.

15. Construct new pavement on the west side of Route 195
16. Construct landscaped Island.
17. Install all project landscaping

It is anticipated that the construction of the second stage of the new bridge over the Skungamaug will be completed in 11 weeks of construction.

1. Remove erosion controls when it is determined that disturbed areas have been stabilized. (This determination will be made by the Engineer).
2. 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".
3. Perform project cleanup.

Disturbance to erodible soils for Stage 2 totals 2.75 Acres

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 1 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 of proposed roadway shall be stabilized immediately upon completion of rough grading with compacted road subbase.
- 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

Retention of the Water Quality Volume on this project is not feasible within the constraints of the rights of way of the roadway and the development along the corridor. The slope limits within the project extend to approximately the highway line for the extent of the project. There is existing Right of Way available at the northern end of the project, however this space is separated from the southern segment of the project by the Skungamaug River.

Of the 3475 linear feet of the project, only 544 feet are north of the river where 2931 feet are

south of the river. The significant portion of the roadway widening and construction for this project occurs south of the river. The lowpoint of the roadway is located 300' south of the river. There is no practical way to get roadway drainage from the south side of the river to the north where the right of way is available for any potential treatment of runoff.

Route 195 is continuously developed along the west side of the roadway. From the off ramp heading southerly on Route 195 there is a gas station, Fieldstone Commons Drive a town road which accesses a shopping plaza adjacent to the roadway, a commercial property with direct access to Route 195, and Meeting House Commons another shopping plaza with direct access to Route 195. At the intersection of Route 195 and Goose Lane there are gas stations located on both sides of Goose Lane. There is one residential property between the gas station and the end of the project.

The east side of Route 195 is also almost completely developed along the length of the project. With the exception of open space for an existing Condominium complex, there is a development for the length of the project. There is a potentially historic residential property, bank building Town Fire Station and Training complex, another bank and shopping plaza.

The amount of development along the project corridor limit the ability to provide infiltration and dictate the areas available for potential retention through the project limits.

In the development of the project approximately 800 linear feet of curbing has been eliminated in an effort to promote sheet flow runoff onto vegetated slopes.

Four foot deep sumps in catch basins have been incorporated into the project. The last Catchbasin in Drainage System E has a 4 foot sump prior to the outfall. Drainage System H has 4 – 4 foot sumps where the drainage from Route 195 discharges into the existing Town/State drainage system.

.

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
- Anti-Tracking Pads: Construction entrances (gravel anti-tracking pads) shall be constructed at truck access points to off –road route.
- Dust Control: Routine sweeping and application of dust suppression agents, including

water and calcium chloride, over exposed subbase shall be completed for dust control.

- Stockpile Areas: Areas of Stockpiled materials will be enclosed with Sedimentation and Erosion Control, Access to stockpiles shall be over gravel anti-tracking pads. Stockpiles that remain disturbed but inactive for at least 30 days shall receive temporary seeding or soil protection within seven (7) days.

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 Erosion and Sedimentation Guidelines 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

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 Connecticut's Erosion and Sedimentation Control Guidelines (2002).

Landscaped plantings will be provided along the corridor to stabilize and enhance disturbed areas due to construction of this project. Plantings within the areas of wetland impacts at the southeast quadrant of the new bridge over the Skungamaug River and at the wetland 300' south of the Goose Lane intersection are being incorporated to mitigate wetland impacts of the project. Landscape plans can be found in Appendix C – Sheets C-007 thru C-011

Maintenance

All construction activities and related activities shall conform to the requirements of Section 1.10 "Environmental Compliance" of ConnDOT'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 body, and conduit 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.

4 Dewatering Wastewaters

Dewatering Guidelines

Dewatering within the cofferdams required for the new bridge over the Skungamaug River will be required to facilitate construction of the bridge. Dewatering wastewaters will be pumped into temporary sedimentation basins. The temporary basins will be located outside the limits of project wetlands. 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.

Post Construction Performance Standards

Catchbasins with 4' sumps have been utilized to capture solids and floatables

Velocity Dissipation

Riprap splash pads have been used at drainage outfalls to dissipate velocity and prevent ground erosion. (See Drainage Calculations for splash pad design computations)

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 by the Contractor as approved by the Engineer. 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. 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 with 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.

Post-Construction

Upon completion of construction activities and stabilization of the site, all post-construction stormwater structures, including all 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 1 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.

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.

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. 142-146

Reconstruction of Route 195
Tolland, 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:_____

_____

_____

General:

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 and 2004 Stormwater Quality Manual.

List of applicable Figures / Plans:

Appendix A - Figures

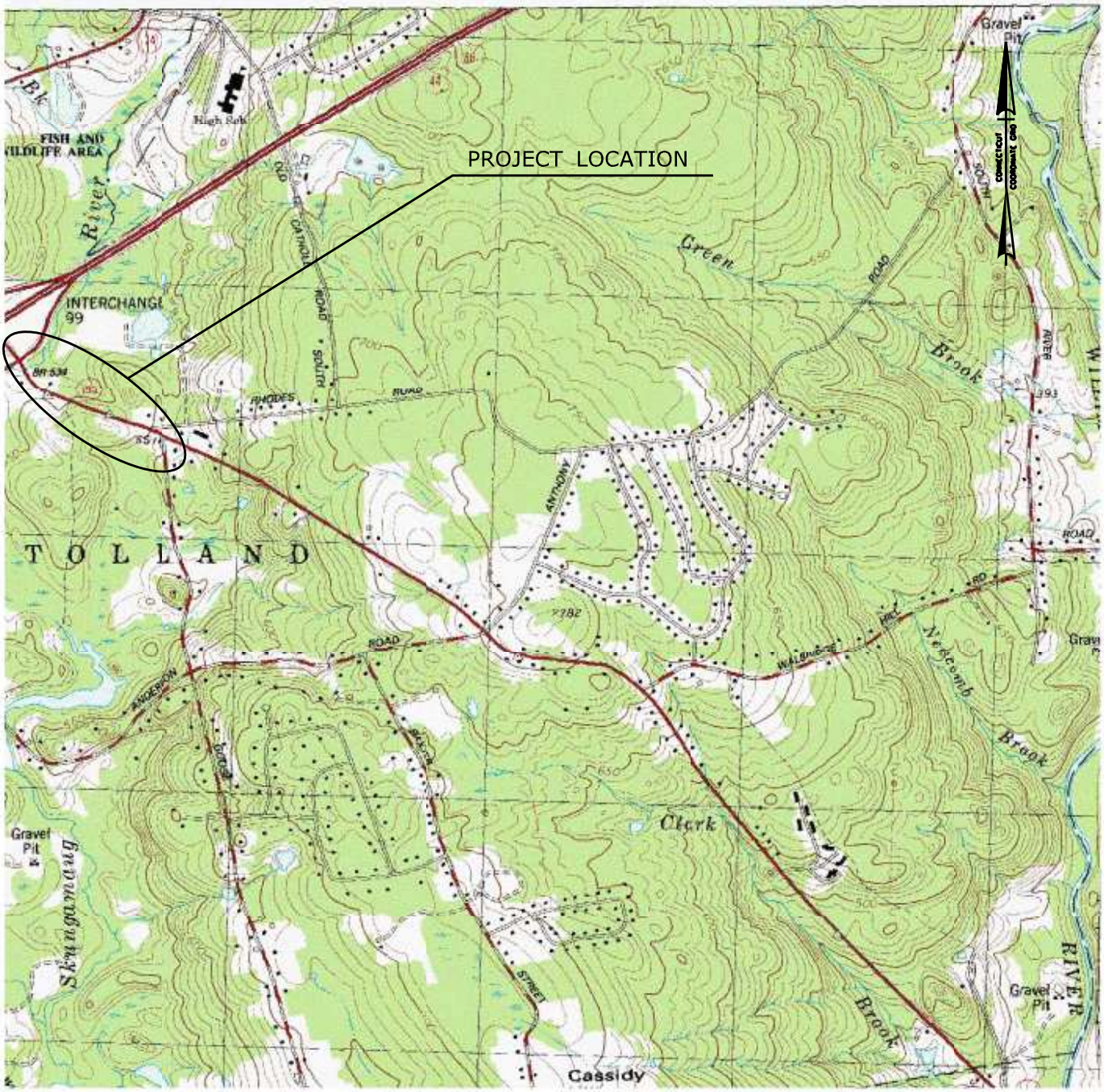
Aerial Photo-	Figure 1
Pre-Constructions AI Conditions-	2 – 1 and 2-2
Post-Constructions AI Conditions-	3-1 and 3-2
Stage 1 - Disturbed/Erodible Areas-	4-1 thru 4-5
Stage 2 - Disturbed/Erodible Areas-	5-1 thru 5-5

Appendix B – Drainage Calculations

Drainage Computations/Outlet Protection	
Pre/Post Construction Runoff Coefficients	Table 1
Water Quality Computations	Table 2

Appendix C – Plan Sheets

Highway Construction Plans	C-001 thru C-005
Details	C-006
Landscape Design Plans-	C-007 thru C-011



SCALE IN FEET

1000 0 500 1000 2000 4000

SCALE 1:2,000

USGS QUADRANGLE : COVENTRY, CT

STATE PROJECT NO.: 142-146 COUNTY: TOLLAND CITY/TOWN: TOLLAND, CT	APPLICATION BY: STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	OFFICE OF ENGINEERING SCALE	DATE: SEPT. 2014 ATTACHMENT A

Connecticut Department of

ENERGY &
ENVIRONMENTAL
PROTECTION

October 27, 2014

Mr. Michael Salter
State of Connecticut
Department of Transportation
2800 Berlin Turnpike
P.O. Box 31546
Newington, CT 06131-7546
michael.salter@ct.gov

Project: CT DOT Project # 142-146, Reconstruction of Route 195 at I-84 Exit 68 in Tolland, Connecticut
NDDB Determination No.: 201410144

Dear Michael,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map you provided for the proposed CT DOT Project #142-146, Reconstruction of 195 at I-84, Exit 68 in Tolland, Connecticut. According to our information there are sensitive state-listed species downstream from this project at Tolland Pond Marsh. Please ensure that best management practices are in place in order to avoid negative impacts to state-listed species (RCSA Sec. 26-306) resulting from your proposed activity at the site. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits. This This determination is good for one year. Please re-submit an NDDB Request for Review if the scope of work changes or if work has not begun on this project by October 27, 2015.

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

Please contact me if you have further questions at (860) 424-3592, or dawn.mckay@ct.gov . Thank you for consulting the Natural Diversity Data Base. Also be advised that this is a preliminary review and not a final determination. A more detailed review may be conducted as part of any subsequent environmental permit applications submitted to DEEP for the proposed site.

Sincerely,

Dawn M. McKay

Dawn M. McKay
Environmental Analyst 3

Natural Diversity Data Base Areas

TOLLAND, CT

December 2014

State and Federal Listed Species & Significant Natural Communities

Town Boundary

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

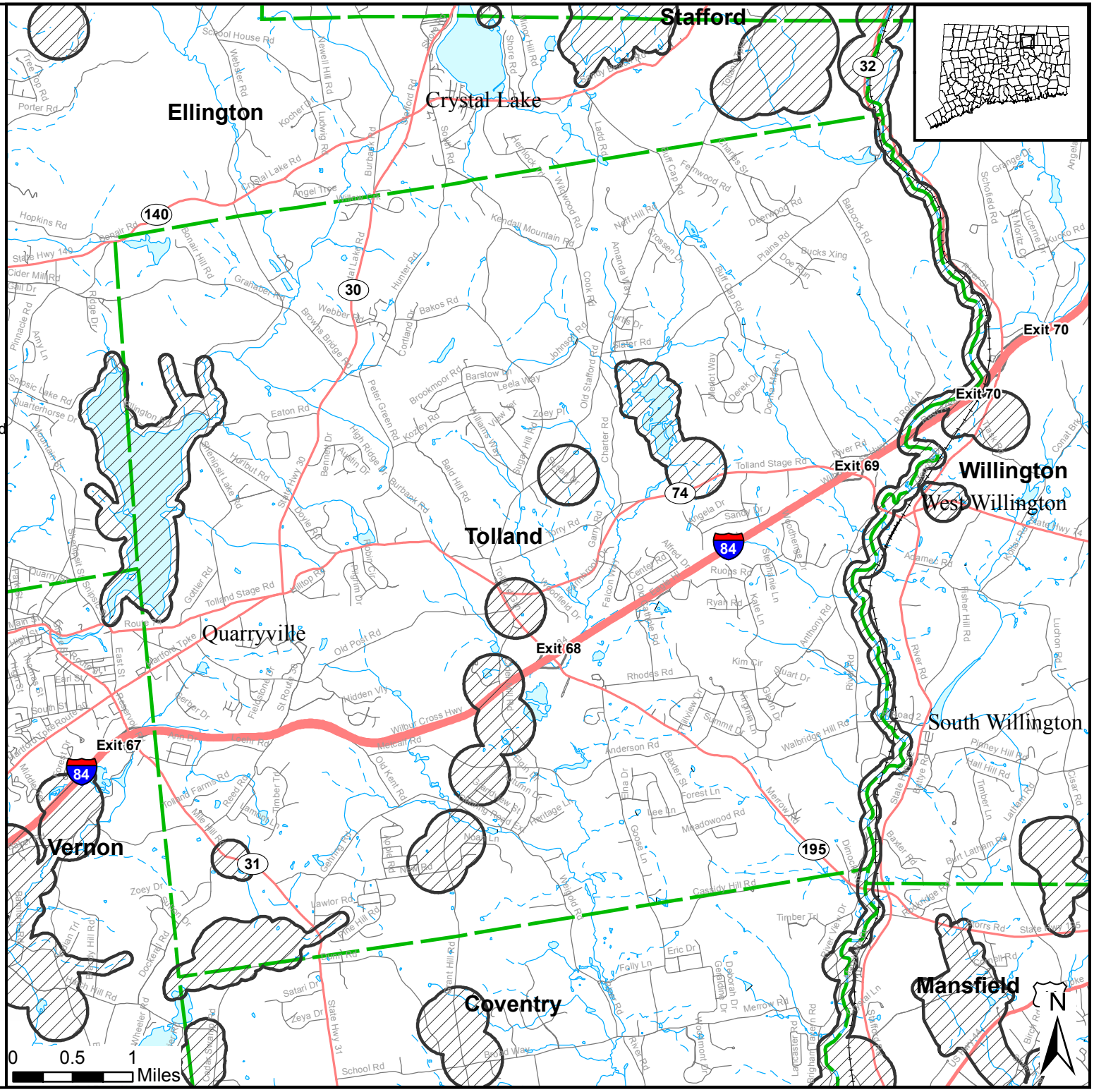
This map is intended for use as a preliminary screening tool for conducting a Natural Diversity Data Base Review Request. To use the map, locate the project boundaries and any additional affected areas. If the project is within a shaded area there may be a potential conflict with a listed species. For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

www.ct.gov/deep/nddbrequest

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

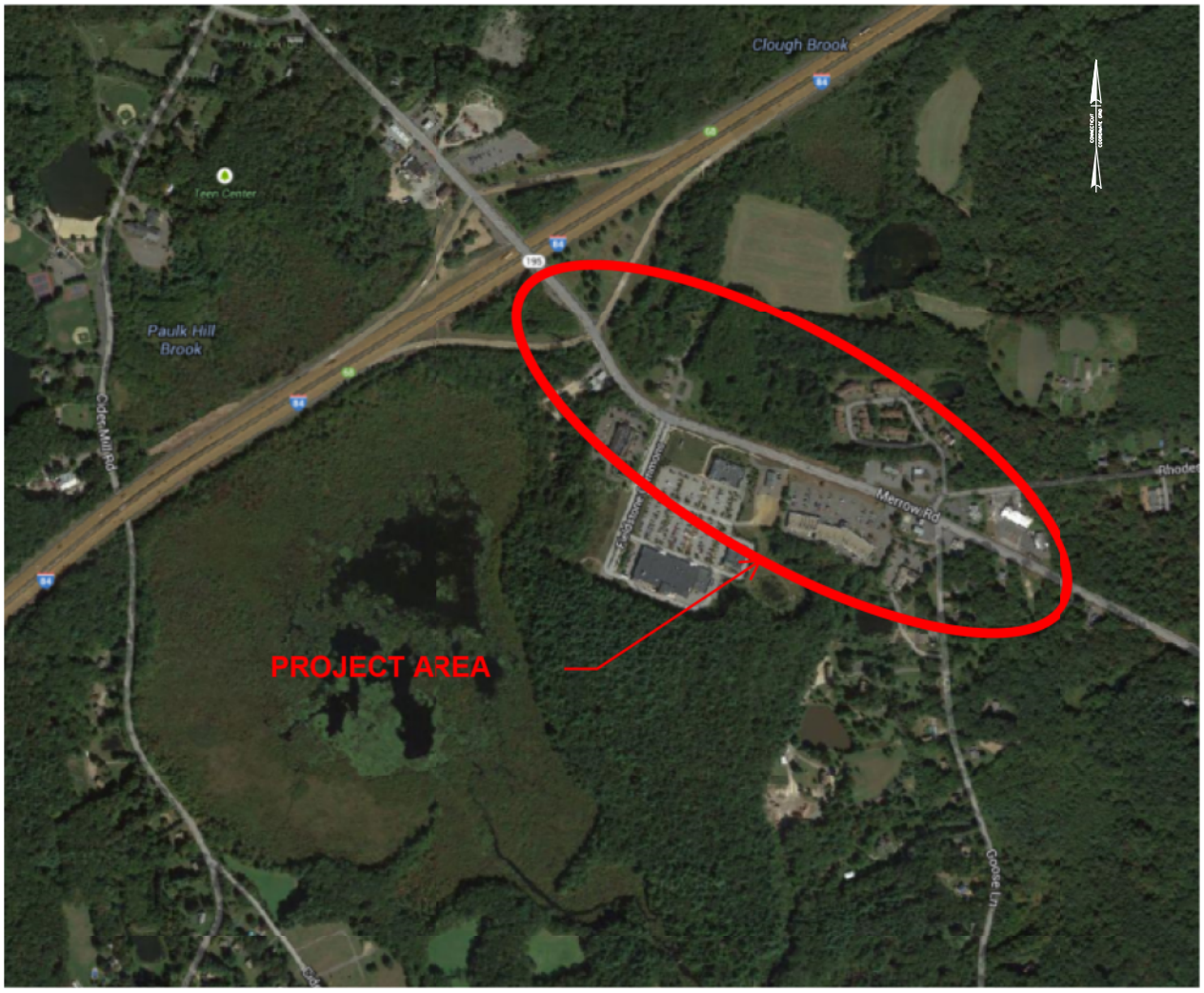
QUESTIONS: Department of Energy and Environmental Protection (DEEP)
79 Elm St., Hartford CT 06106
Phone (860) 424-3011

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



Appendix A - Figures

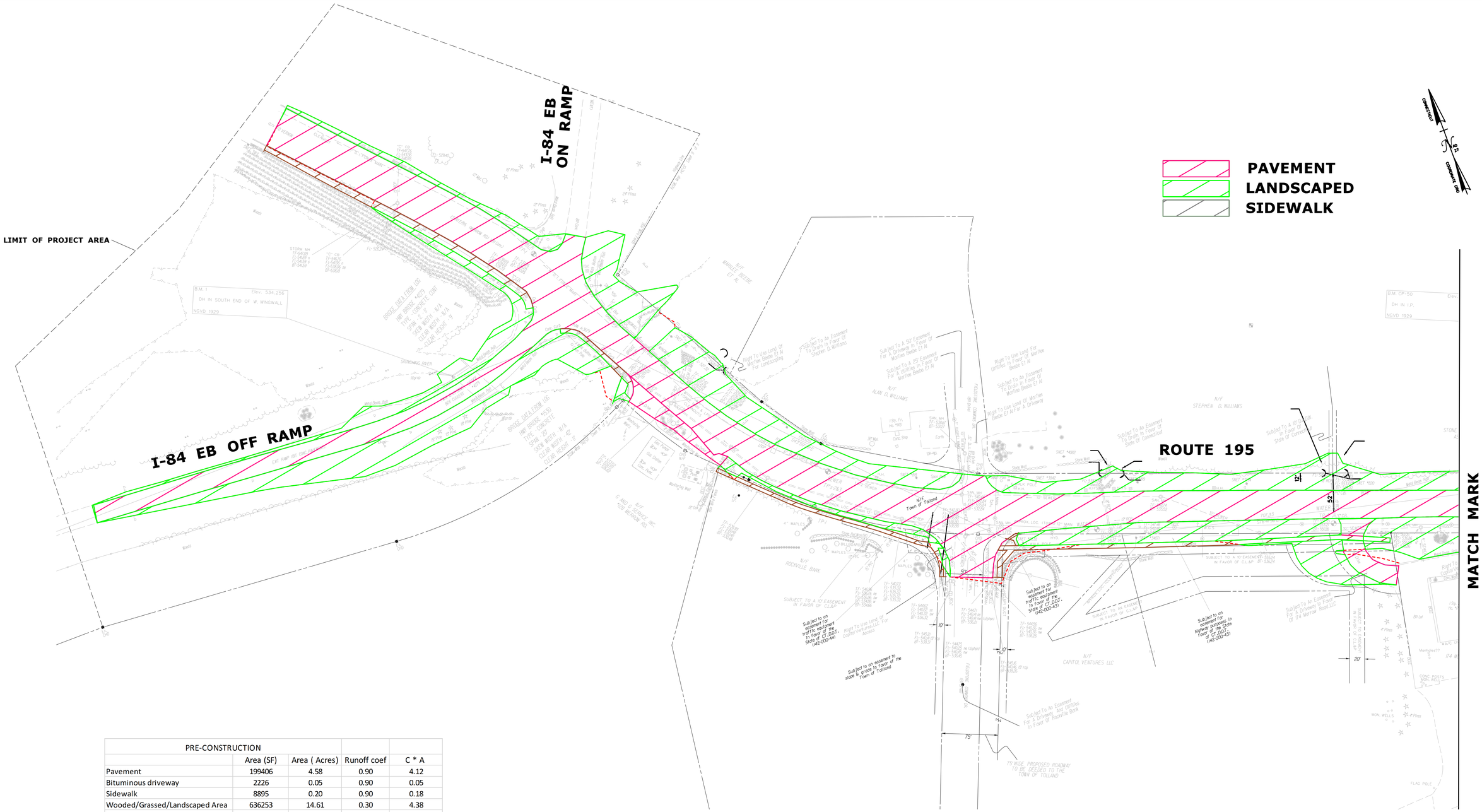
Aerial Photo-	Figure 1
Pre-Constructions AI Conditions-	2 – 1 and 2-2
Post-Constructions AI Conditions-	3-1 and 3-2
Stage 1 - Disturbed/Erodible Areas-	4-1 thru 4-5
Stage 2 - Disturbed/Erodible Areas-	5-1 thru 5-5



500 0 500 1000

SCALE IN FEET

RECONSTRUCTION OF ROUTE 195 SKUNGAMAUG RIVER TOLLAND, CT	AERIAL LOCATION PLAN benesch DATE: JANUARY 2015 FIGURE: 1



PRE-CONSTRUCTION				
	Area (SF)	Area (Acres)	Runoff coef	C * A
Pavement	199406	4.58	0.90	4.12
Bituminous driveway	2226	0.05	0.90	0.05
Sidewalk	8895	0.20	0.90	0.18
Wooded/Grassed/Landscaped Area	636253	14.61	0.30	4.38
TOTAL	846780	19.44		8.73
Pre-Construction - C Average				0.449

STAGE 1 - EXISTING PROJECT AREAS CONTRIBUTING RUN OFF AREAS

REV.	DATE	DESCRIPTION	SHEET. NO.

REVISIONS

NOT TO SCALE

DESIGNER: **M. LOSYEVA**

DRAFTER: **M. LOSYEVA**

CHECKED BY: **J. KOERNER**

DATE CHECKED: AUGUST 2013

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

ENGINEER: ALFRED BENESCH & CO.

APPROVED BY: DATE:

OFFICE OF ENGINEERING

PROJECT TITLE:
RECONSTRUCTION OF ROUTE 195

CADD | PLOTTED $DATE$

TOWN: **TOLLAND**

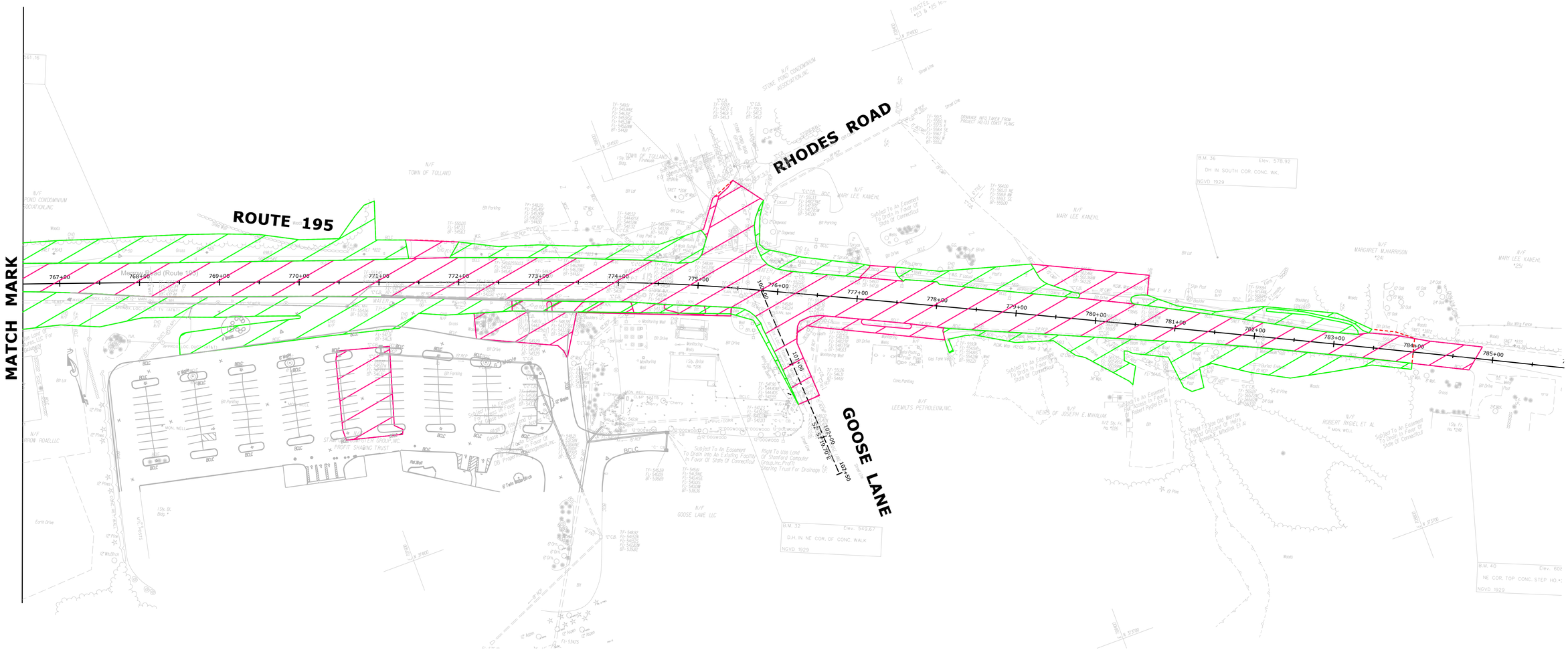
DRAWING TITLE: **PLAN SHEET**

PROJECT NO.: **142-146**

DRAWING NO.: **RUNOFF-01**

SHEET NO.: **2-1**

PAVEMENT
LANDSCAPED
SIDEWALK



PRE CONSTRUCTION RUNOFF AREAS

FOR TABLE OF AREAS AND
RUNOFF COEFFICIENTS SEE RUNOFF-1

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: **M. LOSYEVA**
DRAFTER: **M. LOSYEVA**
CHECKED BY: **J. KOERNER**
DATE CHECKED: AUGUST 2013

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

ENGINEER: ALFRED BENESCH & CO.
APPROVED BY:
DATE:

OFFICE OF ENGINEERING

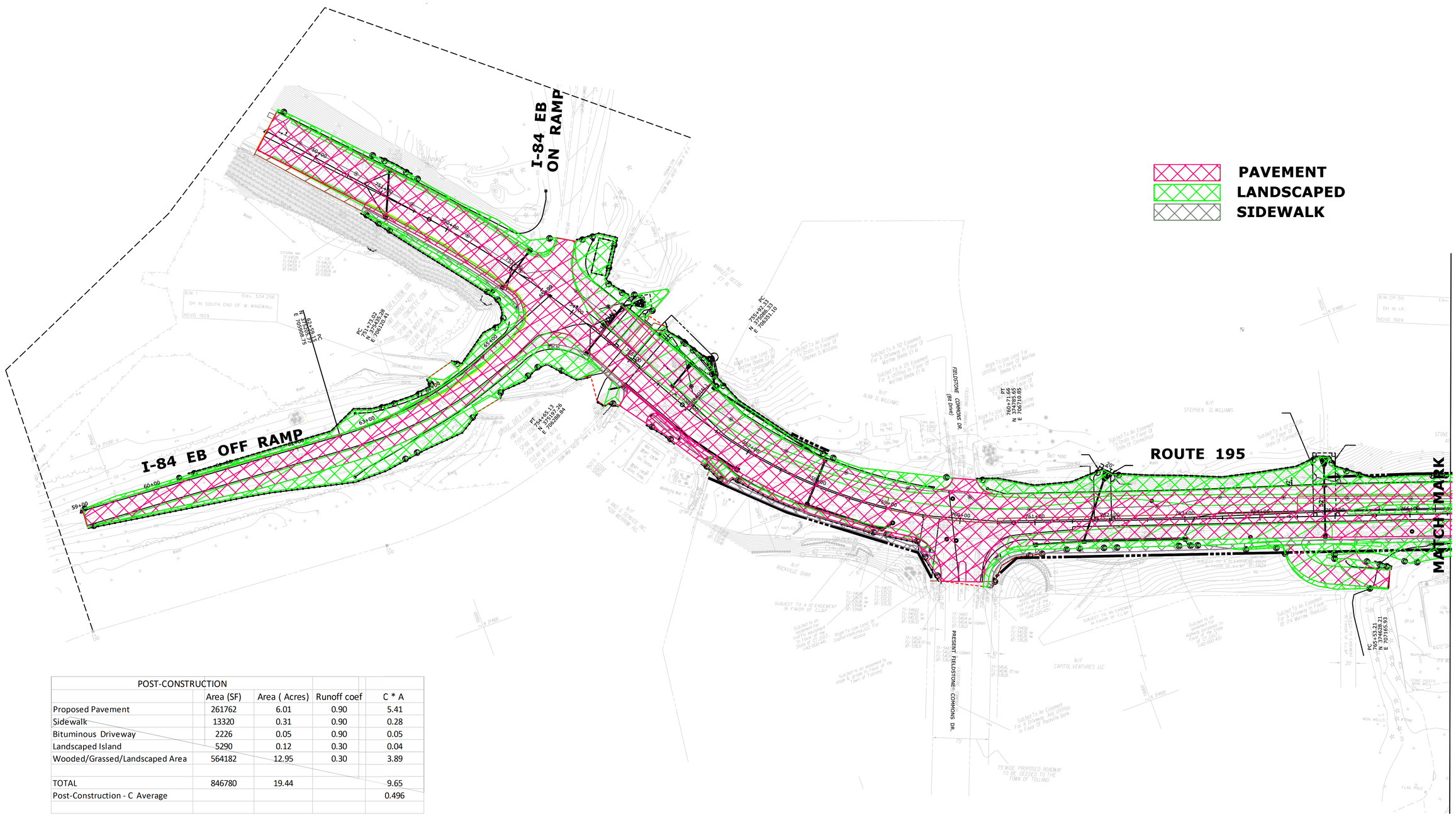
PROJECT TITLE:
RECONSTRUCTION OF ROUTE 195

CADD
PLOTTED $DATE$

TOWN: **TOLLAND**

DRAWING TITLE: **PLAN SHEET**

PROJECT NO.: **142-146**
DRAWING NO.: **RUNOFF-02**
SHEET NO.: **2-2**



POST-CONSTRUCTION				
	Area (SF)	Area (Acres)	Runoff coef	C * A
Proposed Pavement	261762	6.01	0.90	5.41
Sidewalk	13320	0.31	0.90	0.28
Bituminous Driveway	2226	0.05	0.90	0.05
Landscaped Island	5290	0.12	0.30	0.04
Wooded/Grassed/Landscaped Area	564182	12.95	0.30	3.89
TOTAL	846780	19.44		9.65
Post-Construction - C Average				0.496

POST CONSTRUCTION RUNOFF AREAS

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: **M. LOSYEVA**
DRAFTER: **M. LOSYEVA**
CHECKED BY: **J. KOERNER**
DATE CHECKED: AUGUST 2013

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

ENGINEER: ALFRED BENESCH & CO.
APPROVED BY:
DATE:

OFFICE OF ENGINEERING

PROJECT TITLE:
RECONSTRUCTION OF ROUTE 195

CADD
PLOTTED $DATE$

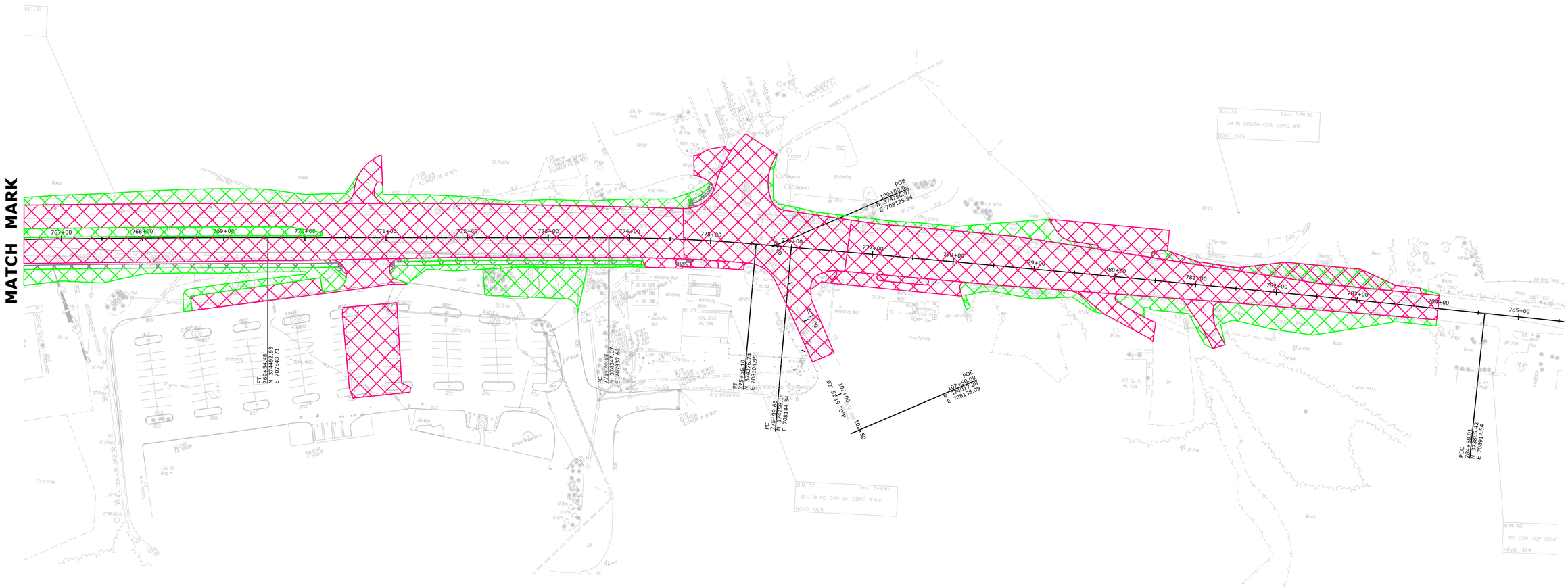
TOWN:
TOLLAND

DRAWING TITLE:
PLAN SHEET

PROJECT NO.:
142-146

DRAWING NO.:
RUNOFF-3

SHEET NO.:
3-1



FOR TABLE OF AREAS AND RUNOFF COEFFICIENTS SEE SHEET RUNOFF-3

POST CONSTRUCTION RUNOFF AREAS

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: **M. LOSYEVA**
DRAFTER: **M. LOSYEVA**
CHECKED BY: **J. KOERNER**
DATE CHECKED: AUGUST 2013

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

ENGINEER: ALFRED BENESCH & CO.
APPROVED BY: DATE:

OFFICE OF ENGINEERING

PROJECT TITLE: **RECONSTRUCTION OF ROUTE 195**
CADD | PLOTTED $DATE$

TOWN: **TOLLAND**
DRAWING TITLE: **PLAN SHEET**

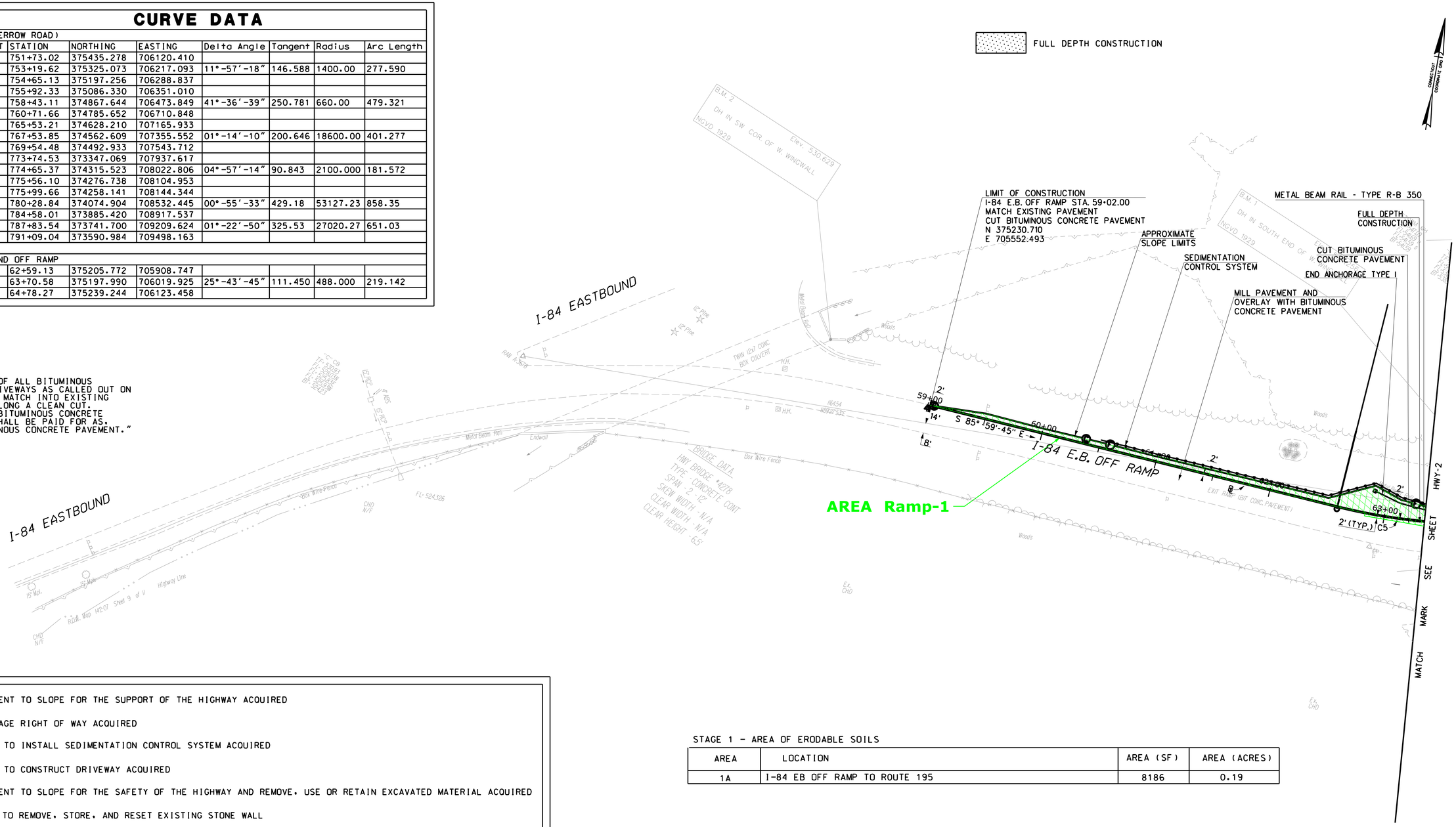
PROJECT NO.: **142-146**
DRAWING NO.: **RUNOFF-4**
SHEET NO.: **3-2**

CURVE DATA

ROUTE 195 (MERROW ROAD)							
CONTROL POINT	STATION	NORTHING	EASTING	Delta Angle	Tangent	Radius	Arc Length
P.C. - C1	751+73.02	375435.278	706120.410				
P.I.	753+19.62	375325.073	706217.093	11°-57'-18"	146.588	1400.00	277.590
P.T. - C1	754+65.13	375197.256	706288.837				
P.C. - C2	755+92.33	375086.330	706351.010				
P.I.	758+43.11	374867.644	706473.849	41°-36'-39"	250.781	660.00	479.321
P.T. - C2	760+71.66	374785.652	706710.848				
P.C. - C3	765+53.21	374628.210	707165.933				
P.I.	767+53.85	374562.609	707355.552	01°-14'-10"	200.646	18600.00	401.277
P.T. - C3	769+54.48	374492.933	707543.712				
P.C. - C4	773+74.53	373347.069	707937.617				
P.I.	774+65.37	374315.523	708022.806	04°-57'-14"	90.843	2100.000	181.572
P.T. - C4	775+56.10	374276.738	708104.953				
P.C. - C5	775+99.66	374258.141	708144.344				
P.I.	780+28.84	374074.904	708532.445	00°-55'-33"	429.18	53127.23	858.35
P.C.C.-C6	784+58.01	373885.420	708917.537				
P.I.	787+83.54	373741.700	709209.624	01°-22'-50"	325.53	27020.27	651.03
P.T. - C6	791+09.04	373590.984	709498.163				
I-84 EASTBOUND OFF RAMP							
P.C. - C5	62+59.13	375205.772	705908.747				
P.I.	63+70.58	375197.990	706019.925	25°-43'-45"	111.450	488.000	219.142
P.T. - C5	64+78.27	375239.244	706123.458				

NOTES

-THE LIMITS OF ALL BITUMINOUS CONCRETE DRIVEWAYS AS CALLED OUT ON PLANS SHALL MATCH INTO EXISTING DRIVEWAYS ALONG A CLEAN CUT. CUTTING OF BITUMINOUS CONCRETE DRIVEWAYS SHALL BE PAID FOR AS. "CUT BITUMINOUS CONCRETE PAVEMENT."



STAGE 1 - AREA OF ERODABLE SOILS

AREA	LOCATION	AREA (SF)	AREA (ACRES)
1A	I-84 EB OFF RAMP TO ROUTE 195	8186	0.19

(B) EASEMENT TO SLOPE FOR THE SUPPORT OF THE HIGHWAY ACQUIRED

(C) DRAINAGE RIGHT OF WAY ACQUIRED

(D) RIGHT TO INSTALL SEDIMENTATION CONTROL SYSTEM ACQUIRED

(E) RIGHT TO CONSTRUCT DRIVEWAY ACQUIRED

(F) EASEMENT TO SLOPE FOR THE SAFETY OF THE HIGHWAY AND REMOVE, USE OR RETAIN EXCAVATED MATERIAL ACQUIRED

(H) RIGHT TO REMOVE, STORE, AND RESET EXISTING STONE WALL

(I) EASEMENT TO INSTALL METAL BEAM RAIL AND MAINTAIN GUIDE RAILING AND END ANCHORAGE ACQUIRED

(J) CONSTRUCTION EASEMENT FOR THE PURPOSE OF PROVIDING INGRESS AND EGRESS FROM MERROW ROAD TO THE CONSTRUCTION SITE ACQUIRED.

(K) CONSTRUCTION EASEMENT FOR THE PURPOSE OF CONSTRUCTION OR PARKING SPACES, DRAINAGE, DRIVEWAY, AND REGRADING ACQUIRED.

(L) EASEMENT FOR A TEMPORARY WORK AREA FOR THE PURPOSE OF CONSTRUCTION OF A RETAINING WALL DURING THE RECONSTRUCTION OF MERROW ROAD IS ACQUIRE.

STAGE 1 - CONSTRUCTION DISTURBANCE

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: $DATE$

DESIGNER/DRAFTER: M.LOSYEVA
CHECKED BY: J.KOERNER
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: $FILEA$

SIGNATURE/ BLOCK:

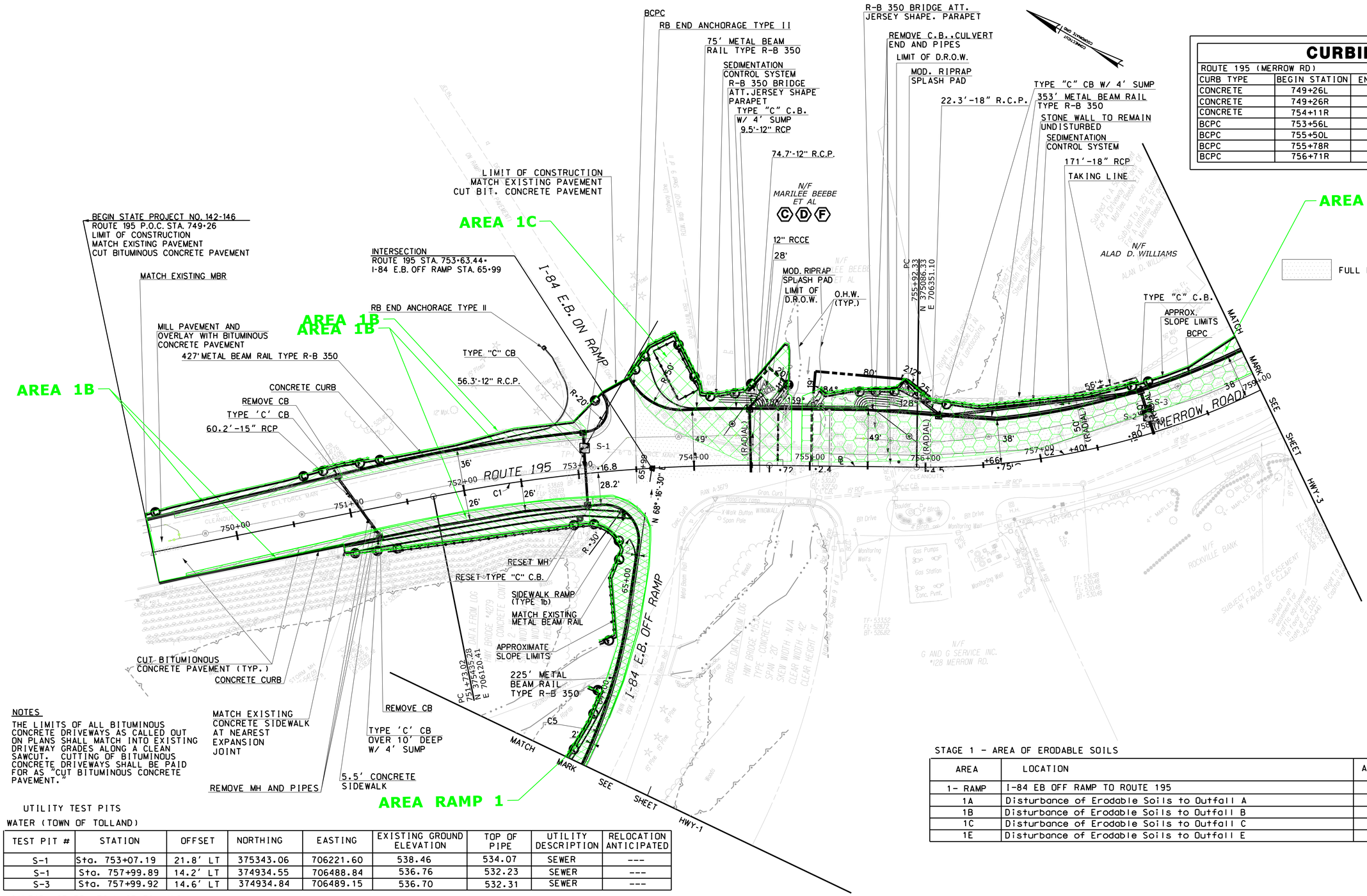
PROJECT TITLE: RECONSTRUCTION OF ROUTE 195

TOWN: TOLLAND

DRAWING TITLE: PLAN SHEET

PROJECT NO. 142-146
DRAWING NO. STRM-01
SHEET NO. 4-1

Border Version: 11/14/08



CURBING

ROUTE 195 (MERROW RD)			
CURB TYPE	BEGIN STATION	END STATION	SECTION LENGTH
CONCRETE	749+26L	753+27L	401'
CONCRETE	749+26R	753+47R	421'
CONCRETE	754+11R	754+57R	47'
BCPC	753+56L	754+60L	104'
BCPC	755+50L	759+00L	350'
BCPC	755+78R	756+09R	32'
BCPC	756+71R	759+00R	238'

NOTES

THE LIMITS OF ALL BITUMINOUS CONCRETE DRIVEWAYS AS CALLED OUT ON PLANS SHALL MATCH INTO EXISTING DRIVEWAY GRADES ALONG A CLEAN SAWCUT. CUTTING OF BITUMINOUS CONCRETE DRIVEWAYS SHALL BE PAID FOR AS "CUT BITUMINOUS CONCRETE PAVEMENT."

UTILITY TEST PITS

WATER (TOWN OF TOLLAND)

TEST PIT #	STATION	OFFSET	NORTHING	EASTING	EXISTING GROUND ELEVATION	TOP OF PIPE	UTILITY DESCRIPTION	RELOCATION ANTICIPATED
S-1	Sta. 753+07.19	21.8' LT	375343.06	706221.60	538.46	534.07	SEWER	---
S-1	Sta. 757+99.89	14.2' LT	374934.55	706488.84	536.76	532.23	SEWER	---
S-3	Sta. 757+99.92	14.6' LT	374934.84	706489.15	536.70	532.31	SEWER	---

SANTARY SEWER (TOWN OF TOLLAND)

W-1	Sta.758+01.1	36.1'RT	374896.74	706455.76	539.23	533.06	WATER	---

STAGE 1 - AREA OF ERODABLE SOILS

AREA	LOCATION	AREA (SF)	AREA (ACRES)
1- RAMP	I-84 EB OFF RAMP TO ROUTE 195	8186	0.19
1A	Disturbance of Erodable Soils to Outfall A	2891	0.07
1B	Disturbance of Erodable Soils to Outfall B	6499	0.15
1C	Disturbance of Erodable Soils to Outfall C	8813	0.20
1E	Disturbance of Erodable Soils to Outfall E	21313	0.49

STAGE 1 - CONSTRUCTION DISTURBANCE

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: $DATE$

DESIGNER/DRAFTER: M.LOSYEVA
CHECKED BY: J.KOERNER
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: $FILEA$

SIGNATURE/ BLOCK:

PROJECT TITLE: RECONSTRUCTION OF ROUTE 195

TOWN: TOLLAND

DRAWING TITLE: PLAN SHEET

PROJECT NO. 142-146
DRAWING NO. STRM-02
SHEET NO. 4-2

Border Version: 11/14/08

CURBING

ROUTE 195 (MERROW RD)			
CURB TYPE	BEGIN STATION	END STATION	SECTION LENGTH
B.C.P.C.	759+00L	759+84L	84'
B.C.P.C.	759+00R	759+66R	66'
B.C.P.C.	765+50L	769+06L	350'
B.C.P.C.	760+55R	764+12R	357'
B.C.P.C.	764+64R	769+06R	442'
B.C.P.C.	763+44MEDIAN	769+06MEDIAN	1126'

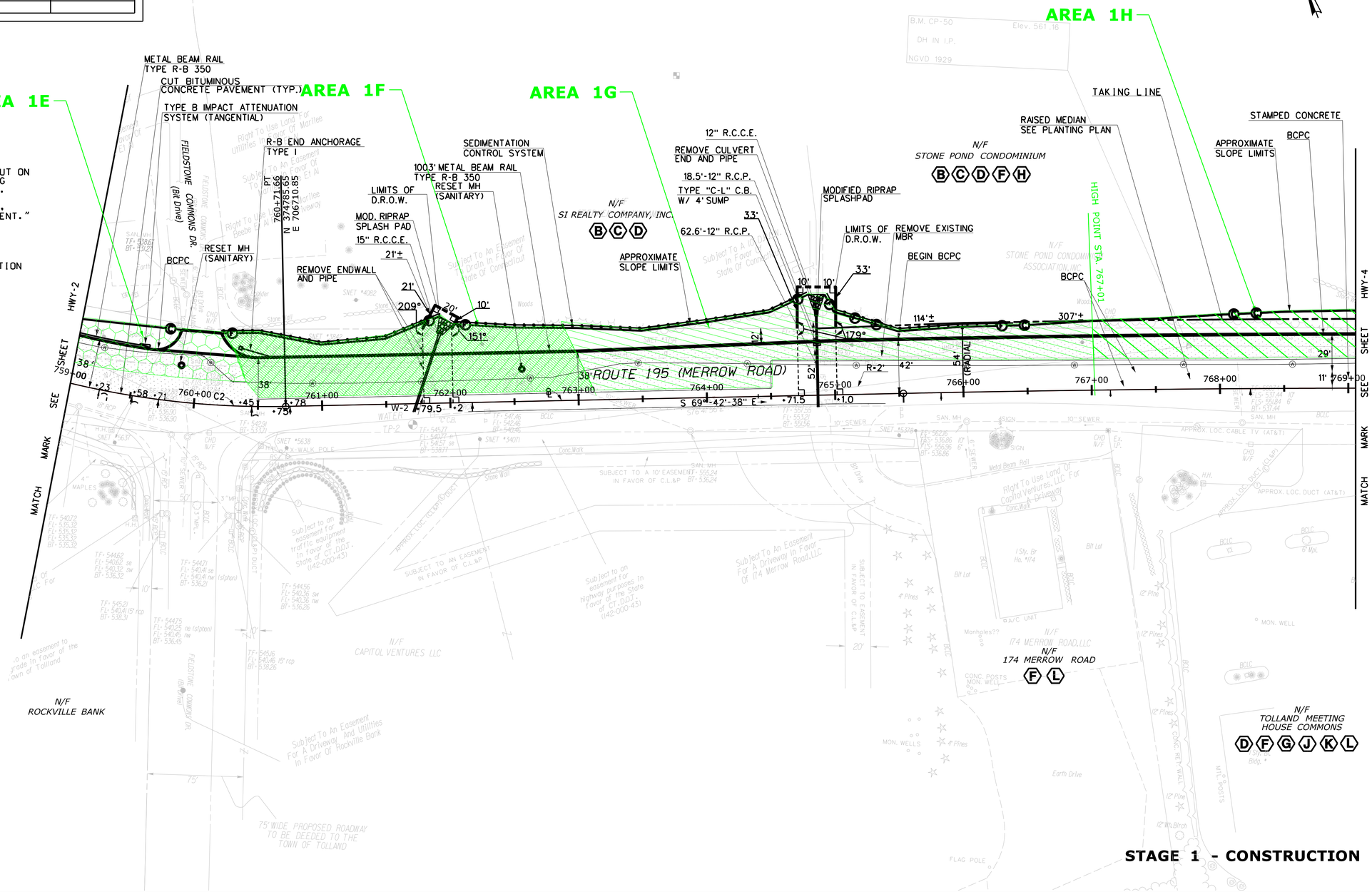
STAGE 1 - AREA OF ERODABLE SOILS

AREA	LOCATION	AREA (SF)	AREA (ACRES)
1E	Disturbance of Erodable Soils to Outfall E	21313	0.49
1F	Disturbance of Erodable Soils to Outfall F	13143	0.30
1G	Disturbance of Erodable Soils to Outfall G	15759	0.36
1H	Disturbance of Erodable Soils to Outfall H	24350	0.56

NOTES

- THE LIMITS OF ALL BITUMINOUS CONCRETE DRIVEWAYS AS CALLED OUT ON PLANS SHALL MATCH INTO EXISTING DRIVEWAYS ALONG A CLEAN SAWCUT. CUTTING OF BITUMINOUS CONCRETE DRIVEWAYS SHALL BE PAID FOR AS. "CUT BITUMINOUS CONCRETE PAVEMENT."

FULL DEPTH CONSTRUCTION



STAGE 1 - CONSTRUCTION DISTURBANCE

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: $DATE$

DESIGNER/DRAFTER: M.LOSYEVA
CHECKED BY: J.KOERNER
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: $FILEA$

SIGNATURE/ BLOCK:

PROJECT TITLE: RECONSTRUCTON OF ROUTE 195

TOWN: TOLLAND

DRAWING TITLE: PLAN SHEET

PROJECT NO. 142-146
DRAWING NO. STRM-03
SHEET NO. 4-3

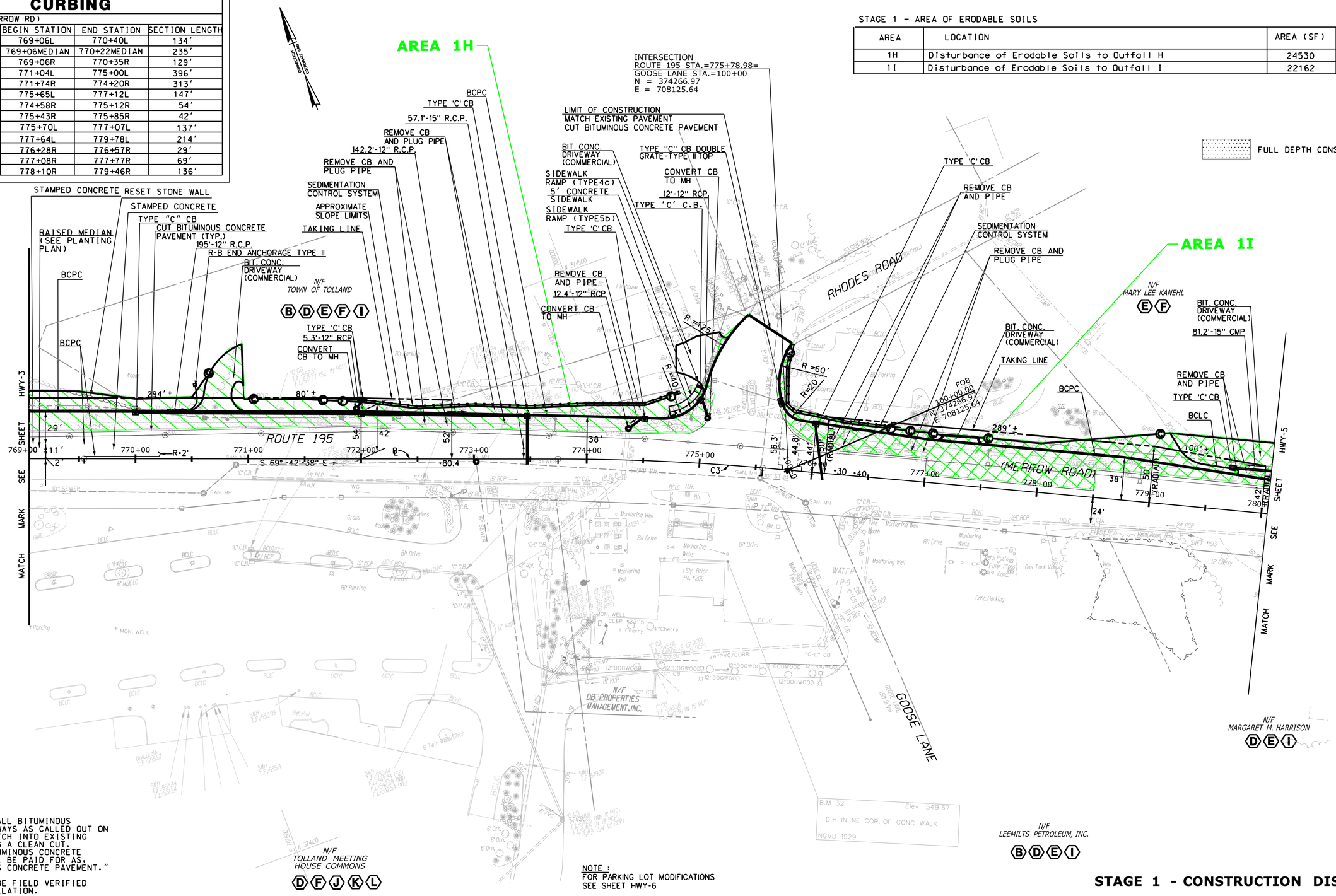
Border Version: 11/14/08

CURBING

ROUTE 195 (MERROW RD)			
CURB TYPE	BEGIN STATION	END STATION	SECTION LENGTH
BCPC	769+06L	770+40L	134'
BCPC	769+06MEDIAN	770+22MEDIAN	235'
BCPC	769+06R	770+35R	129'
BCPC	771+04L	775+00L	396'
BCPC	771+74R	774+20R	313'
BCPC	775+65L	777+12L	147'
BCPC	774+58R	775+12R	54'
BCPC	775+43R	775+85R	42'
BCPC	775+70L	777+07L	137'
BCPC	777+64L	779+78L	214'
BCPC	776+28R	776+57R	29'
BCPC	777+08R	777+77R	69'
BCPC	778+10R	779+46R	136'

STAGE 1 - AREA OF ERODABLE SOILS

AREA	LOCATION	AREA (SF)	AREA (ACRES)
1H	Disturbance of Erodable Soils to Outfall H	24530	0.56
1I	Disturbance of Erodable Soils to Outfall I	22162	0.51



NOTES

THE LIMITS OF ALL BITUMINOUS CONCRETE DRIVEWAYS AS CALLED OUT ON PLANS SHALL MATCH INTO EXISTING DRIVEWAYS ALONG A CLEAN CUT. CUTTING OF BITUMINOUS CONCRETE DRIVEWAYS SHALL BE PAID FOR AS. "CUT BITUMINOUS CONCRETE PAVEMENT."

* TF MANHOLE TO BE FIELD VERIFIED PRIOR TO INSTALLATION.

NOTE :
FOR PARKING LOT MODIFICATIONS SEE SHEET HWY-6

STAGE 1 - CONSTRUCTION DISTURBANCE

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: $DATE$

DESIGNER/DRAFTER: M.LOSYEVA
CHECKED BY: J.KOERNER
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: $FILE$

SIGNATURE/ BLOCK:

PROJECT TITLE: RECONSTRUCTION OF ROUTE 195

TOWN: TOLLAND

DRAWING TITLE: PLAN SHEET

PROJECT NO. 142-146
DRAWING NO. STRM-04
SHEET NO. 4-4

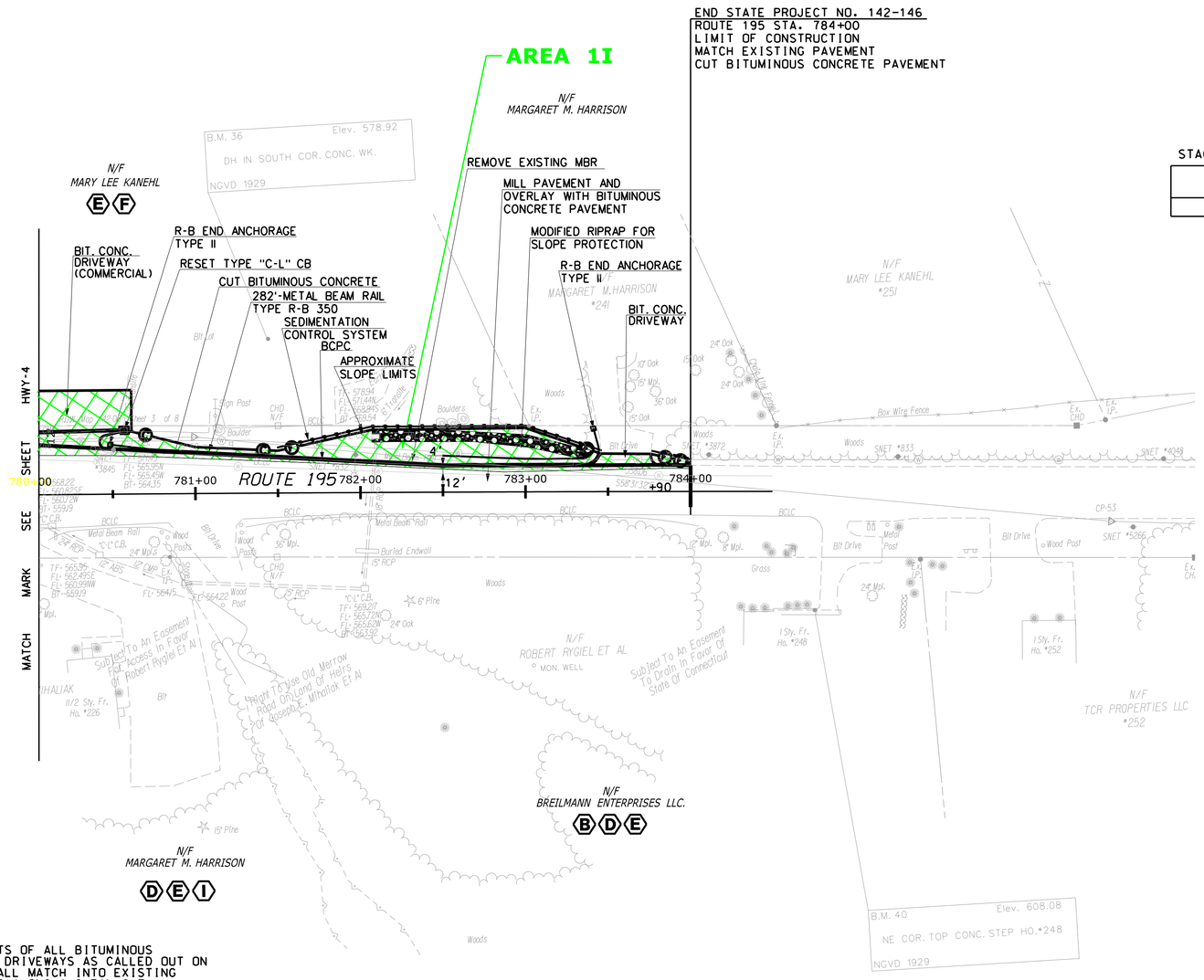
Border Version: 11/14/08

CURBING

ROUTE 195 (MERROW RD)			
CURB TYPE	BEGIN STATION	END STATION	SECTION LENGTH
B.C.P.C.	780+47L	783+37L	290'
B.C.P.C.	780+07R	780+82R	75'
B.C.P.C.	781+30R	784+00R	270'

STAGE 1 - AREA OF ERODABLE SOILS

AREA	LOCATION	AREA (SF)	AREA (ACRES)
1I	Disturbance of Erodable Soils to Outfall I	22162	0.51



NOTES

- THE LIMITS OF ALL BITUMINOUS CONCRETE DRIVEWAYS AS CALLED OUT ON PLANS SHALL MATCH INTO EXISTING DRIVEWAYS ALONG A CLEAN CUT. CUTTING OF BITUMINOUS CONCRETE DRIVEWAYS SHALL BE PAID FOR AS. "CUT BITUMINOUS CONCRETE PAVEMENT."

FULL DEPTH CONSTRUCTION

STAGE 1 - CONSTRUCTION DISTURBANCE

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: $DATE$

DESIGNER/DRAFTER: M.LOSYEVA
CHECKED BY: J.KOERNER
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: $FILEA$

SIGNATURE/ BLOCK:

PROJECT TITLE: RECONSTRUCTION OF ROUTE 195

TOWN: TOLLAND

DRAWING TITLE: PLAN SHEET

PROJECT NO. 142-146
DRAWING NO. STRM-05
SHEET NO. 4-5

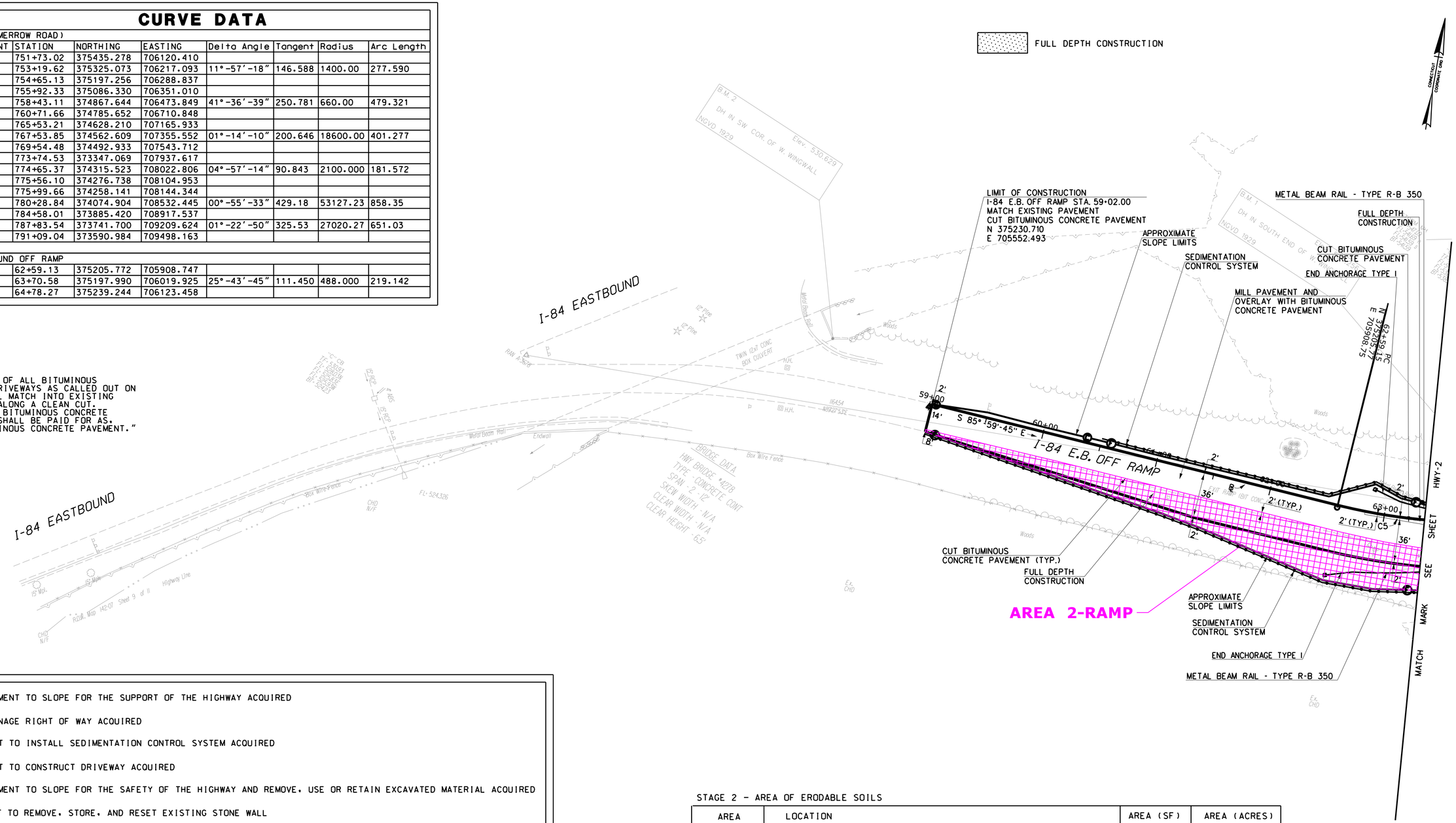
Border Version: 11/14/08

CURVE DATA

ROUTE 195 (MERROW ROAD)							
CONTROL POINT	STATION	NORTHING	EASTING	Delta Angle	Tangent	Radius	Arc Length
P.C. - C1	751+73.02	375435.278	706120.410				
P.I.	753+19.62	375325.073	706217.093	11°-57'-18"	146.588	1400.00	277.590
P.T. - C1	754+65.13	375197.256	706288.837				
P.C. - C2	755+92.33	375086.330	706351.010				
P.I.	758+43.11	374867.644	706473.849	41°-36'-39"	250.781	660.00	479.321
P.T. - C2	760+71.66	374785.652	706710.848				
P.C. - C3	765+53.21	374628.210	707165.933				
P.I.	767+53.85	374562.609	707355.552	01°-14'-10"	200.646	18600.00	401.277
P.T. - C3	769+54.48	374492.933	707543.712				
P.C. - C4	773+74.53	373347.069	707937.617				
P.I.	774+65.37	374315.523	708022.806	04°-57'-14"	90.843	2100.000	181.572
P.T. - C4	775+56.10	374276.738	708104.953				
P.C. - C5	775+99.66	374258.141	708144.344				
P.I.	780+28.84	374074.904	708532.445	00°-55'-33"	429.18	53127.23	858.35
P.C.C.-C6	784+58.01	373885.420	708917.537				
P.I.	787+83.54	373741.700	709209.624	01°-22'-50"	325.53	27020.27	651.03
P.T. - C6	791+09.04	373590.984	709498.163				
I-84 EASTBOUND OFF RAMP							
P.C. - C5	62+59.13	375205.772	705908.747				
P.I.	63+70.58	375197.990	706019.925	25°-43'-45"	111.450	488.000	219.142
P.T. - C5	64+78.27	375239.244	706123.458				

NOTES

-THE LIMITS OF ALL BITUMINOUS CONCRETE DRIVEWAYS AS CALLED OUT ON PLANS SHALL MATCH INTO EXISTING DRIVEWAYS ALONG A CLEAN CUT. CUTTING OF BITUMINOUS CONCRETE DRIVEWAYS SHALL BE PAID FOR AS. "CUT BITUMINOUS CONCRETE PAVEMENT."



(B)	EASEMENT TO SLOPE FOR THE SUPPORT OF THE HIGHWAY ACQUIRED
(C)	DRAINAGE RIGHT OF WAY ACQUIRED
(D)	RIGHT TO INSTALL SEDIMENTATION CONTROL SYSTEM ACQUIRED
(E)	RIGHT TO CONSTRUCT DRIVEWAY ACQUIRED
(F)	EASEMENT TO SLOPE FOR THE SAFETY OF THE HIGHWAY AND REMOVE, USE OR RETAIN EXCAVATED MATERIAL ACQUIRED
(H)	RIGHT TO REMOVE, STORE, AND RESET EXISTING STONE WALL
(I)	EASEMENT TO INSTALL METAL BEAM RAIL AND MAINTAIN GUIDE RAILING AND END ANCHORAGE ACQUIRED
(J)	CONSTRUCTION EASEMENT FOR THE PURPOSE OF PROVIDING INGRESS AND EGRESS FROM MERROW ROAD TO THE CONSTRUCTION SITE ACQUIRED.
(K)	CONSTRUCTION EASEMENT FOR THE PURPOSE OF CONSTRUCTION OR PARKING SPACES, DRAINAGE, DRIVEWAY, AND REGRADING ACQUIRED.
(L)	EASEMENT FOR A TEMPORARY WORK AREA FOR THE PURPOSE OF CONSTRUCTION OF A RETAINING WALL DURING THE RECONSTRUCTION OF MERROW ROAD IS ACQUIRE.

STAGE 2 - AREA OF ERODABLE SOILS

AREA	LOCATION	AREA (SF)	AREA (ACRES)
2-RAMP	I-84 EB OFF RAMP TO ROUTE 195	19228	0.44

STAGE 2 - CONSTRUCTION DISTURBANCE

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: $DATE$

DESIGNER/DRAFTER: M.LOSYEVA
CHECKED BY: J.KOERNER
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: $FILEA$

SIGNATURE/ BLOCK:

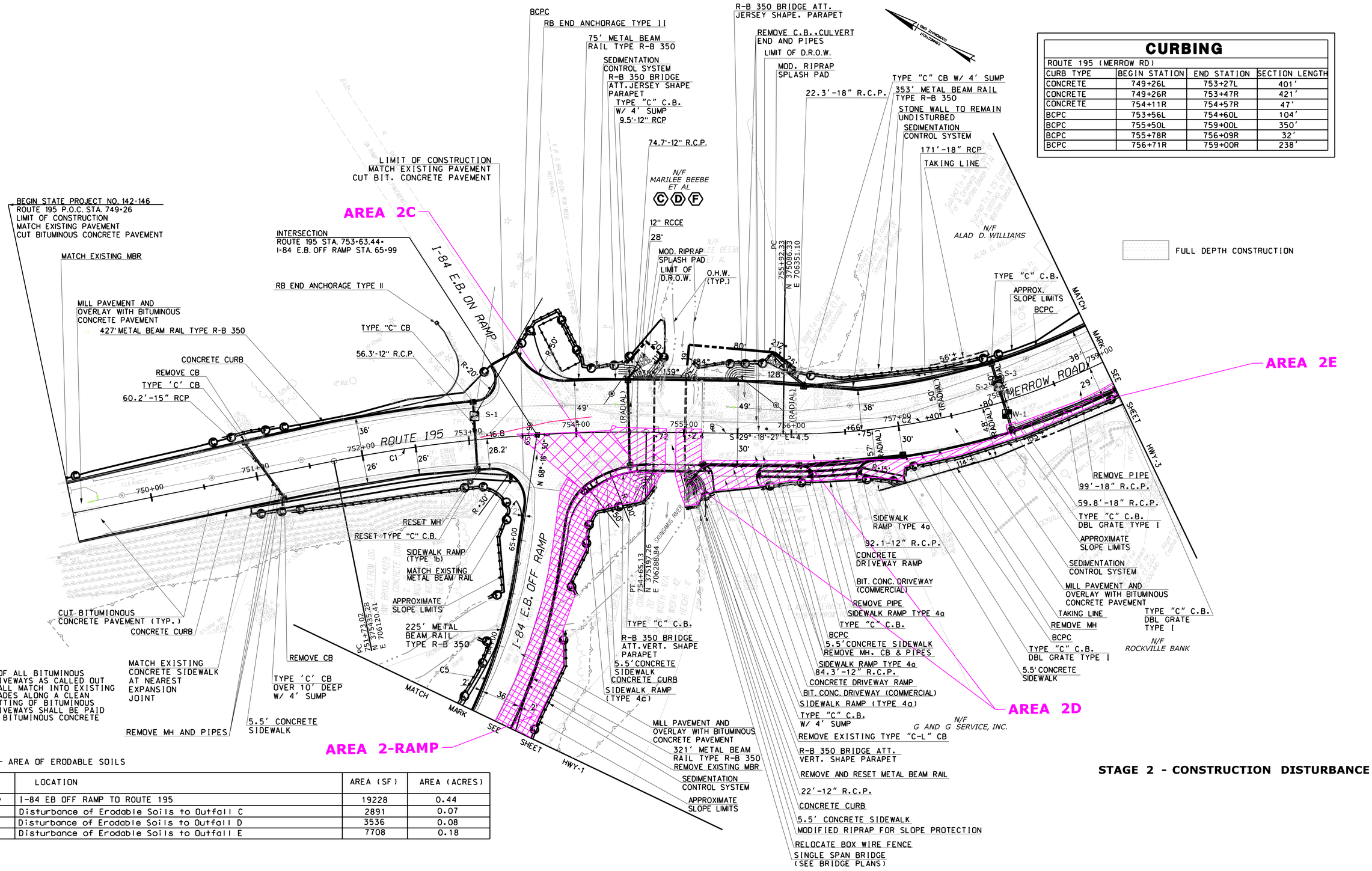
PROJECT TITLE: RECONSTRUCTION OF ROUTE 195

TOWN: TOLLAND

DRAWING TITLE: PLAN SHEET

PROJECT NO. 142-146
DRAWING NO. STRM-06
SHEET NO. 5-1

Border Version: 11/14/08



CURBING

ROUTE 195 (MERROW RD)			
CURB TYPE	BEGIN STATION	END STATION	SECTION LENGTH
CONCRETE	749+26L	753+27L	401'
CONCRETE	749+26R	753+47R	421'
CONCRETE	754+11R	754+57R	47'
BCPC	753+56L	754+60L	104'
BCPC	755+50L	759+00L	350'
BCPC	755+78R	756+09R	32'
BCPC	756+71R	759+00R	238'

NOTES

THE LIMITS OF ALL BITUMINOUS CONCRETE DRIVEWAYS AS CALLED OUT ON PLANS SHALL MATCH INTO EXISTING DRIVEWAY GRADES ALONG A CLEAN SAWCUT. CUTTING OF BITUMINOUS CONCRETE DRIVEWAYS SHALL BE PAID FOR AS "CUT BITUMINOUS CONCRETE PAVEMENT."

STAGE 2 - AREA OF ERODABLE SOILS

AREA	LOCATION	AREA (SF)	AREA (ACRES)
2- RAMP	I-84 EB OFF RAMP TO ROUTE 195	19228	0.44
2C	Disturbance of Erodable Soils to Outfall C	2891	0.07
2D	Disturbance of Erodable Soils to Outfall D	3536	0.08
2E	Disturbance of Erodable Soils to Outfall E	7708	0.18

STAGE 2 - CONSTRUCTION DISTURBANCE

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: $DATE$

DESIGNER/DRAFTER: M.LOSYEVA
CHECKED BY: J.KOERNER
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: $FILEA$

SIGNATURE/ BLOCK:

PROJECT TITLE: RECONSTRUCTION OF ROUTE 195

TOWN: TOLLAND

DRAWING TITLE: PLAN SHEET

PROJECT NO. 142-146
DRAWING NO. STRM-07
SHEET NO. 5-2

Border Version: 11/14/08

CURBING

ROUTE 195 (MERROW RD)			
CURB TYPE	BEGIN STATION	END STATION	SECTION LENGTH
B.C.P.C.	759+00L	759+84L	84'
B.C.P.C.	759+00R	759+66R	66'
B.C.P.C.	765+50L	769+06L	350'
B.C.P.C.	760+55R	764+12R	357'
B.C.P.C.	764+64R	769+06R	442'
B.C.P.C.	763+44MEDIAN	769+06MEDIAN	1126'

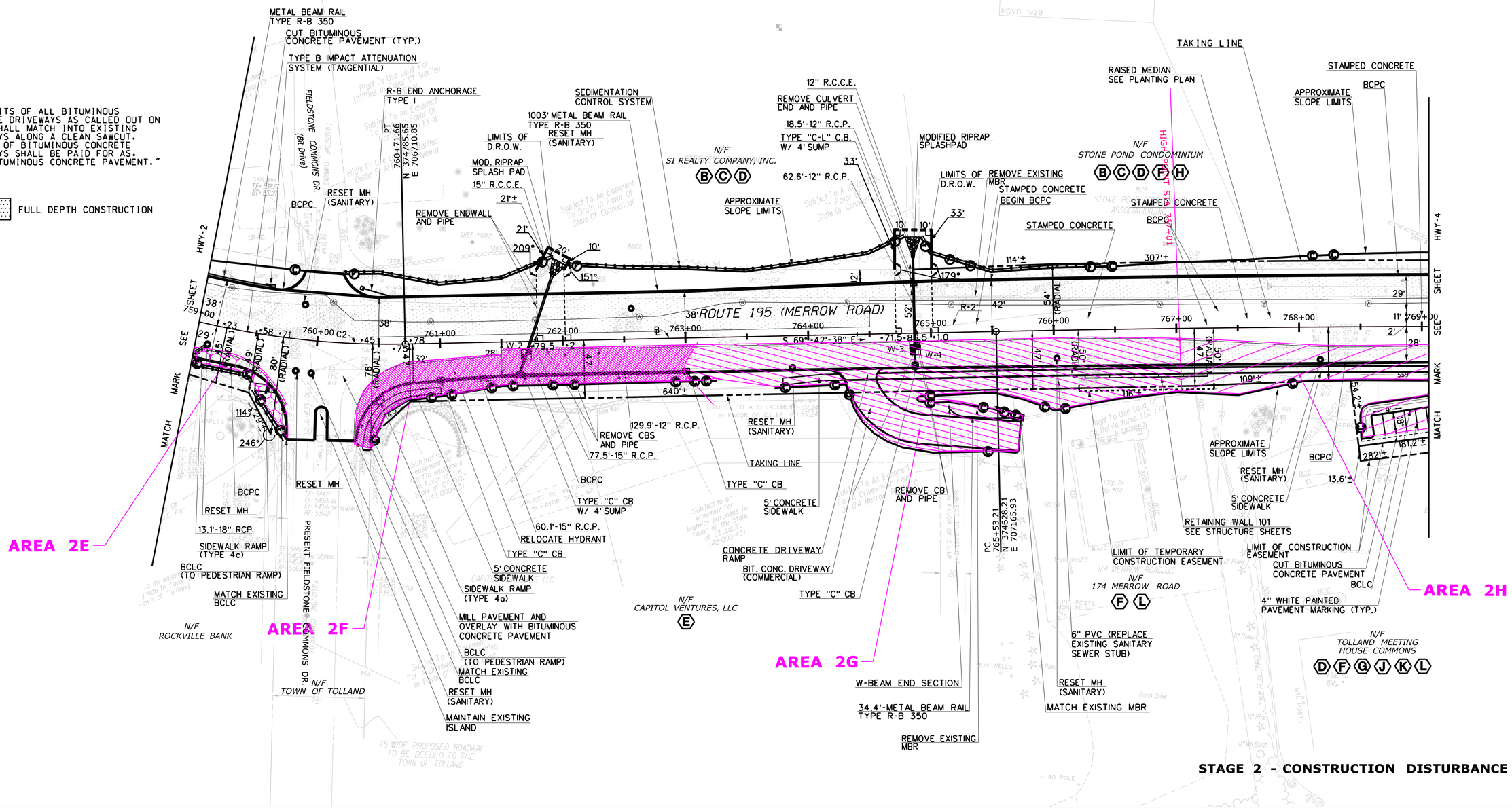
STAGE 2 - AREA OF ERODABLE SOILS

AREA	LOCATION	AREA (SF)	AREA (ACRES)
2E	Disturbance of Erodable Soils to Outfall E	2498	0.06
2F	Disturbance of Erodable Soils to Outfall F	8628	0.20
2G	Disturbance of Erodable Soils to Outfall G	21621	0.50
2H	Disturbance of Erodable Soils to Outfall H	38569	0.89

NOTES

- THE LIMITS OF ALL BITUMINOUS CONCRETE DRIVEWAYS AS CALLED OUT ON PLANS SHALL MATCH INTO EXISTING DRIVEWAYS ALONG A CLEAN SAWCUT. CUTTING OF BITUMINOUS CONCRETE DRIVEWAYS SHALL BE PAID FOR AS. "CUT BITUMINOUS CONCRETE PAVEMENT."

FULL DEPTH CONSTRUCTION



STAGE 2 - CONSTRUCTION DISTURBANCE

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: $DATE$

DESIGNER/DRAFTER: M.LOSYEVA
CHECKED BY: J.KOERNER
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: $FILEA$

SIGNATURE/ BLOCK:

PROJECT TITLE: RECONSTRUCTON OF ROUTE 195

TOWN: TOLLAND

DRAWING TITLE: PLAN SHEET

PROJECT NO. 142-146
DRAWING NO. STRM-08
SHEET NO. 5-3

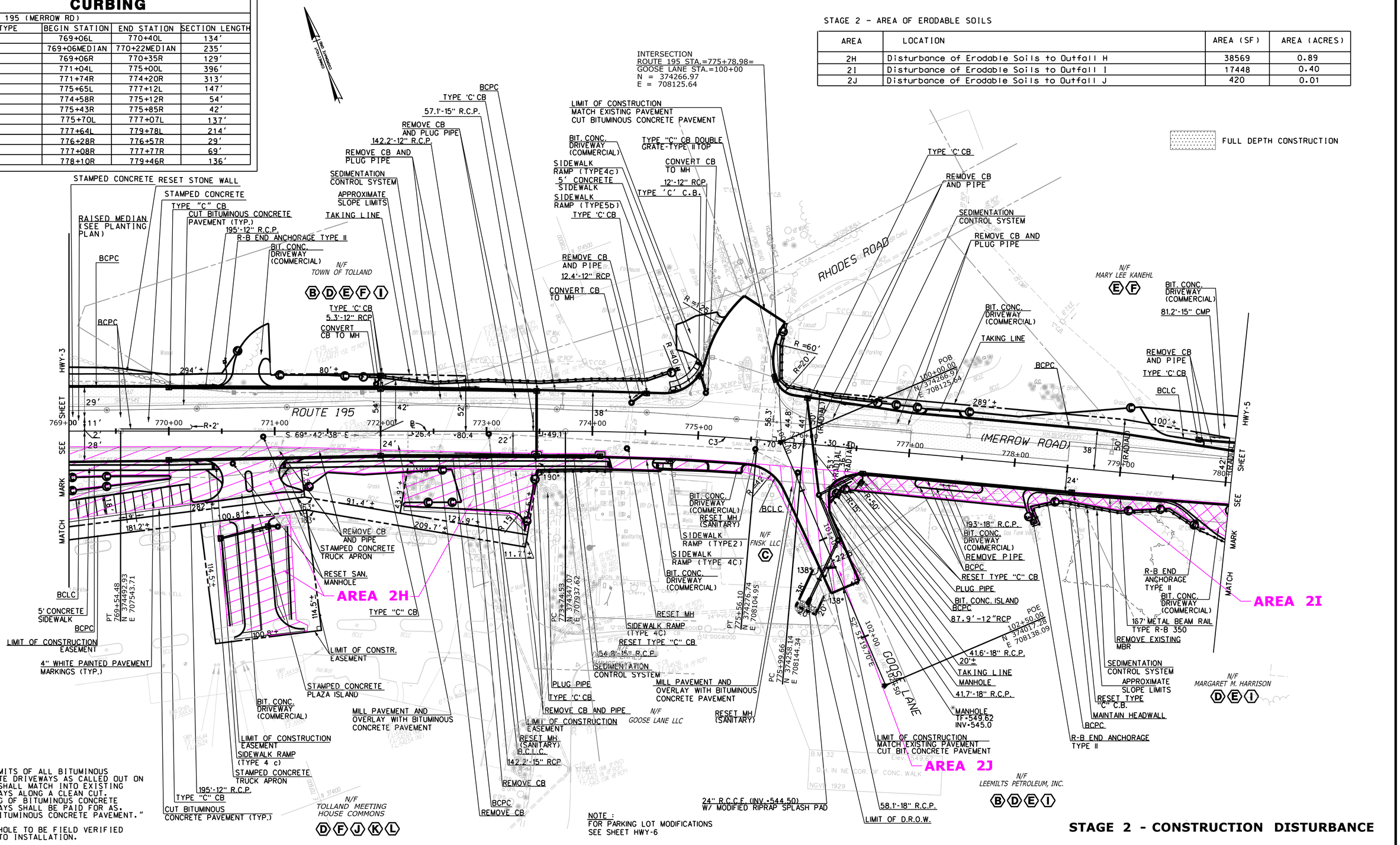
Border Version: 11/14/08

CURBING

ROUTE 195 (MERROW RD)			
CURB TYPE	BEGIN STATION	END STATION	SECTION LENGTH
BCPC	769+06L	770+40L	134'
BCPC	769+06MEDIAN	770+22MEDIAN	235'
BCPC	769+06R	770+35R	129'
BCPC	771+04L	775+00L	396'
BCPC	771+74R	774+20R	313'
BCPC	775+65L	777+12L	147'
BCPC	774+58R	775+12R	54'
BCPC	775+43R	775+85R	42'
BCPC	775+70L	777+07L	137'
BCPC	777+64L	779+78L	214'
BCPC	776+28R	776+57R	29'
BCPC	777+08R	777+77R	69'
BCPC	778+10R	779+46R	136'

STAGE 2 - AREA OF ERODABLE SOILS

AREA	LOCATION	AREA (SF)	AREA (ACRES)
2H	Disturbance of Erodable Soils to Outfall H	38569	0.89
2I	Disturbance of Erodable Soils to Outfall I	17448	0.40
2J	Disturbance of Erodable Soils to Outfall J	420	0.01



STAGE 2 - CONSTRUCTION DISTURBANCE

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: $DATE$

DESIGNER/DRAFTER: M.LOSYEVA
CHECKED BY: J.KOERNER
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: $FILEA$

SIGNATURE/ BLOCK:

PROJECT TITLE: RECONSTRUCTION OF ROUTE 195

TOWN: TOLLAND

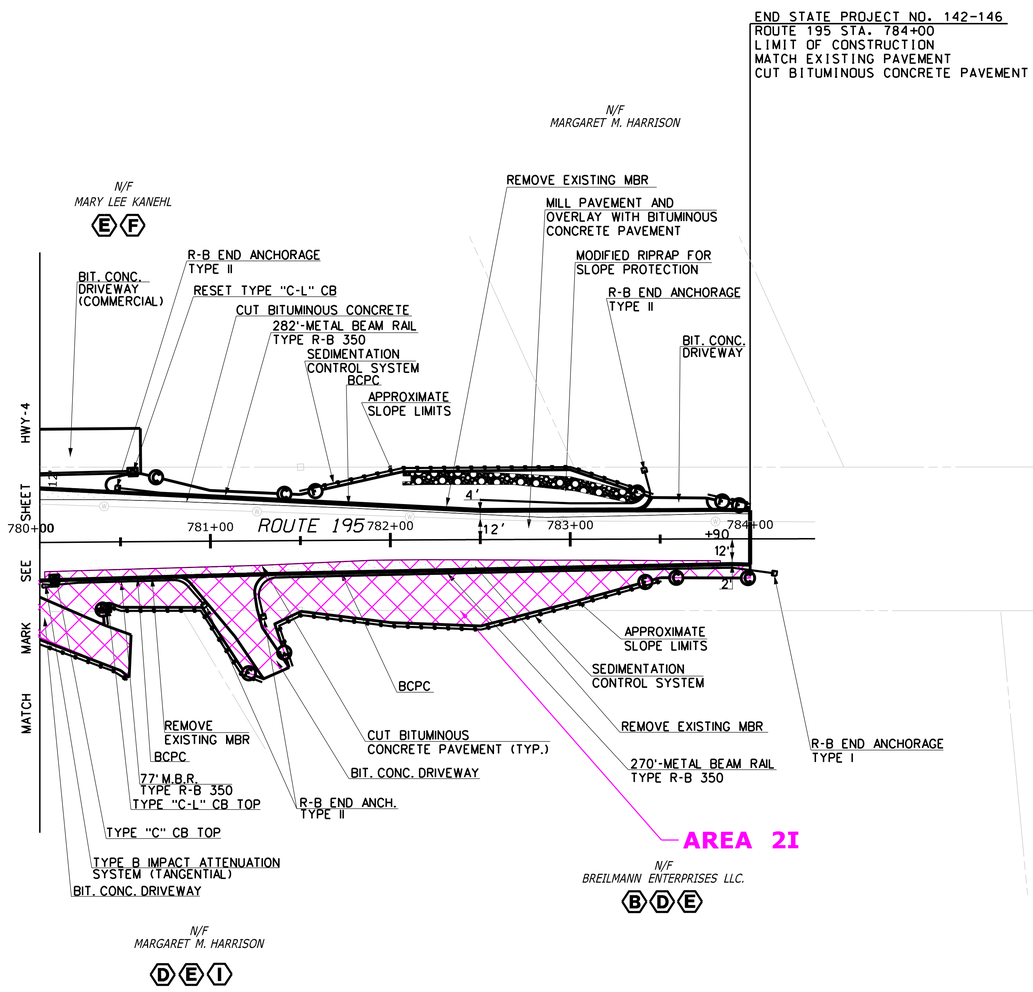
DRAWING TITLE: PLAN SHEET

PROJECT NO. 142-146
DRAWING NO. STRM-09
SHEET NO. 5-4

Border Version: 11/14/08

CURBING

ROUTE 195 (MERROW RD)			
CURB TYPE	BEGIN STATION	END STATION	SECTION LENGTH
B.C.P.C.	780+47L	783+37L	290'
B.C.P.C.	780+07R	780+82R	75'
B.C.P.C.	781+30R	784+00R	270'



STAGE 2 - AREA OF ERODABLE SOILS

AREA	LOCATION	AREA (SF)	AREA (ACRES)
2I	Disturbance of Erodable Soils to Outfall I	17448	0.40

NOTES

-THE LIMITS OF ALL BITUMINOUS CONCRETE DRIVEWAYS AS CALLED OUT ON PLANS SHALL MATCH INTO EXISTING DRIVEWAYS ALONG A CLEAN CUT. CUTTING OF BITUMINOUS CONCRETE DRIVEWAYS SHALL BE PAID FOR AS. "CUT BITUMINOUS CONCRETE PAVEMENT."

FULL DEPTH CONSTRUCTION

STAGE 2 - CONSTRUCTION DISTURBANCE

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: $DATE$

DESIGNER/DRAFTER: M.LOSYEVA
CHECKED BY: J.KOERNER
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: $FILEA$

SIGNATURE/
BLOCK:

PROJECT TITLE: RECONSTRUCTION OF ROUTE 195

TOWN: TOLLAND

DRAWING TITLE: PLAN SHEET

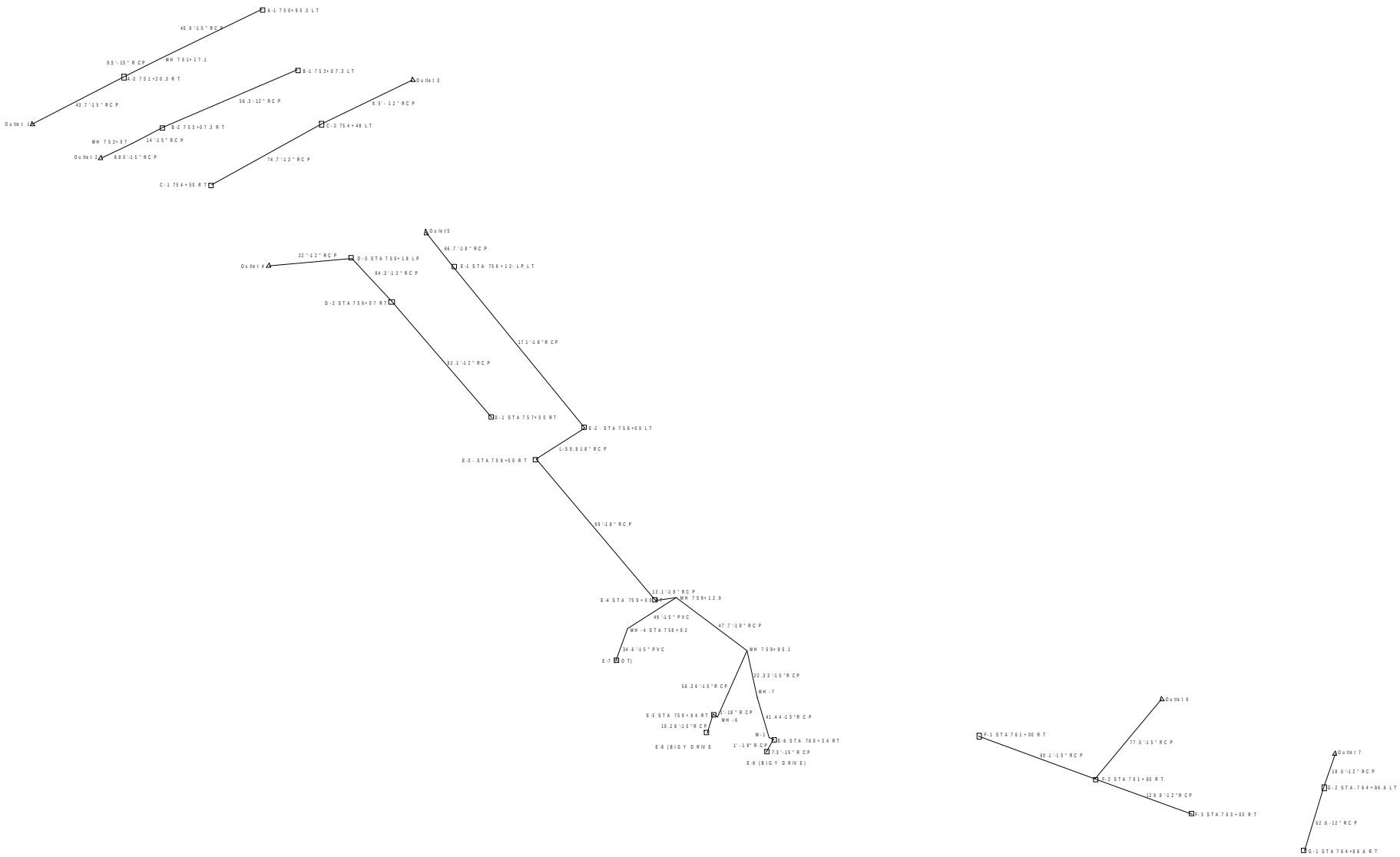
PROJECT NO. 142-146
DRAWING NO. STRM-10
SHEET NO. 5-5

Border Version: 11/14/08

Appendix B – Drainage Calculations

Pre/Post Construction Runoff Coefficients	Table 1
Water Quality Computations	Table 2

Scenario: Base

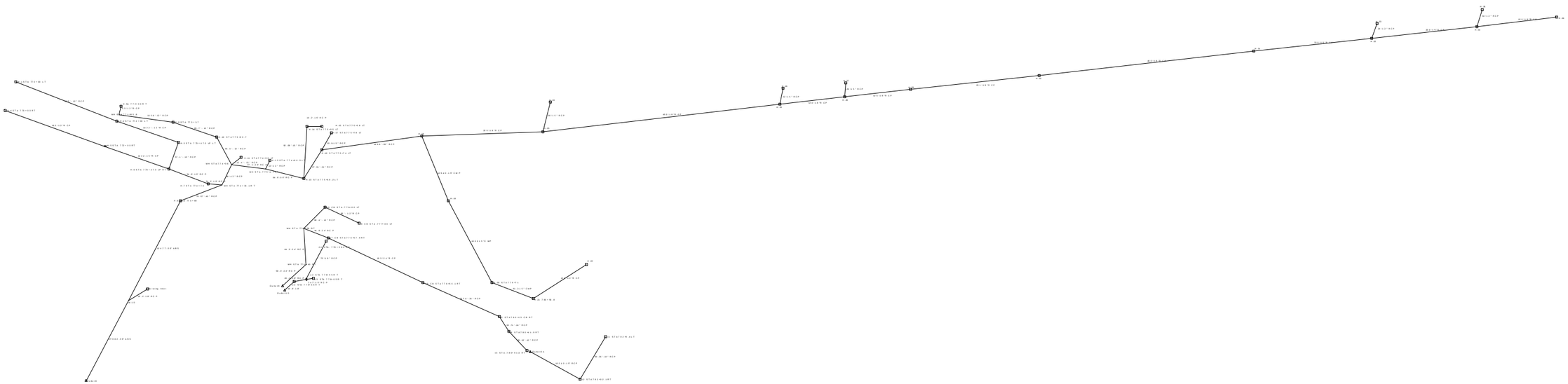


Title: Tolland 142-146
z:\...\stormcad\restored\142-146 tolland final.stm
09/18/13 10:06:59 AM

Purcell Associates
© Haestad Methods, Inc. 37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

Project Engineer: Alfred Benesch & Company
StormCAD v3.0 [319]
Page 1 of 1

Scenario: Base



Scenario: Base

DOT Report

Label	-Node- Up And Down	Area (acres)	Inlet CA (acres)	System Contributing Area (acres)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	-Section- Shape Size	Length (ft)	Average Velocity (ft/s)
46'-15" RCP	A-1 750+95.3 LT	0.20	0.18	0.18	547.81	543.61	0.027	1.07	Circular	46.00	4.51
	MH 751+17.1				547.30	541.95	0.033	11.70	15 inch		
44'-15" RCP	A-2 751+20.3 RT	0.28	0.25	0.41	546.69	537.63	0.175	2.49	Circular	44.00	9.73
	Outlet 1				527.68	526.48	0.245	31.94	15 inch		
56.3-15" RCP	B-1 753+07.3 LT	0.18	0.16	0.16	538.25	534.03	0.010	0.98	Circular	56.30	2.64
	B-2 753+07.3 RT				538.30	533.53	0.010	6.61	15 inch		
14'-15" RCP	B-2 753+07.3 RT	0.15	0.13	0.30	538.30	533.53	0.144	1.45	Circular	14.00	8.43
	MH 752+97				539.29	528.87	0.311	36.05	15 inch		
74.9'-15" RCP	C-1 754+50 RT	0.08	0.07	0.07	534.40	530.05	0.009	0.44	Circular	74.90	1.80
	C-2 754+48 LT				533.94	529.47	0.010	6.46	15 inch		
17.7'-15" RCP	C-2 754+48 LT	0.14	0.13	0.20	533.94	529.47	0.016	1.17	Circular	17.70	4.17
	Outlet 3				530.05	528.93	0.023	9.83	15 inch		
91.8'-12" RCP	D-1 STA 757+00 RT	0.23	0.10	0.07	536.51	532.40	0.019	0.32	Circular	91.80	1.85
	D-2 STA 756+07 RT				534.68	530.67	0.020	5.03	12 inch		
84.4'-12" RCP	D-2 STA 756+07 RT	0.07	0.04	0.15	534.68	530.66	0.010	0.58	Circular	84.40	2.37
	D-3 STA 755+18 LP				534.08	529.89	0.010	3.55	12 inch		
22.7'-12" RCP	D-3 STA 755+18 LP	0.08	0.07	0.23	534.08	529.89	0.027	0.88	Circular	22.70	4.55
	Outlet 4				529.80	528.87	0.038	6.97	12 inch		
67'-18" RCP	E-1 STA 756+12- LP LT	0.54	0.49	1.45	532.34	527.86	0.008	6.46	Circular	67.00	5.61
	Oulet 5				528.00	527.18	0.009	9.86	18 inch		
171'-18" RCP	E-2- STA 758+00 LT	0.28	0.25	0.93	535.26	531.17	0.020	4.25	Circular	171.00	3.89
	E-1 STA 756+12- LP LT				532.34	527.91	0.020	15.03	18 inch		
L-59.9	E-3- STA 758+00 RT	0.16	0.08	0.71	538.79	534.60	0.059	3.28	Circular	59.90	3.80
	E-2- STA 758+00 LT				535.26	531.17	0.059	25.50	18 inch		
99'-18" RCP	E-4 STA 759+00 RT	0.16	0.08	0.64	541.06	535.84	0.013	2.98	Circular	99.00	3.88
	E-3- STA 758+00 RT				538.79	534.60	0.013	11.90	18 inch		
1'-18" RCP	E-5 STA 759+84 RT	0.00	0.00	0.12	544.79	540.91	0.019	0.60	Circular	1.00	3.65
	MH-6				544.75	540.64	0.170	43.31	18 inch		
1' -18" RCP	E-6 STA 760+34 RT	0.00	0.00	0.12	544.73	540.77	0.002	0.60	Circular	1.00	1.79
	M-1				544.71	540.74	-0.050	-23.49	18 inch		
34.6'-15" PVC	E-7 (LOT)	0.35	0.32	0.32	553.00	540.95	0.051	1.91	Circular	34.60	7.80
	MH-4 STA 758+92				546.96	537.19	0.099	26.48	15 inch		
10.28'-15" RCP	E-8 (BIG Y DRIVE	0.16	0.12	0.11	545.38	540.93	4.035e-4	0.55	Circular	10.28	1.01
	E-5 STA 759+84 RT				544.79	540.94	0.009	6.04	15 inch		
7.3'-15" RCP	E-9 (BIG Y DRIVE)	0.16	0.12	0.11	545.33	540.74	0.005	0.52	Circular	7.30	2.01
	E-6 STA 760+34 RT				544.73	540.77	0.014	7.56	15 inch		
22.1'-18" RCP	Existing Inlet	0.48	0.31	0.31	542.00	541.76	0.036	9.04	Circular	22.10	9.58

Scenario: Base

DOT Report

Label	-Node- Up And Down	Area (acres)	Inlet CA (acres)	System Contributing Area (acres)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	-Section- Shape Size	Length (ft)	Average Velocity (ft/s)
	M-10				548.21	538.93	0.104	33.81	18 inch		
60.1'-18" RCP	F-1 STA 761+00 RT	0.59	0.26	0.26	544.24	540.53	0.003	1.25	Circular	60.10	2.18
	F-2 STA 761+65 RT				545.86	540.45	0.008	9.39	18 inch		
77.2'-18" RCP	F-2 STA 761+65 RT	0.17	0.08	0.69	545.86	540.32	0.008	3.29	Circular	77.20	4.51
	Outlet 6				540.71	539.61	0.008	9.49	18 inch		
129.9'-18" RCP	F-3 STA 763+00 RT	0.55	0.32	0.35	550.44	546.05	0.032	1.69	Circular	129.90	5.08
	F-2 STA 761+65 RT				545.86	541.35	0.035	19.57	18 inch		
62.6-18" RCP	G-1 STA 764+86.6 RT	0.64	0.36	0.33	557.43	553.02	0.010	1.60	Circular	62.60	3.29
	G-2 STA. 764+86.6 LT				557.58	552.41	0.010	10.45	18 inch		
18.5'-18" RCP	G-2 STA. 764+86.6 LT	0.00	0.00	0.33	557.58	552.40	0.075	1.58	Circular	18.50	6.92
	Outlet 7				551.04	549.46	0.145	39.98	18 inch		
195' - 15" RCP	H-1 STA 770+00 LT	0.34	0.25	0.24	555.07	550.88	0.023	1.16	Circular	195.00	2.39
	H-2 STA 772+00 LT				550.34	546.45	0.024	10.05	15 inch		
142.2' - 15" RCP	H-2 STA 772+00 LT	0.24	0.19	0.44	550.34	546.43	0.003	2.03	Circular	142.20	2.79
	H-3 STA 773+47.3 LP LT				549.95	546.08	0.003	3.43	15 inch		
58.5' - 15" RCP	H-3 STA 773+47.3 LP LT	0.09	0.08	0.52	549.95	545.95	0.009	2.33	Circular	58.50	2.90
	H-6 STA 773+47.3 LP RT				548.78	545.58	0.018	8.65	15 inch		
195'-15" RCP	H-4 STA 770+00 RT	0.37	0.28	0.27	555.27	550.91	0.023	1.30	Circular	195.00	2.87
	H-5 STA 772+00 RT				550.47	546.41	0.024	9.92	15 inch		
142.2-15" RCP	H-5 STA 772+00 RT	0.18	0.15	0.38	550.47	546.39	0.007	1.79	Circular	142.20	2.53
	H-6 STA 773+47.3 LP RT				548.78	545.58	0.011	6.79	15 inch		
54.7'-15" RCP	H-6 STA 773+47.3 LP RT	0.29	0.25	1.25	548.78	545.49	0.006	5.52	Circular	55.00	4.77
	H-7 STA 774+7.5				548.58	545.07	0.005	4.61	15 inch		
22.02'-15" RCP	H-7 STA 774+7.5	0.22	0.20	1.40	548.58	544.91	0.016	6.17	Circular	22.02	6.92
	MH STA 774+33.1 RT				549.00	544.09	0.026	10.39	15 inch		
124.77-36" ABS	H-8 STA 773+69	0.23	0.09	11.78	546.91	541.02	0.011	18.62	Circular	124.77	7.46
	M-10				548.21	538.91	0.014	78.53	36 inch		
85.7' - 12" RCP	H-9 STA 773+3.7	0.68	0.45	0.72	548.37	547.68	0.009	3.39	Circular	85.70	4.32
	H-10 STA 773+90.7				548.69	546.90	0.010	3.61	12 inch		
5.3'-12" RCP	H-9A 772+00 RT	0.45	0.27	0.27	550.77	547.91	0.014	1.29	Circular	5.30	3.12
	MH STA 771+95.8				550.85	547.90	0.019	4.89	12 inch		
55.3' - 12" RCP	H-10 STA 773+90.7	1.01	0.69	1.41	548.69	545.97	0.034	6.58	Circular	55.30	8.43
	MH STA 774+36				550.61	544.06	0.024	5.52	12 inch		
14' - 15" RCP	H-11 STA 774+50 LT	0.03	0.03	0.03	550.70	546.24	0.106	0.16	Circular	14.00	3.61
	MH STA 774+36				550.61	544.36	0.129	23.16	15 inch		
12'-36" RCP	H-12 STA. 774+96.3 LT	0.15	0.12	0.20	550.47	544.46	1.597e-4	0.97	Circular	12.00	0.85
	MH STA. 775+4.7 LT				551.40	544.48	0.048	146.63	36 inch		

Scenario: Base

DOT Report

Label	-Node- Up And Down	Area (acres)	Inlet CA (acres)	System Contributing Area (acres)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	-Section- Shape Size	Length (ft)	Average Velocity (ft/s)
64.6'-36" RCP	H-13 STA 775+68.2 LT	0.96	0.62	8.64	550.95	546.49	0.018	13.72	Circular	64.60	7.84
	MH STA. 775+4.7 LT				551.40	544.12	0.030	114.98	36 inch		
92.09'-15" RCP	H-14 STA 775+35 LT	0.05	0.04	0.06	550.97	547.11	0.007	0.29	Circular	92.09	1.23
	H-13 STA 775+68.2 LT				550.95	546.49	0.014	7.65	15 inch		
19.2'-15" RCP	H-15 STA 775+58 LT	0.05	0.03	0.03	551.47	547.44	0.015	0.13	Circular	19.20	2.10
	H-14 STA 775+35 LT				550.97	547.11	0.016	8.07	15 inch		
57.61'-24" RCP	H-16 STA 775+74 LT	0.08	0.06	7.89	551.50	549.05	0.019	12.54	Circular	57.61	8.31
	H-13 STA 775+68.2 LT				550.95	546.71	0.032	40.76	24 inch		
33.8-15" RCP	H-17 STA 775+78 LT	0.56	0.26	0.19	552.57	549.92	0.025	0.69	Circular	33.80	1.71
	H-16 STA 775+74 LT				551.50	549.18	0.041	13.00	15 inch		
186.6'-18" RCP	H-18	0.40	0.27	7.55	561.67	557.42	0.044	12.03	Circular	186.60	7.22
	H-16 STA 775+74 LT				551.50	549.30	0.044	21.98	18 inch		
129.40-15" RCP	H-19	1.16	0.75	2.75	564.17	559.91	0.015	4.39	Circular	129.40	3.85
	H-18				561.67	558.02	0.017	4.56	15 inch		
167-15" RCP	H-20 STA 779+71	0.20	0.18	1.99	566.51	562.61	0.015	3.20	Circular	167.00	4.10
	H-19				564.17	560.02	0.015	4.28	15 inch		
79.1-18" RCP	H-21 780+56.8	0.63	0.32	1.81	571.62	566.10	0.045	2.92	Circular	79.10	3.30
	H-20 STA 779+71				566.51	562.71	0.046	12.22	18 inch		
120'-12" RCP	H-22	4.60	1.50	0.79	578.00	575.48	0.069	1.27	Circular	120.00	6.02
	H-21 780+56.8				571.62	566.19	0.075	9.78	12 inch		
229'-18" RCP	H-23	0.33	0.20	4.57	570.17	567.95	0.045	17.54	Circular	229.00	10.01
	H-18				561.67	557.57	0.045	22.38	18 inch		
56'-15" RCP	H-24	1.20	0.53	0.88	570.17	568.39	0.003	3.54	Circular	56.00	2.89
	H-23				570.17	568.22	0.005	4.73	15 inch		
450'-18" RCP	H-25	0.33	0.15	3.45	620.00	617.87	0.110	13.52	Circular	450.00	7.82
	H-23				570.17	568.31	0.111	35.01	18 inch		
32'-15" RCP	H-26	1.40	0.76	0.41	620.00	618.04	0.001	1.99	Circular	32.00	1.62
	H-25				620.00	618.01	0.008	5.71	15 inch		
26'-15" RCP	H-27	0.20	0.18	0.18	640.00	637.81	2.74e-4	1.09	Circular	26.00	0.94
	H-28				640.00	637.80	0.010	6.46	15 inch		
124'-18" RCP	H-28	0.20	0.18	2.77	640.00	637.77	0.160	10.90	Circular	124.00	6.51
	H-25				620.00	618.03	0.161	42.18	18 inch		
126'-18" RCP	H-29	0.70	0.33	2.25	650.00	647.91	0.081	8.92	Circular	126.00	5.68
	H-28				640.00	637.88	0.081	29.96	18 inch		
251'-18" RCP	H-30	1.50	0.65	1.82	665.00	662.80	0.062	7.33	Circular	243.00	5.15
	H-29				650.00	647.97	0.062	26.10	18 inch		
400'-18" RCP	H-31	1.50	0.65	1.30	680.00	677.66	0.037	5.62	Circular	407.00	4.51

Scenario: Base

DOT Report

Label	-Node- Up And Down	Area (acres)	Inlet CA (acres)	System Contributing Area (acres)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	-Section- Shape Size	Length (ft)	Average Velocity (ft/s)
	H-30				665.00	662.85	0.037	20.16	18 inch		
225'-18" RCP	H-32	0.70	0.33	0.93	705.00	702.28	0.110	4.19	Circular	225.00	4.01
	H-31				680.00	677.70	0.110	34.84	18 inch		
29'-12" RCP	H-33	0.20	0.13	0.15	705.00	702.33	0.001	0.73	Circular	29.00	1.30
	H-32				705.00	702.33	0.009	3.31	12 inch		
200'-18" RCP	H-34	0.30	0.17	0.59	712.00	709.13	0.035	2.73	Circular	200.00	3.32
	H-32				705.00	702.33	0.035	19.65	18 inch		
34'-12" RCP	H-35	0.10	0.09	0.07	712.00	709.27	0.005	0.41	Circular	34.00	1.93
	H-34				712.00	709.15	0.007	3.05	12 inch		
150'-18" RCP	H-36	0.50	0.35	0.20	715.00	712.37	0.022	0.98	Circular	150.00	2.10
	H-34				712.00	709.16	0.023	16.04	18 inch		
89.36'-18" RCP	I-1 STA 782+9.4 LT	3.48	1.20	1.20	579.11	569.63	0.036	3.28	Circular	89.36	3.68
	I-2 STA 782+02.1 RT				569.38	566.56	0.036	19.94	18 inch		
102.10-15" RCP	I-2 STA 782+02.1 RT	0.11	0.06	1.26	569.38	566.37	0.013	3.44	Circular	102.10	5.25
	Outlet 9A				565.72	564.81	0.014	7.56	15 inch		
48.18'-12" RCP	I-3 STA. 780+91.3 RT	0.00	0.00	0.00	567.00	564.94	0.034	3.42	Circular	48.18	5.16
	I-4 STA 780+41.9 RT				566.12	563.27	0.034	3.58	12 inch		
32.71'-24" RCP	I-4 STA 780+41.9 RT	0.11	0.07	0.07	566.12	561.19	0.005	0.36	Circular	32.71	1.94
	I-5 STA 780+13 CB RT				569.07	561.05	0.005	16.31	24 inch		
152.6'-24" RCP	I-5 STA 780+13 CB RT	0.15	0.14	0.17	569.07	561.03	0.039	0.84	Circular	152.60	4.12
	I-6 CB STA 778+56.1 RT				560.55	554.70	0.041	45.63	24 inch		
193'-24" RCP	I-6 CB STA 778+56.1 RT	0.10	0.09	0.50	560.55	554.71	0.034	2.11	Circular	193.00	3.19
	I-7 CB STA 776+57.9 RT				552.70	548.16	0.034	41.83	24 inch		
45.3'-24" RCP	I-7 CB STA 776+57.9 RT	0.12	0.11	0.60	552.70	548.15	0.045	2.40	Circular	45.30	2.94
	MH STA 776+08 RT				551.31	546.22	0.047	48.82	24 inch		
95' - 15" RCP	I-8 CB STA. 777+00 LT	0.53	0.44	0.44	554.18	550.17	0.024	2.11	Circular	95.00	3.38
	I-9 CB STA. 776+00 LT				551.93	548.02	0.024	9.98	15 inch		
60.2' - 15 " RCP	I-9 CB STA. 776+00 LT	0.02	0.02	0.46	551.93	547.91	0.015	2.17	Circular	60.20	4.83
	MH STA 776+08 RT				551.31	546.68	0.018	8.61	15 inch		
75'-18" RCP	J-1 STA. 776+56.3 RT	0.06	0.05	0.05	553.10	546.96	0.017	0.28	Circular	75.00	2.61
	J-2 STA 776+55 RT				548.19	545.57	0.018	14.09	18 inch		
20.1'-18" RCP	J-2 STA 776+55 RT	0.09	0.08	0.24	548.19	545.11	0.001	1.45	Circular	20.10	2.09
	J-4 STA 776+36 RT				548.07	545.14	0.008	9.66	18 inch		
7.47'-15" RCP	J-3 STA 776+65 RT	0.13	0.12	0.12	551.43	546.64	0.048	0.71	Circular	7.47	4.98
	J-2 STA 776+55 RT				548.19	545.59	0.119	22.30	15 inch		
19.8'-18"	J-4 STA 776+36 RT	0.29	0.26	0.51	548.07	545.06	0.016	2.98	Circular	19.80	5.42
	Outlet 10				545.53	544.26	0.029	17.98	18 inch		

Scenario: Base

DOT Report

Label	-Node- Up And Down	Area (acres)	Inlet CA (acres)	System Contributing Area (acres)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	-Section- Shape Size	Length (ft)	Average Velocity (ft/s)
41.44-15" RCP	M-1			0.12	544.71	540.71	0.047	0.60	Circular	41.44	4.30
	MH-7				543.77	538.33	0.054	15.05	15 inch		
270.02-36" ABS	M-10			12.09	548.21	539.26	0.010	26.22	Circular	270.02	7.81
	Outlet 8				538.08	536.04	0.011	68.64	36 inch		
49'-15" PVC	MH-4 STA 758+92			0.32	546.96	537.31	0.029	1.90	Circular	49.00	3.24
	MH 759+12.9				541.04	535.99	0.029	14.40	15 inch		
56.36'-15" RCP	MH-6			0.12	544.75	540.55	0.058	0.60	Circular	56.36	2.11
	MH 759+85.1				542.56	537.33	0.059	15.75	15 inch		
22.33'-15" RCP	MH-7			0.12	543.77	538.46	0.034	0.60	Circular	22.33	4.10
	MH 759+85.1				542.56	537.33	0.045	13.74	15 inch		
9.5'-15" RCP	MH 751+17.1			0.18	547.30	542.00	0.008	1.06	Circular	9.50	3.39
	A-2 751+20.3 RT				546.69	541.85	0.009	6.29	15 inch		
8.80'-15" RCP	MH 752+97			0.30	539.29	529.17	0.020	1.45	Circular	8.80	4.85
	Outlet 2				529.68	528.54	0.051	14.61	15 inch		
13.1'-18" RCP	MH 759+12.9			0.56	541.04	535.94	0.007	2.64	Circular	13.10	3.38
	E-4 STA 759+00 RT				541.06	535.95	0.011	10.86	18 inch		
47.7'-18" RCP	MH 759+85.1			0.25	542.56	537.31	0.030	1.18	Circular	47.70	2.29
	MH 759+12.9				541.04	535.99	0.033	19.12	18 inch		
105.8'-12" RCP	MH STA 771+95.8			0.27	550.85	547.90	0.001	1.29	Circular	105.80	2.21
	H-9 STA 773+3.7				548.37	547.83	0.018	4.81	12 inch		
78.57'-42" RCP	MH STA 774+33.1 RT			11.69	549.00	542.45	0.018	18.50	Circular	78.57	5.25
	H-8 STA 773+69				546.91	541.19	0.018	134.29	42 inch		
39'-42" RCP	MH STA 774+36			10.28	550.61	543.27	0.020	16.29	Circular	39.14	5.07
	MH STA 774+33.1 RT				549.00	542.59	0.020	143.83	42 inch		
64.3'-24" RCP	MH STA 776+08 RT			1.05	551.31	546.22	0.011	4.21	Circular	64.30	5.15
	MH STA 776+40 RT				549.60	545.16	0.014	26.46	24 inch		
58.48'-24" RCP	MH STA 776+40 RT			1.05	549.60	545.34	0.011	4.20	Circular	58.48	5.14
	Outlet 9				546.07	544.36	0.014	26.46	24 inch		
67.1'-36" RCP	MH STA. 775+4.7 LT			8.84	551.40	544.48	0.010	14.03	Circular	67.10	6.69
	MH STA 774+36				550.61	543.28	0.013	77.24	36 inch		

Scenario: Base

Outlet Protection

Label	Average Velocity (ft/s)	Total System Flow (cfs)	Depth Out (ft)
F-3 STA 763+00 RT		1.69	2.49
129.9'-18" RCP	5.08	1.69	0.30
F-1 STA 761+00 RT		1.25	2.42
60.1'-18" RCP	2.18	1.25	0.82
F-2 STA 761+65 RT		3.29	4.69
77.2'-18" RCP	4.51	3.29	0.61
Outlet 6		3.25	0.61
G-1 STA 764+86.6 RT		1.60	2.47
62.6-18" RCP	3.29	1.60	0.48
G-2 STA. 764+86.6 LT		1.58	4.47
18.5'-18" RCP	6.92	1.58	0.21
Outlet 7		1.58	0.21
H-35		0.41	2.77
34'-12" RCP	1.93	0.41	0.40
H-36		0.98	2.37
150'-18" RCP	2.10	0.98	0.66
H-34		2.73	2.63
200'-18" RCP	3.32	2.73	0.83
H-33		0.73	2.83
29'-12" RCP	1.30	0.73	0.83
H-32		4.19	2.78
225'-18" RCP	4.01	4.19	0.95
H-31		5.62	2.91
400'-18" RCP	4.51	5.62	1.10
H-30		7.33	3.05
251'-18" RCP	5.15	7.33	1.22
H-22		1.27	2.48
120'-12" RCP	6.02	1.27	0.24
H-29		8.92	3.16
126'-18" RCP	5.68	8.92	1.38
H-27		1.09	3.05
26'-15" RCP	0.94	1.09	1.30
H-21 780+56.8		2.92	1.75
79.1-18" RCP	3.30	2.92	0.91
H-28		10.90	3.27
124'-18" RCP	6.51	10.90	1.53
H-26		1.99	3.29

Scenario: Base

Outlet Protection

Label	Average Velocity (ft/s)	Total System Flow (cfs)	Depth Out (ft)
32'-15" RCP	1.62	1.99	1.51
H-20 STA 779+71		3.20	2.81
167-15" RCP	4.10	3.20	0.72
H-25		13.52	3.37
450'-18" RCP	7.82	13.52	1.81
H-24		3.54	3.59
56'-15" RCP	2.89	3.54	1.72
H-19		4.39	1.01
129.40-15" RCP	3.85	4.39	1.32
H-23		17.54	3.45
229'-18" RCP	10.01	17.54	1.47
H-1 STA 770+00 LT		1.16	2.42
195' - 15" RCP	2.39	1.16	0.71
H-9A 772+00 RT		1.29	2.48
5.3'-12" RCP	3.12	1.29	0.57
H-17 STA 775+78 LT		0.69	2.72
33.8-15" RCP	1.71	0.69	0.95
H-18		12.03	2.22
186.6'-18" RCP	7.22	12.03	1.37
H-15 STA 775+58 LT		0.13	1.74
19.2'-15" RCP	2.10	0.13	0.11
H-2 STA 772+00 LT		2.03	2.69
142.2' - 15" RCP	2.79	2.03	0.74
H-4 STA 770+00 RT		1.30	2.25
195'-15" RCP	2.87	1.30	0.55
MH STA 771+95.8		1.29	2.27
105.8'-12" RCP	2.21	1.29	2.43
H-16 STA 775+74 LT		12.54	2.05
57.61'-24" RCP	8.31	12.54	0.80
H-14 STA 775+35 LT		0.29	1.81
92.09'-15" RCP	1.23	0.29	0.88
H-3 STA 773+47.3 LP LT		2.33	2.50
58.5' - 15" RCP	2.90	2.33	1.29
H-5 STA 772+00 RT		1.79	2.53
142.2-15" RCP	2.53	1.79	1.29
H-9 STA 773+3.7		3.39	3.68
85.7' - 12" RCP	4.32	3.39	2.38

Scenario: Base

Outlet Protection

Label	Average Velocity (ft/s)	Total System Flow (cfs)	Depth Out (ft)
H-13 STA 775+68.2 LT		13.72	2.18
64.6'-36" RCP	7.84	13.72	0.73
H-12 STA. 774+96.3 LT		0.97	2.49
12'-36" RCP	0.85	0.97	1.09
H-6 STA 773+47.3 LP RT		5.52	3.20
54.7'-15" RCP	4.77	5.52	1.06
H-11 STA 774+50 LT		0.16	4.15
14' - 15" RCP	3.61	0.16	0.07
H-10 STA 773+90.7		6.58	3.65
55.3' - 12" RCP	8.43	6.58	0.97
MH STA. 775+4.7 LT		14.03	3.09
67.1'-36" RCP	6.69	14.03	0.89
H-7 STA 774+7.5		6.17	3.00
22.02'-15" RCP	6.92	6.17	0.75
MH STA 774+36		16.29	1.33
39'-42" RCP	5.07	16.29	1.35
MH STA 774+33.1 RT		18.50	2.61
78.57'-42" RCP	5.25	18.50	1.45
H-8 STA 773+69		18.62	2.68
124.77-36" ABS	7.46	18.62	1.00
Existing Inlet		9.04	3.16
22.1'-18" RCP	9.58	9.04	0.62
M-10		26.22	2.95
270.02-36" ABS	7.81	26.22	1.29
Outlet 8		26.15	1.29
J-1 STA. 776+56.3 RT		0.28	0.33
75'-18" RCP	2.61	0.28	0.15
J-3 STA 776+65 RT		0.71	2.03
7.47'-15" RCP	4.98	0.71	0.17
J-2 STA 776+55 RT		1.45	2.39
20.1'-18" RCP	2.09	1.45	0.74
J-4 STA 776+36 RT		2.98	2.51
19.8'-18"	5.42	2.98	0.44
Outlet 10		2.97	0.44
I-1 STA 782+9.4 LT		3.28	1.09
89.36'-18" RCP	3.68	3.28	0.84
I-2 STA 782+02.1 RT		3.44	2.45

Scenario: Base

Outlet Protection

Label	Average Velocity (ft/s)	Total System Flow (cfs)	Depth Out (ft)
102.10-15" RCP	5.25	3.44	0.59
Outlet 9A		3.42	0.59
I-3 STA. 780+91.3 RT		3.42	5.75
48.18'-12" RCP	5.16	3.42	0.78
I-4 STA 780+41.9 RT		0.36	2.00
32.71'-24" RCP	1.94	0.36	0.23
I-5 STA 780+13 CB RT		0.84	1.84
152.6'-24" RCP	4.12	0.84	0.19
I-8 CB STA. 777+00 LT		2.11	2.58
95' - 15" RCP	3.38	2.11	0.70
I-6 CB STA 778+56.1 RT		2.11	2.50
193'-24" RCP	3.19	2.11	0.55
I-9 CB STA. 776+00 LT		2.17	2.59
60.2' - 15 " RCP	4.83	2.17	0.43
I-7 CB STA 776+57.9 RT		2.40	1.99
45.3'-24" RCP	2.94	2.40	0.72
MH STA 776+08 RT		4.21	0.82
64.3'-24" RCP	5.15	4.21	0.54
MH STA 776+40 RT		4.20	0.72
58.48'-24" RCP	5.14	4.20	0.54
Outlet 9		4.18	0.54
E-9 (BIG Y DRIVE)		0.52	2.48
7.3'-15" RCP	2.01	0.52	0.41
E-8 (BIG Y DRIVE		0.55	2.62
10.28'-15" RCP	1.01	0.55	0.62
E-6 STA 760+34 RT		0.60	4.51
1' -18" RCP	1.79	0.60	0.33
E-5 STA 759+84 RT		0.60	4.59
1'-18" RCP	3.65	0.60	0.19
M-1		0.60	4.50
41.44-15" RCP	4.30	0.60	0.17
MH-6		0.60	4.10
56.36'-15" RCP	2.11	0.60	0.43
MH-7		0.60	0.30
22.33'-15" RCP	4.10	0.60	0.18
E-7 (LOT)		1.91	2.55
34.6'-15" PVC	7.80	1.91	0.23

Scenario: Base

Outlet Protection

Label	Average Velocity (ft/s)	Total System Flow (cfs)	Depth Out (ft)
MH 759+85.1		1.18	0.41
47.7'-18" RCP	2.29	1.18	0.67
MH-4 STA 758+92		1.90	2.65
49'-15" PVC	3.24	1.90	0.67
MH 759+12.9		2.64	0.62
13.1'-18" RCP	3.38	2.64	0.77
E-4 STA 759+00 RT		2.98	2.66
99'-18" RCP	3.88	2.98	0.69
E-3- STA 758+00 RT		3.28	2.69
L-59.9	3.80	3.28	0.79
E-2- STA 758+00 LT		4.25	2.79
171'-18" RCP	3.89	4.25	1.03
E-1 STA 756+12- LP LT		6.46	4.98
67'-18" RCP	5.61	6.46	0.89
Oulet 5		6.41	0.89
D-1 STA 757+00 RT		0.32	2.23
91.8'-12" RCP	1.85	0.32	0.33
D-2 STA 756+07 RT		0.58	2.32
84.4'-12" RCP	2.37	0.58	0.39
D-3 STA 755+18 LP		0.88	4.39
22.7'-12" RCP	4.55	0.88	0.24
Outlet 4		0.88	0.24
A-1 750+95.3 LT		1.07	2.41
46'-15" RCP	4.51	1.07	0.26
MH 751+17.1		1.06	0.41
9.5'-15" RCP	3.39	1.06	0.35
A-2 751+20.3 RT		2.49	4.63
44'-15" RCP	9.73	2.49	0.24
Outlet 1		2.48	0.24
B-1 753+07.3 LT		0.98	2.39
56.3-15" RCP	2.64	0.98	0.48
B-2 753+07.3 RT		1.45	2.68
14'-15" RCP	8.43	1.45	0.18
MH 752+97		1.45	0.78
8.80'-15" RCP	4.85	1.45	0.30
Outlet 2		1.44	0.30
C-1 754+50 RT		0.44	2.26

Scenario: Base

Outlet Protection

Label	Average Velocity (ft/s)	Total System Flow (cfs)	Depth Out (ft)
74.9'-15" RCP	1.80	0.44	0.43
C-2 754+48 LT		1.17	4.43
17.7'-15" RCP	4.17	1.17	0.30
Outlet 3		1.17	0.30

ENGLISH OUTLET PROTECTION

RECONSTRUCTION OF ROUTE 195

System Outlet	Pipe Rise (in)	Pipe Span (in)	Design Year (yr)	Design Q (cfs)	Vel. (ft/s)	TW depth (ft)	Well Defined Channel (Y/N)	TW Cond.	RIPRAP APRON: CHANNEL Bottom Width (ft)	CHANNEL Side Slope H:1V	Riprap APRON TYPE	Table 11-12 Table 11-13 SCOUR HOLE? (Y/N)	La APRON LENGTH	*La Minimum (ft)*	TYPE C APRON S BED SLOPE	MAX. Shear str. (lb/ft^2)	RIPRAP TYPE	APRON WIDTH 1	APRON WIDTH 2	SCOUR HOLE: Type 1 or 2	$Rp^2(Q/Rp^{2.5})^{1.333}$ / TW	Stone Size (ft)	Type	F (ft)	C (ft)	B (ft)	QUANTITIES: Area of Riprap (ft^2)	Volume of Riprap (CUY)
						(1)		(2)			(3)	(4)	(5)	(4)		(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(14)	(14)		
C	15	15	10	**1.18**	**4.58**	0.31	No	Min	*	*	A	No	5.1	*12*	*	*	Modified	3.75	12.15	N/A	*	*	*	*	*	*	95.4	3.5
D	18	18	10	**6.41**	**5.61**	0.88	No	Max	*	*	B	No	12.3	*12*	*	*	Modified	4.50	9.42	N/A	*	*	*	*	*	*	85.6	3.2
E	15	15	10	**3.26**	**4.64**	0.68	No	Max	*	*	B	No	6.3	*12*	*	*	Modified	3.75	8.55	N/A	*	*	*	*	*	*	73.8	2.7
F	12	12	10	**1.58**	**7.69**	0.23	No	Min	*	*	A	No	12.0	*12*	*	*	Modified	4.50	12.90	N/A	*	*	*	*	*	*	104.4	3.9
I	24	24	10	**4.18**	**5.15**	0.54	No	Min	*	*	A	No	9.5	*12*	*	*	Modified	6.00	14.40	N/A	*	*	*	*	*	*	122.4	4.5

Color Legend:
User Input | Calculated

NOTES:
The following are refernces to the CTDOT Drainage Manual:

(1) For a "free outfall" condition use the normal depth of the pipe as an approximation.
(2) Min = TW<.5(Pipe Rise), Max=TW≥.5(Pipe Rise), * - Does not apply to a well defined channel
(3) Apron type from Section 11.13.5
(4) Scour Houle? : Table 11-12.1 or Table 11-13.1 (Use column (2) to determine which table to use.)
If the velocity in column "F" is > 14fps Then a Scour Hole is required.
(5) Computed La (11.31 or 11.32)
(6) Max. Shear Stress from equation (7.12)
(7) Riprap: Type C Table 7-4
Type A & B Table 11-11
(8)Width 1: Type A & B = 3(Pipe Rise)
Type C = Comps worksheet (W_3)
(9) Width 2: Type A = 3(Pipe Rise)+.7(La)
Type B = 3(Pipe Rise)+.4(La)
Type C = Width 1
(10) Scour Hole Type: Type 1: Depth = .5(Pipe Rise)
Type 2: Depth = Pipe Rise
(see Figure 11-15)
(11) Common part of equation for stone size (d_{50})
(see equations: 11.35 and 11.36)
(12) Stone size (d_{50})
(see equations: 11.35 and 11.36)
(13) Type of Riprap required based on the stone size in (11)
(see Chart on page 11.13-5)
(14) Scour Hole dimensions
(see Figure 11-15)

Scenario: Base

Outlet Protection

Label		Average Velocity (ft/s)	Total System Flow (cfs)	Depth Out (ft)
Outlet 1		9.74	2.48	0.24
Outlet 2		4.85	1.44	0.30
Outlet 3	A	4.58	1.18	0.31
Outlet 4		4.57	0.88	0.24
Outlet 5	E	5.61	6.41	0.88
Outlet 6	F	4.64	3.26	0.68
Outlet 7	G	7.69	1.58	0.23
Outlet 8		7.81	26.16	1.29
Outlet 9	I	5.15	4.18	0.54
Outlet 9A		5.25	3.42	0.59
Outlet 10		5.52	3.19	0.46

TABLE 1

Reconstruction of Route 195
State Project No. 142-146
Town of Tolland

ESTIMATED RUNOFF COEFFICIENT

PRE-CONSTRUCTION

	Area (SF)	Area (Acres)	Runoff coef	C * A
Pavement	199406	4.58	0.90	4.12
Bituminous driveway	2226	0.05	0.90	0.05
Sidewalk	8895	0.20	0.90	0.18
Wooded/Grassed/Landscaped Area	636253	14.61	0.30	4.38
TOTAL	846780	19.44		8.73
Pre-Construction - C Average				0.449

POST-CONSTRUCTION

	Area (SF)	Area (Acres)	Runoff coef	C * A
Proposed Pavement	261762	6.01	0.90	5.41
Sidewalk	13320	0.31	0.90	0.28
Bituminous Driveway	2226	0.05	0.90	0.05
Landscaped Island	5290	0.12	0.30	0.04
Wooded/Grassed/Landscaped Area	564182	12.95	0.30	3.89
TOTAL	846780	19.44		9.65
Post-Construction - C Average				0.496

TABLE 2

Reconstruction of Route 195
State Project No. 142-146
Town of Tolland

Water Quality Volume

	System	Proposed Drainage Area	Inlet CA	C avg	Imp . Cover (Ac)	% Impervious	R	WQV (Ac-Ft)	WQV (ft3)	10% WQV
	A	0.48	0.43	0.90	0.44	91.67	0.88	0.04	1524.60	152.46
	B	0.33	0.29	0.88	0.31	93.94	0.90	0.02	1072.67	107.27
	C	0.22	0.2	0.91	0.22	100.00	0.95	0.02	758.67	75.87
	D	0.38	0.21	0.55	0.10	26.32	0.29	0.01	395.67	39.57
	E	1.81	1.34	0.74	0.87	48.07	0.48	0.07	3170.81	317.08
	F	1.31	0.66	0.50	0.28	21.37	0.24	0.03	1152.53	115.25
	G	0.64	0.36	0.56	0.20	31.25	0.33	0.02	769.56	76.96
	H	22.13	11.78	0.53	7.33	33.12	0.35	0.64	27963.71	2796.37
	I	4.62	2.13	0.46	0.33	7.14	0.11	0.04	1916.64	191.66
Existing Town System	J	0.31	0.81	2.61	0.17	54.84	0.54	0.01	611.6550	61.17
Total Drainage Area		32.23								

Water Quality Flow WQF = qu x A x Q

	System	Proposed A (acres)	A (sq. mi.)	Tc (min)	Tc(hrs)	Q	CN	Ia	Ia/P	qu	WQF (cfs)
	A	0.48	0.00075	10	0.17	0.88	66	1.030	1.030	255	0.17
	B	0.33	0.00052	10	0.17	0.90	67	0.985	0.985	255	0.12
	C	0.22	0.00034	10	0.17	0.95	70	0.857	0.857	255	0.08
	D	0.38	0.00059	10	0.17	0.29	61	1.279	1.279	255	0.04
	E	1.81	0.00283	10	0.17	0.48	60	1.333	1.333	255	0.35
	F	1.31	0.00205	10	0.17	0.24	61	1.279	1.279	255	0.13
	G	0.64	0.00100	10	0.17	0.33	60	1.333	1.333	255	0.08
	H	22.13	0.03458	70	1.17	0.35	60	1.077	1.077	140	1.69
	I	4.62	0.00722	32	0.53	0.11	64	1.125	1.125	185	0.15
Existing Town System	J	2.13	0.00333	10	0.17	0.54	60	0.985	0.985	255	0.46

Ia - Section 11.C-3 CT DOT Drainage Manual
qu - Section 11.C-4 CT DOT Drainage Manual

Appendix C – Plan Sheets

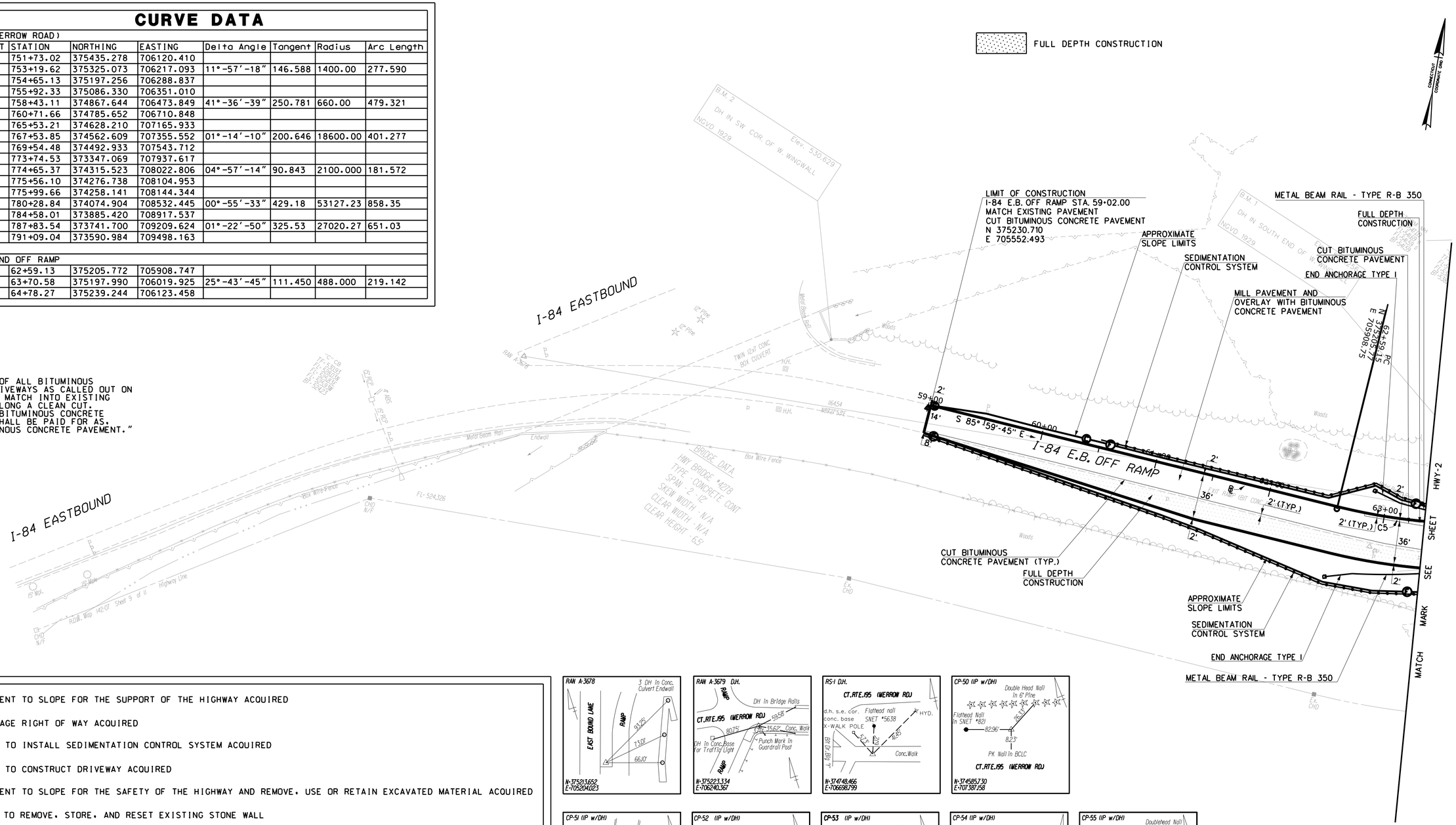
Highway Construction Plans	C-001 thru C-005
Details	C-006
Landscape Design Plans-	C-007 thru C-011

CURVE DATA

ROUTE 195 (MERROW ROAD)							
CONTROL POINT	STATION	NORTHING	EASTING	Delta Angle	Tangent	Radius	Arc Length
P.C. - C1	751+73.02	375435.278	706120.410				
P.I.	753+19.62	375325.073	706217.093	11°-57'-18"	146.588	1400.00	277.590
P.T. - C1	754+65.13	375197.256	706288.837				
P.C. - C2	755+92.33	375086.330	706351.010				
P.I.	758+43.11	374867.644	706473.849	41°-36'-39"	250.781	660.00	479.321
P.T. - C2	760+71.66	374785.652	706710.848				
P.C. - C3	765+53.21	374628.210	707165.933				
P.I.	767+53.85	374562.609	707355.552	01°-14'-10"	200.646	18600.00	401.277
P.T. - C3	769+54.48	374492.933	707543.712				
P.C. - C4	773+74.53	373347.069	707937.617				
P.I.	774+65.37	374315.523	708022.806	04°-57'-14"	90.843	2100.000	181.572
P.T. - C4	775+56.10	374276.738	708104.953				
P.C. - C5	775+99.66	374258.141	708144.344				
P.I.	780+28.84	374074.904	708532.445	00°-55'-33"	429.18	53127.23	858.35
P.C.C.-C6	784+58.01	373885.420	708917.537				
P.I.	787+83.54	373741.700	709209.624	01°-22'-50"	325.53	27020.27	651.03
P.T. - C6	791+09.04	373590.984	709498.163				
I-84 EASTBOUND OFF RAMP							
P.C. - C5	62+59.13	375205.772	705908.747				
P.I.	63+70.58	375197.990	706019.925	25°-43'-45"	111.450	488.000	219.142
P.T. - C5	64+78.27	375239.244	706123.458				

NOTES

-THE LIMITS OF ALL BITUMINOUS CONCRETE DRIVEWAYS AS CALLED OUT ON PLANS SHALL MATCH INTO EXISTING DRIVEWAYS ALONG A CLEAN CUT. CUTTING OF BITUMINOUS CONCRETE DRIVEWAYS SHALL BE PAID FOR AS. "CUT BITUMINOUS CONCRETE PAVEMENT."



(B) EASEMENT TO SLOPE FOR THE SUPPORT OF THE HIGHWAY ACQUIRED

(C) DRAINAGE RIGHT OF WAY ACQUIRED

(D) RIGHT TO INSTALL SEDIMENTATION CONTROL SYSTEM ACQUIRED

(E) RIGHT TO CONSTRUCT DRIVEWAY ACQUIRED

(F) EASEMENT TO SLOPE FOR THE SAFETY OF THE HIGHWAY AND REMOVE, USE OR RETAIN EXCAVATED MATERIAL ACQUIRED

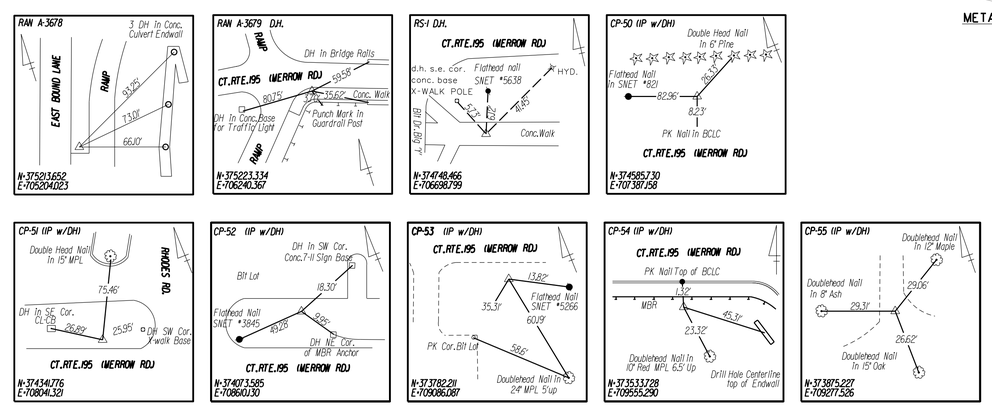
(H) RIGHT TO REMOVE, STORE, AND RESET EXISTING STONE WALL

(I) EASEMENT TO INSTALL METAL BEAM RAIL AND MAINTAIN GUIDE RAILING AND END ANCHORAGE ACQUIRED

(J) CONSTRUCTION EASEMENT FOR THE PURPOSE OF PROVIDING INGRESS AND EGRESS FROM MERROW ROAD TO THE CONSTRUCTION SITE ACQUIRED.

(K) CONSTRUCTION EASEMENT FOR THE PURPOSE OF CONSTRUCTION OR PARKING SPACES, DRAINAGE, DRIVEWAY, AND REGRADING ACQUIRED.

(L) EASEMENT FOR A TEMPORARY WORK AREA FOR THE PURPOSE OF CONSTRUCTION OF A RETAINING WALL DURING THE RECONSTRUCTION OF MERROW ROAD IS ACQUIRE.



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: $DATE$

DESIGNER/DRAFTER: **M.LOSYEVA**

CHECKED BY: **J.KOERNER**

SCALE IN FEET 0 40 80

SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: $FILEA$

SIGNATURE/ BLOCK:

PROJECT TITLE: **RECONSTRUCTION OF ROUTE 195**

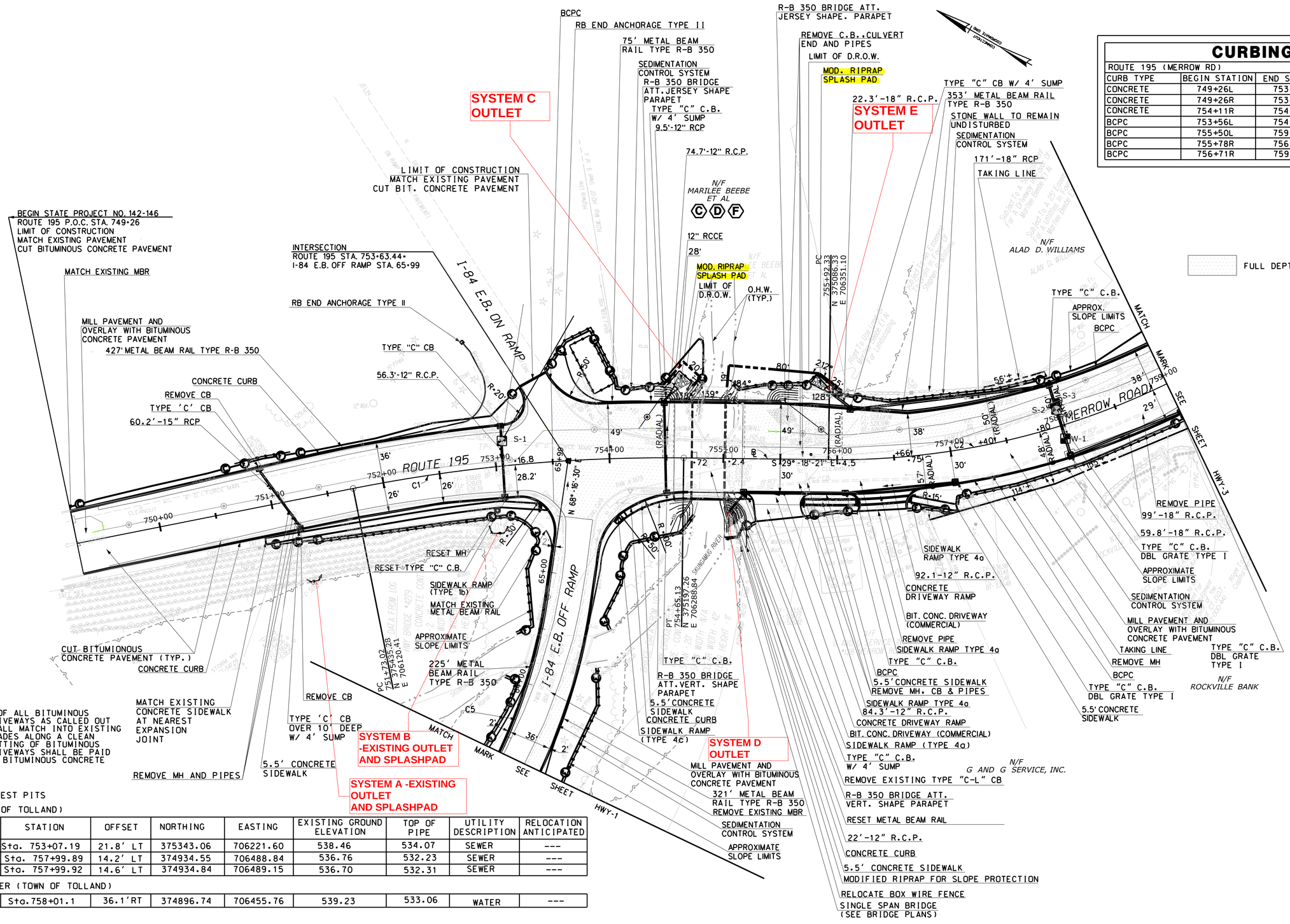
TOWN: **TOLLAND**

DRAWING TITLE: **PLAN SHEET**

PROJECT NO. **142-146**

DRAWING NO. **HWY-01**

SHEET NO. **C-001**



CURBING

ROUTE 195 (MERROW RD)			
CURB TYPE	BEGIN STATION	END STATION	SECTION LENGTH
CONCRETE	749+26L	753+27L	401'
CONCRETE	749+26R	753+47R	421'
CONCRETE	754+11R	754+57R	47'
BCPC	753+56L	754+60L	104'
BCPC	755+50L	759+00L	350'
BCPC	755+78R	756+09R	32'
BCPC	756+71R	759+00R	238'

NOTES

THE LIMITS OF ALL BITUMINOUS CONCRETE DRIVEWAYS AS CALLED OUT ON PLANS SHALL MATCH INTO EXISTING DRIVEWAY GRADES ALONG A CLEAN SAWCUT. CUTTING OF BITUMINOUS CONCRETE DRIVEWAYS SHALL BE PAID FOR AS "CUT BITUMINOUS CONCRETE PAVEMENT."

UTILITY TEST PITS

WATER (TOWN OF TOLLAND)

TEST PIT #	STATION	OFFSET	NORTHING	EASTING	EXISTING GROUND ELEVATION	TOP OF PIPE	UTILITY DESCRIPTION	RELOCATION ANTICIPATED
S-1	Sta. 753+07.19	21.8' LT	375343.06	706221.60	538.46	534.07	SEWER	---
S-1	Sta. 757+99.89	14.2' LT	374934.55	706488.84	536.76	532.23	SEWER	---
S-3	Sta. 757+99.92	14.6' LT	374934.84	706489.15	536.70	532.31	SEWER	---

SANTARY SEWER (TOWN OF TOLLAND)

W-1	Sta.758+01.1	36.1'RT	374896.74	706455.76	539.23	533.06	WATER	---

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: $DATE$

DESIGNER/DRAFTER: M.LOSYEVA
CHECKED BY: J.KOERNER
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

SIGNATURE/ BLOCK:

Filename: $FILEA$

PROJECT TITLE: RECONSTRUCTION OF ROUTE 195

TOWN: TOLLAND

DRAWING TITLE: PLAN SHEET

PROJECT NO. 142-146
DRAWING NO. HWY-02
SHEET NO. C-002

CURBING

ROUTE 195 (MERROW RD)			
CURB TYPE	BEGIN STATION	END STATION	SECTION LENGTH
B.C.P.C.	759+00L	759+84L	84'
B.C.P.C.	759+00R	759+66R	66'
B.C.P.C.	765+50L	769+06L	350'
B.C.P.C.	760+55R	764+12R	357'
B.C.P.C.	764+64R	769+06R	442'
B.C.P.C.	763+44MEDIAN	769+06MEDIAN	1126'

UTILITY TEST PITS

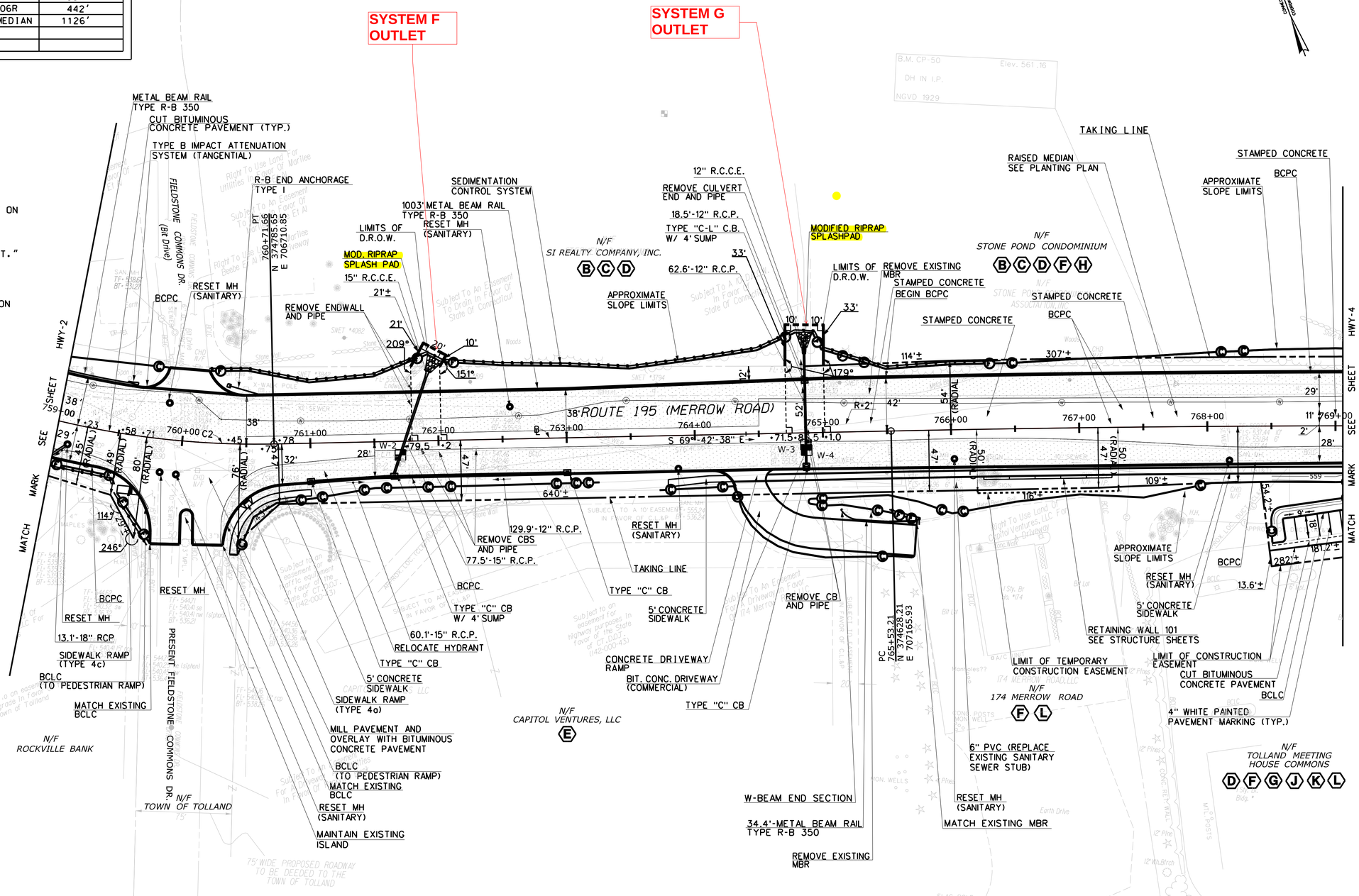
WATER (TOWN OF TOLLAND)

TEST PIT #	STATION	OFFSET	NORTHING	EASTING	EXISTING GROUND ELEVATION	TOP OF PIPE	UTILITY DESCRIPTION	RELOCATION ANTICIPATED
W-2	Sta. 761+70.4	16.4'RT	374743.4618	706800.3327	546.27	540.09	WATER	---
W-4	Sta. 764+86.3	15.1' RT	374641.2067	707099.9408	558.58	553.76	WATER	---

NOTES

–THE LIMITS OF ALL BITUMINOUS CONCRETE DRIVEWAYS AS CALLED OUT ON PLANS SHALL MATCH INTO EXISTING DRIVEWAYS ALONG A CLEAN SAWCUT. CUTTING OF BITUMINOUS CONCRETE DRIVEWAYS SHALL BE PAID FOR AS. "CUT BITUMINOUS CONCRETE PAVEMENT."

FULL DEPTH CONSTRUCTION



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: $DATE$

DESIGNER/DRAFTER: M.LOSYEVA

CHECKED BY: J.KOERNER

SCALE IN FEET 0 40 80

SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: $FILEA$

SIGNATURE/ BLOCK:

PROJECT TITLE: RECONSTRUCTON OF ROUTE 195

TOWN: TOLLAND

DRAWING TITLE: PLAN SHEET

PROJECT NO. 142-146

DRAWING NO. HWY-03

SHEET NO. C-003

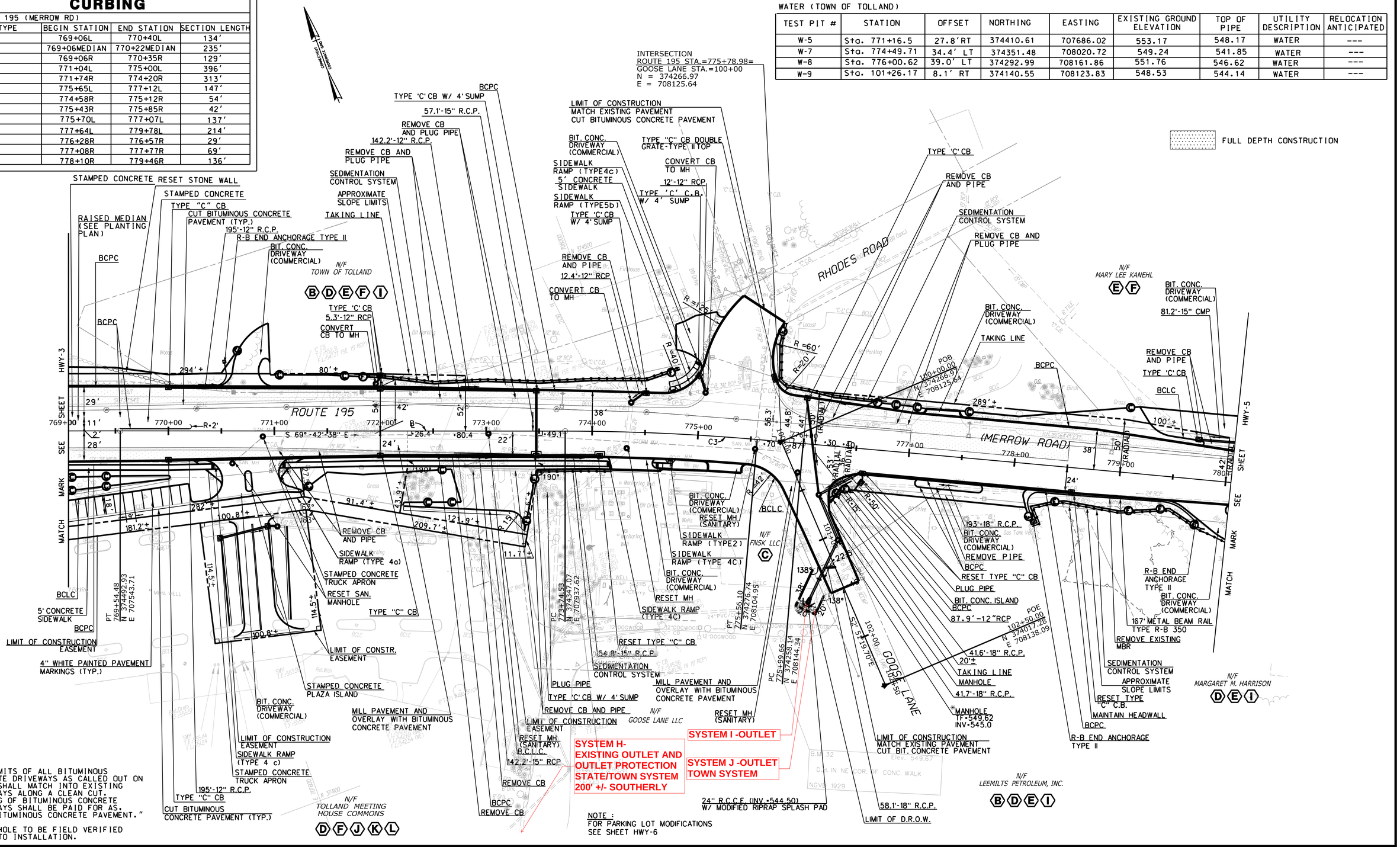
CURBING

ROUTE 195 (MERROW RD)			
CURB TYPE	BEGIN STATION	END STATION	SECTION LENGTH
BCPC	769+06L	770+40L	134'
BCPC	769+06MEDIAN	770+22MEDIAN	235'
BCPC	769+06R	770+35R	129'
BCPC	771+04L	775+00L	396'
BCPC	771+74R	774+20R	313'
BCPC	775+65L	777+12L	147'
BCPC	774+58R	775+12R	54'
BCPC	775+43R	775+85R	42'
BCPC	775+70L	777+07L	137'
BCPC	777+64L	779+78L	214'
BCPC	776+28R	776+57R	29'
BCPC	777+08R	777+77R	69'
BCPC	778+10R	779+46R	136'

UTILITY TEST PITS

WATER (TOWN OF TOLLAND)

TEST PIT #	STATION	OFFSET	NORTHING	EASTING	EXISTING GROUND ELEVATION	TOP OF PIPE	UTILITY DESCRIPTION	RELOCATION ANTICIPATED
W-5	Sta. 771+16.5	27.8'RT	374410.61	707686.02	553.17	548.17	WATER	---
W-7	Sta. 774+49.71	34.4' LT	374351.48	708020.72	549.24	541.85	WATER	---
W-8	Sta. 776+00.62	39.0' LT	374292.99	708161.86	551.76	546.62	WATER	---
W-9	Sta. 101+26.17	8.1' RT	374140.55	708123.83	548.53	544.14	WATER	---



NOTES

THE LIMITS OF ALL BITUMINOUS CONCRETE DRIVEWAYS AS CALLED OUT ON PLANS SHALL MATCH INTO EXISTING DRIVEWAYS ALONG A CLEAN CUT. CUTTING OF BITUMINOUS CONCRETE DRIVEWAYS SHALL BE PAID FOR AS. "CUT BITUMINOUS CONCRETE PAVEMENT."

TF MANHOLE TO BE FIELD VERIFIED PRIOR TO INSTALLATION.

NOTE :
FOR PARKING LOT MODIFICATIONS SEE SHEET HWY-6

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: $DATE$

DESIGNER/DRAFTER: M.LOSYEVA
CHECKED BY: J.KOERNER
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: $FILE$

SIGNATURE/ BLOCK:

PROJECT TITLE: RECONSTRUCTION OF ROUTE 195

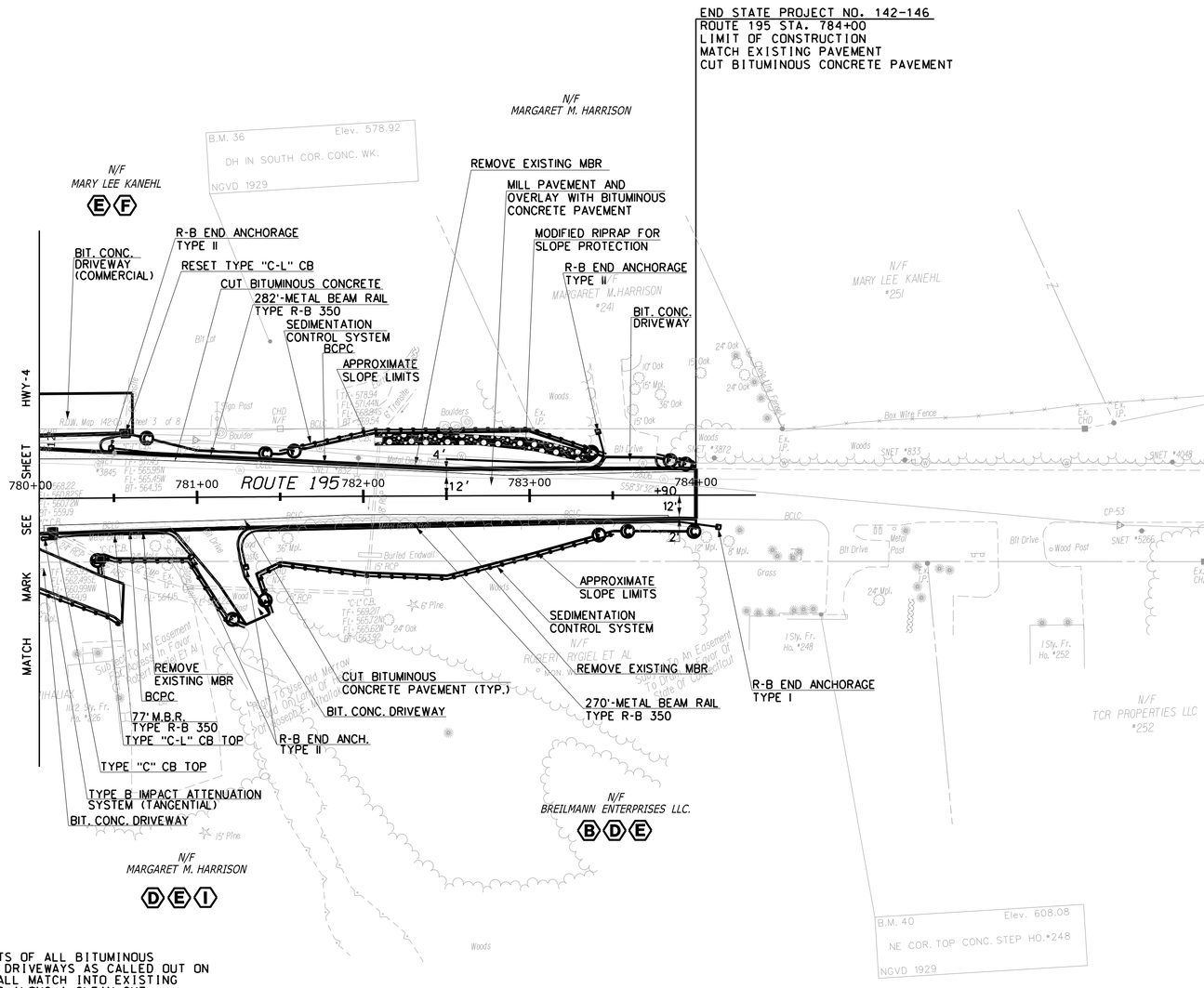
TOWN: TOLLAND

DRAWING TITLE: PLAN SHEET

PROJECT NO. 142-146
DRAWING NO. HWY-04
SHEET NO. C-004

CURBING

ROUTE 195 (MERROW RD)			
CURB TYPE	BEGIN STATION	END STATION	SECTION LENGTH
B.C.P.C.	780+47L	783+37L	290'
B.C.P.C.	780+07R	780+82R	75'
B.C.P.C.	781+30R	784+00R	270'



NOTES

–THE LIMITS OF ALL BITUMINOUS CONCRETE DRIVEWAYS AS CALLED OUT ON PLANS SHALL MATCH INTO EXISTING DRIVEWAYS ALONG A CLEAN CUT. CUTTING OF BITUMINOUS CONCRETE DRIVEWAYS SHALL BE PAID FOR AS. "CUT BITUMINOUS CONCRETE PAVEMENT."

FULL DEPTH CONSTRUCTION

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: $DATE$

DESIGNER/DRAFTER: M.LOSYEVA
CHECKED BY: J.KOERNER
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: $FILEA$

SIGNATURE/
BLOCK:

PROJECT TITLE:
RECONSTRUCTION OF ROUTE 195

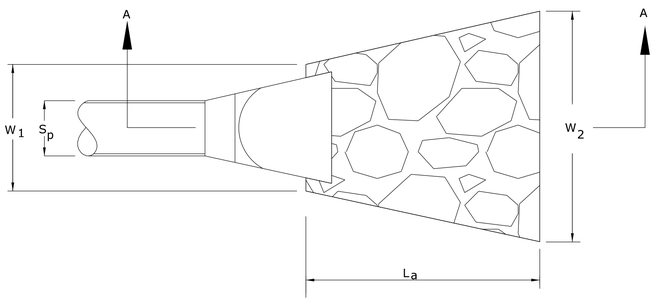
TOWN: TOLLAND

DRAWING TITLE: PLAN SHEET

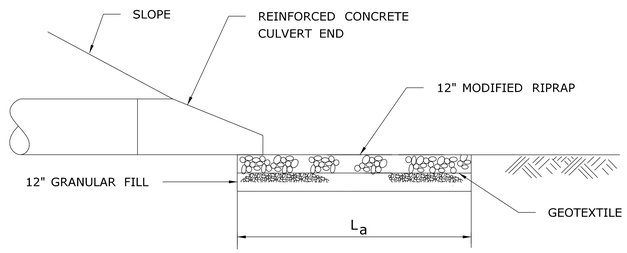
PROJECT NO. 142-146
DRAWING NO. HWY-05
SHEET NO. C-005

Border Version: 11/14/08

TABLE - RIPRAP APRON						
STATION	APRON (TYPE)	RIPRAP (TYPE)	S_p (in.)	L_a (ft)	W_1 (ft)	W_2 (ft)
STA.754+58 LT	A	MODIFIED	15	12.0	3.75	12.15
STA.755+80 LT	B	MODIFIED	18	12.3	4.5	9.42
STA.761+90 LT	B	MODIFIED	15	12.0	3.75	8.55
STA.764+85 LT	A	MODIFIED	12	12.0	4.50	12.90
STA.755+35 LT	A	MODIFIED	24	12.0	6.00	14.40

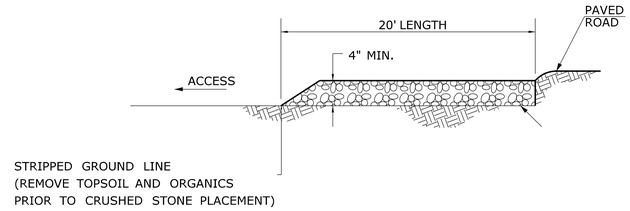


PLAN

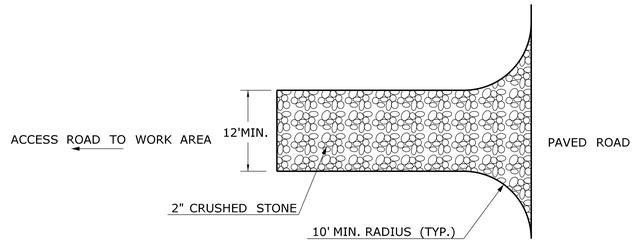


NOTE:
SPLASH PAD TO CONFORM TO EXISTING CONTOURS.

RIPRAP APRON DETAIL
SECTION A-A

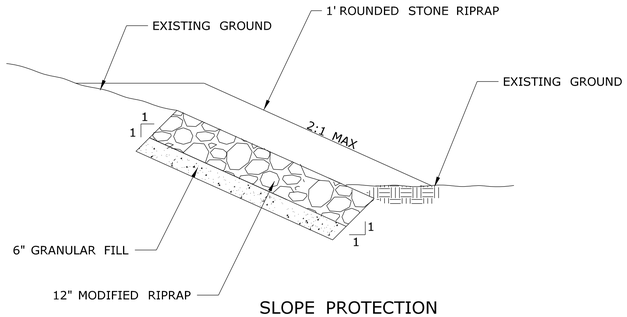


ANTI-TRACKING PAD
NOT TO SCALE

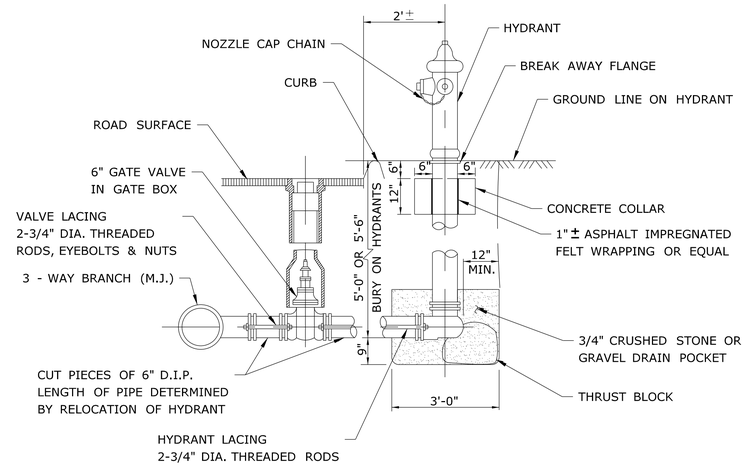


ANTI-TRACKING PAD
NOT TO SCALE

NOTES:
ANTI-TRACKING PAD TO BE PLACED AT ALL CONSTRUCTION ENTRANCES AND SHALL BE PAID FOR UNDER 2" CRUSHED STONE.



SLOPE PROTECTION



HYDRANT ASSEMBLY RELOCATION

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: $DATE$

DESIGNER/DRAFTER: **M.LOSYEVA**
CHECKED BY: **J.KOERNER**

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Engineer: Alfred Benesch & Co.
Filename: $FILEA$ Plotted: $DATE$

SIGNATURE/ BLOCK:

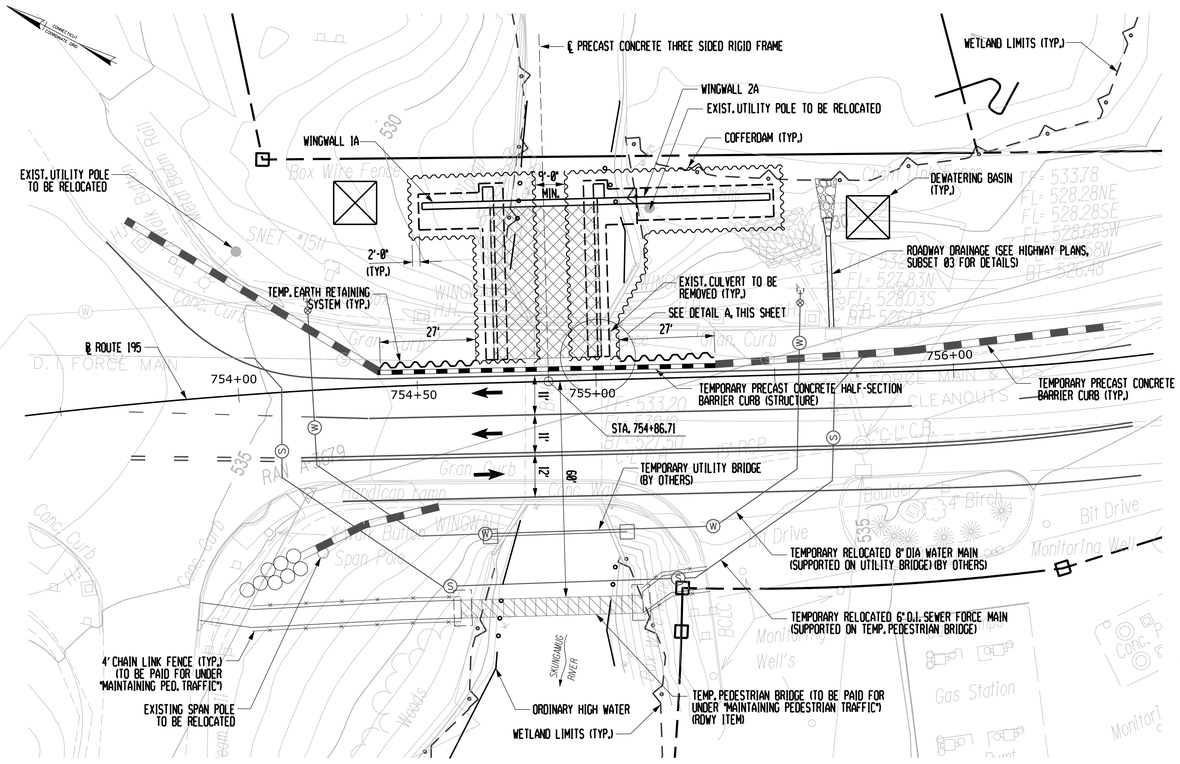
PROJECT TITLE:
RECONSTRUCTION OF ROUTE 195

TOWN: **TOLLAND**

DRAWING TITLE: **MISCELLANEOUS DETAILS**

PROJECT NO. **142-146**
DRAWING NO. **MDS-01**
SHEET NO. **C-006**

Border Version: 11/14/08

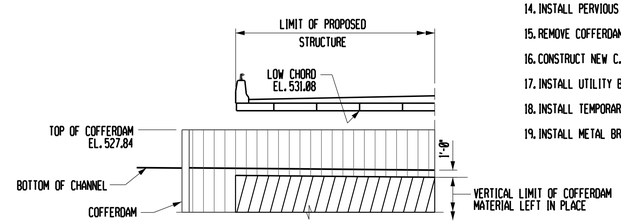


PLAN - STAGE 1

SCALE: 1"= 20'

LEGEND:

- LIMIT OF 3-SIDED PRECAST CONCRETE RIGID FRAME CONSTRUCTION IN STAGE 1
- TEMPORARY PEDESTRIAN BRIDGE
- TEMPORARY EARTH RETAINING SYSTEM
- COFFERDAM
- TEMPORARY PRECAST CONCRETE HALF-SECTION BARRIER CURB (STRUCTURE)
- TEMPORARY PRECAST CONCRETE BARRIER CURB (ROADWAY ITEM)



LIMITS OF COFFERDAM REMOVAL

- LIMITS OF REMOVED COFFERDAM
- LIMITS OF COFFERDAM MATERIAL LEFT IN PLACE

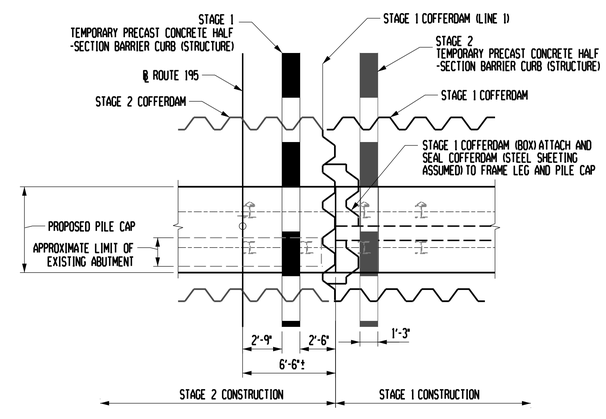
SUGGESTED CONSTRUCTION SEQUENCE:

PRESTAGE CONSTRUCTION:

TEMPORARILY RELOCATE OVERHEAD UTILITIES AND WATER MAIN - BY OTHERS (SEE UTILITY SUBSETS).

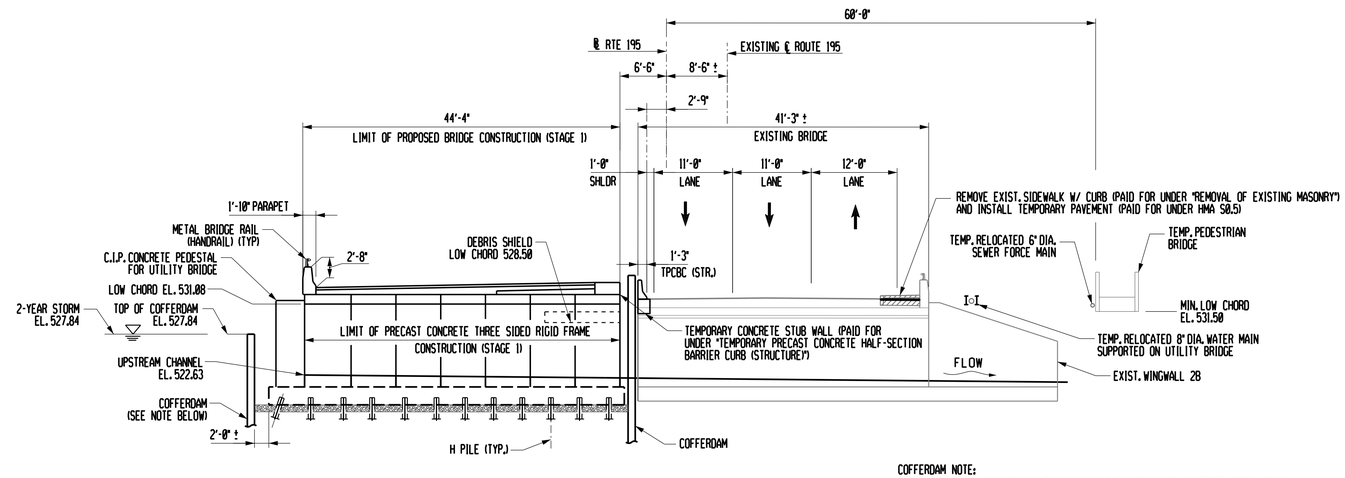
STAGE CONSTRUCTION 1:

1. CONSTRUCT TEMPORARY PEDESTRIAN BRIDGE WITH TEMPORARY SIDEWALK ON THE DOWNSTREAM OF THE BRIDGE AND TEMPORARILY RELOCATE EXISTING 6" D.I. SEWER FORCE MAIN.
2. REMOVE EXISTING SOUTHBOUND SIDEWALK ON THE EXISTING BRIDGE AND INSTALL TEMPORARY PAVEMENT.
3. INSTALL TEMPORARY PRECAST CONCRETE BARRIER CURB AND SHIFT TRAFFIC WEST. MAINTAIN TWO LANES IN THE NORTHBOUND DIRECTION AND ONE LANE IN THE SOUTHBOUND DIRECTION.
4. TEMPORARILY GRADE AREA AT THE ABUTMENTS FOR CONSTRUCTION ACCESS.
5. INSTALL TEMPORARY DEBRIS SHIELD. REMOVE THE BRIDGE SUPERSTRUCTURE WITHIN STAGE 1 CONSTRUCTION LIMITS.
6. INSTALL TEMPORARY EARTH RETAINING SYSTEM AND COFFERDAMS.
7. REMOVE EXISTING SUBSTRUCTURE WITHIN THE CONSTRUCTION LIMITS. THE EXISTING SUBSTRUCTURE SHALL BE REMOVED COMPLETELY IF IT OBSTRUCTS THE PROPOSED CONSTRUCTION OR TO A MINIMUM OF ONE FOOT BELOW THE CHANNEL ELEVATION. SEE "CONCRETE RIGID FRAME SECTION", DWG. NO. S-10 FOR ADDITIONAL DETAILS.
8. DRIVE H-PILES AND CONSTRUCT C.I.P. CONCRETE PILE CAPS AND SPREAD FOOTING.
9. INSTALL COFFERDAM BOX AT ABUTMENT 2 (SEE DETAIL "PILE CAP CONSTRUCTION JOINT" BELOW FOR DETAILS).
10. PLACE ROUNDED STONE RIPRAP ON THE STREAM SIDE WITHIN COFFERDAM LIMITS.
11. INSTALL PRECAST CONCRETE THREE SIDED RIGID FRAME AND SEAL COFFERDAM BOX AGAINST THE RIGID FRAME STEM AT ABUTMENT 2.
12. CONSTRUCT NEW C.I.P. CONCRETE WINGWALLS.
13. REMOVE THE EXISTING DRAINAGE (AS NECESSARY) AND CONSTRUCT THE NEW ROADWAY DRAINAGE (SEE RDWY DRAWINGS FOR DETAILS).
14. INSTALL PERVIOUS STRUCTURE BACKFILL AND ROADWAY BASE AND COMPLETE THE INSTALLATION OF ROUNDED STONE RIPRAP UNDER THE BRIDGE.
15. REMOVE COFFERDAMS WITHIN SHOWN LIMITS (SEE "LIMITS OF COFFERDAM REMOVAL" BELOW).
16. CONSTRUCT NEW C.I.P. CONCRETE PARAPET AND INSTALL BRIDGE RAIL.
17. INSTALL UTILITY BRIDGE AND RELOCATE WATER MAIN.
18. INSTALL TEMPORARY CONCRETE STUB WALL, MEMBRANE WATERPROOFING, LAYERS OF HMA (HMA S0.25 AND S1.0) AND SUBBASE (WHERE APPLICABLE).
19. INSTALL METAL BRIDGE RAIL.



A - PILE CAP CONSTRUCTION JT. DETAIL

SCALE: 1"-5'



TYPICAL SECTION - STAGE 1

SCALE: 1"= 10'

COFFERDAM NOTE:
CONTRACTOR SHALL CONSIDER THE LOCATION OF THE PROPOSED BATTERED STEEL PILES WHEN DESIGNING THE COFFERDAM SYSTEM. IT IS ASSUMED THAT A DRIVEN COFFERDAM SYSTEM WILL BE REQUIRED. THE DEPTH OF THE COFFERDAM EMBEDMENT SHALL BE SUCH THAT IT DOES NOT CONFLICT WITH THE PROPOSED PILES. THE CONTRACTOR SHALL BE AWARE THAT BRACING MAY BE REQUIRED FOR THE COFFERDAM DUE TO EMBEDMENT LIMITATIONS.

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

TEMPORARY HYDRAULIC DATA

TEMPORARY DESIGN FREQUENCY	2 YR
TEMPORARY DESIGN DISCHARGE	293 CFS
TEMPORARY DESIGN WATER SURFACE ELEVATION	527.84 FT

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE AS NOTED

DESIGNER: S. DAS
DRAFTER: S. LACHCIK
CHECKED BY: S. DRECHSLER
DATE CHECKEI 11/2013

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

ENGINEER: ALFRED BENESCH & COMPANY
APPROVED BY: DATE:

Alfred Benesch & Company
90 National Drive
Glastonbury, CT

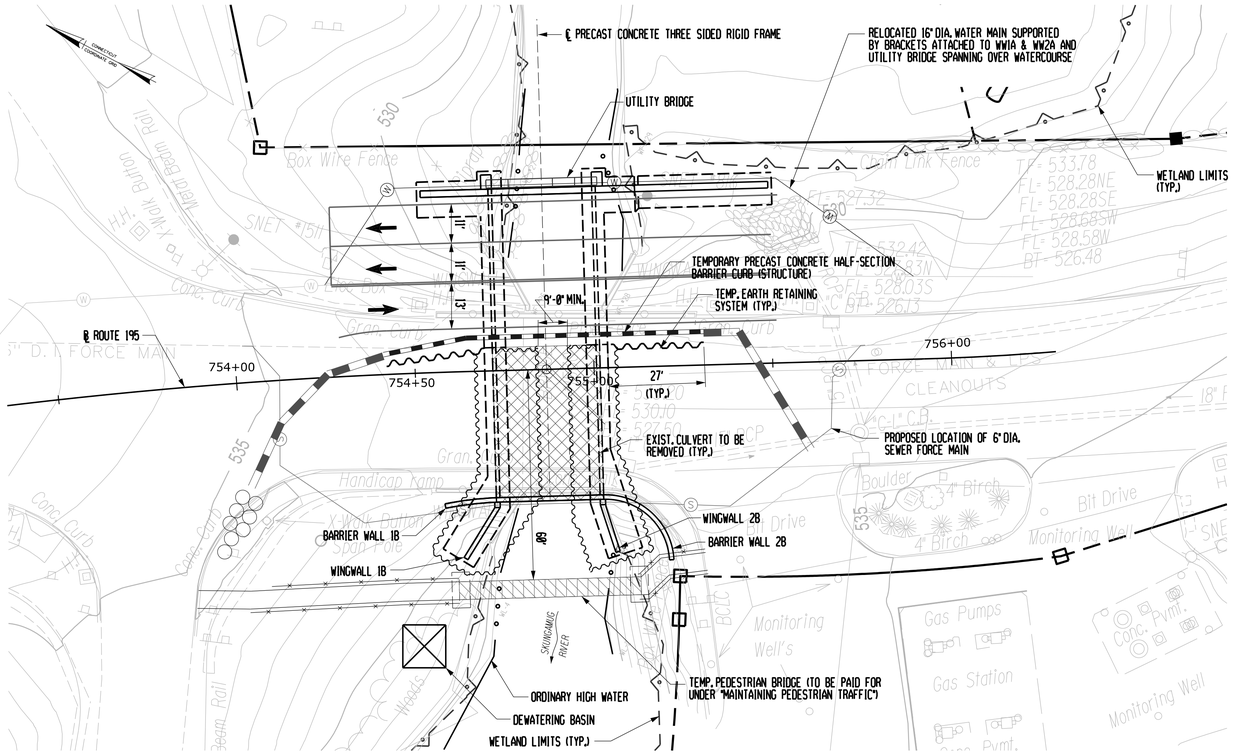
PROJECT TITLE: RECONSTRUCTION OF ROUTE 195

CADD S-6 STAGE 1 | PLOTTED $DATE$

TOWN: TOLLAND

DRAWING TITLE: STAGE CONSTRUCTION 1

PROJECT NO.: 142-146
DRAWING NO.: S-7
SHEET NO.: C-007



PLAN - STAGE 2

SCALE: 1"= 20'

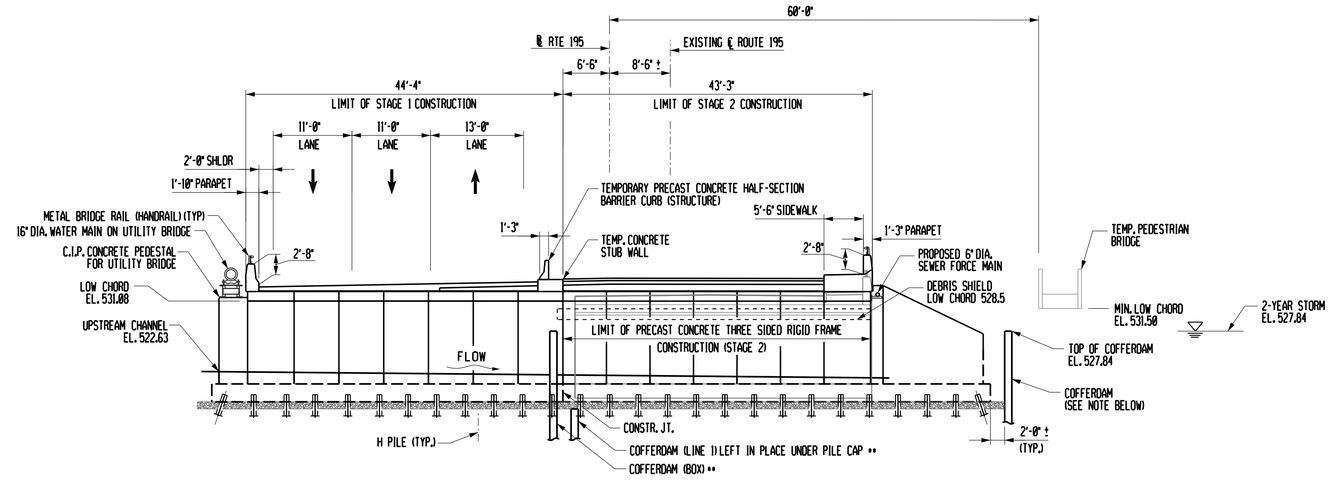
LEGEND:

- LIMIT OF 3-SIDED PRECAST CONCRETE RIGID FRAME CONSTRUCTION IN STAGE 1
- TEMPORARY PEDESTRIAN BRIDGE
- TEMPORARY EARTH RETAINING SYSTEM
- COFFERDAM
- TEMPORARY PRECAST CONCRETE HALF-SECTION BARRIER CURB (STRUCTURE)
- TEMPORARY PRECAST CONCRETE BARRIER CURB (ROADWAY ITEM)

SUGGESTED CONSTRUCTION SEQUENCE:

STAGE CONSTRUCTION 2:

1. RELOCATE TEMPORARY PRECAST CONCRETE BARRIER CURB AND SHIFT TRAFFIC EAST ONTO NEWLY CONSTRUCTED SECTION OF THE BRIDGE, CONSTRUCTED DURING STAGE 1. MAINTAIN TWO LANES IN THE NORTHBOUND DIRECTION AND ONE LANE IN THE SOUTHBOUND DIRECTION.
2. INSTALL TEMPORARY DEBRIS SHIELD. REMOVE BRIDGE SUPERSTRUCTURE WITHIN STAGE 2 CONSTRUCTION LIMITS.
3. RELOCATE TEMPORARY EARTH RETAINING SYSTEM (TERS) AS REQUIRED AND INSTALL COFFERDAMS.
4. REMOVE EXISTING SUBSTRUCTURE WITHIN THE CONSTRUCTION LIMITS. THE EXISTING SUBSTRUCTURE SHALL BE REMOVED COMPLETELY IF IT OBSTRUCTS THE PROPOSED CONSTRUCTION OR TO A MINIMUM OF ONE FOOT BELOW THE CHANNEL ELEVATION.
5. DRIVE H-PILES AND CONSTRUCT C.I.P. CONCRETE PILE CAPS.
6. PLACE ROUNDED STONE RIPRAP ON THE STREAM SIDE WITHIN COFFERDAM LIMITS.
7. INSTALL PRECAST CONCRETE THREE SIDED RIGID FRAME AND CONSTRUCT NEW C.I.P. CONCRETE WINGWALLS.
8. COMPLETE ROADWAY DRAINAGE CONSTRUCTION.
9. INSTALL PERVIOUS STRUCTURE BACKFILL AND ROADWAY BASE AND COMPLETE THE INSTALLATION OF ROUNDED STONE RIPRAP UNDER THE BRIDGE.
10. REMOVE TEMPORARY EARTH RETAINING SYSTEM AND COFFERDAMS WITHIN THE SHOWN LIMITS (SEE DWG S-7, "LIMITS OF COFFERDAM REMOVAL").
11. CONSTRUCT BRIDGE PARAPET, BRIDGE RAIL, SIDEWALK AND BARRIER WALLS.
12. INSTALL MEMBRANE WATERPROOFING AND REMOVE STUB WALL.
13. RELOCATE 6" DIA. SEWER FORCE MAIN TO PROPOSED LOCATION. REMOVE TEMPORARY PEDESTRIAN BRIDGE.
14. INSTALL FINAL LAYER OF HMA AND COMPLETE THE ROADWAY CONSTRUCTION. BRIDGE FINAL WEARING SURFACE SHALL BE COMPLETED WITH INSTALLATION OF THE ROADWAY FINAL OVERLAY OF THE ENTIRE PROJECT INSTALLED CURB TO CURB.

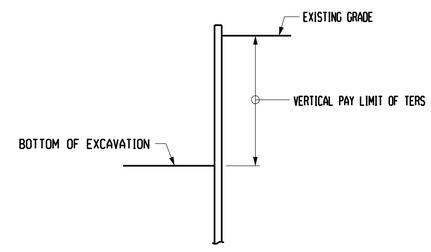


TYPICAL SECTION - STAGE 2

SCALE: 1"= 10'

* DISTANCE MEASURED ALONG THE CENTER LINE OF PRECAST CONCRETE THREE SIDED RIGID FRAME

** COFFERDAM INSTALLED DURING STAGE 1. SEE DWG S-7, PILE CAP CONSTRUCTION JT. DETAIL



PAY LIMITS OF TEMP. EARTH RETAINING SYSTEM (TERS)

NOT TO SCALE

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

NOTE:
THE CONTRACTOR SHALL BE AWARE OF THE POTENTIAL FOR CONFLICT BETWEEN THE COFFERDAM LINES AND THE PROPOSED BATTERED PILES. THE CONTRACTOR SHALL TAKE THIS INTO CONSIDERATION WHEN DESIGNING THE COFFERDAM SYSTEM INCLUDING ANY BRACING THAT MAY BE REQUIRED DUE TO LIMITATIONS ON EMBEDDEMENT DEPTH OF COFFERDAM MATERIALS.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE AS NOTED

DESIGNER: S. DAS
DRAFTER: S. LACHCIK
CHECKED BY: S. DRECHSLER
DATE CHECKEI 9/2013

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

ENGINEER: ALFRED BENESCH & COMPANY
APPROVED BY: DATE:

Alfred Benesch & Company
90 National Drive
Glastonbury, CT

PROJECT TITLE: EXISTING BRIDGE
RECONSTRUCTION OF ROUTE 195

CADD S-7 STAGE 2 | PLOTTED $DATE$

TOWN: TOLLAND

DRAWING TITLE: STAGE CONSTRUCTION 2

PROJECT NO.: 142-146
DRAWING NO.: S-8
SHEET NO.: C-008

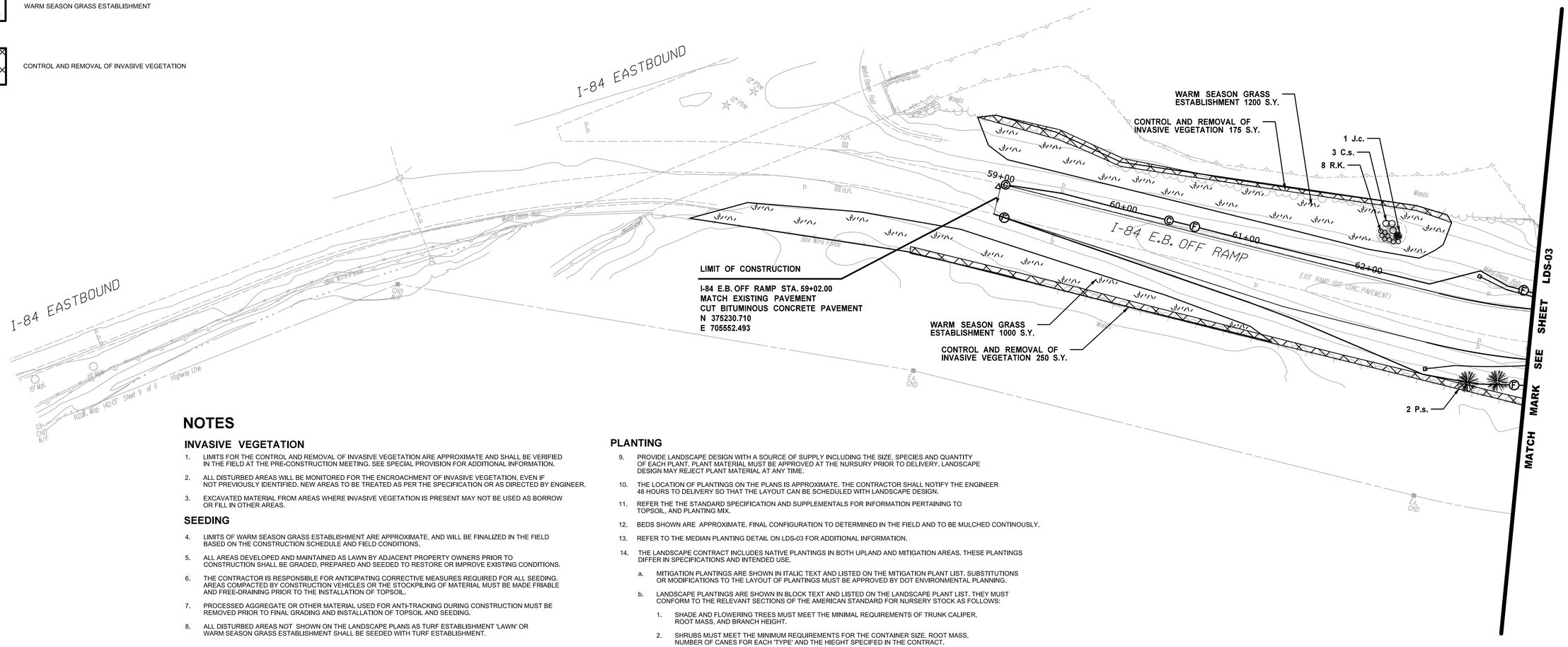
LANDSCAPE PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QTY.	SPACING	COMMENTS
C.s.	Cornus sericea	Red Osier Dogwood	24"-36" Ht. B.B.	3	5' On Center	
J.c.	Juniperus chinensis 'Spp.'	Chinese Juniper Species	5'-6' Ht. B.B.	1	Field Located	
P.s.	Pinus strobus	White Pine	5'-6' Ht. B.B.	2	Field Located	
R.K.	Rosa 'Knockout'	Knockout Rose	2'-3' Ht. Container	8	4' On Center	Spreading
Warm Season Grass Establishment				2200 S.Y.		
Mulching				20 S.Y.		
Control & Removal of Invasive Vegetation				425 S.Y.		

KEY

WARM SEASON GRASS ESTABLISHMENT

CONTROL AND REMOVAL OF INVASIVE VEGETATION



NOTES

INVASIVE VEGETATION

1. LIMITS FOR THE CONTROL AND REMOVAL OF INVASIVE VEGETATION ARE APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD AT THE PRE-CONSTRUCTION MEETING. SEE SPECIAL PROVISION FOR ADDITIONAL INFORMATION.
2. ALL DISTURBED AREAS WILL BE MONITORED FOR THE ENCROACHMENT OF INVASIVE VEGETATION, EVEN IF NOT PREVIOUSLY IDENTIFIED. NEW AREAS TO BE TREATED AS PER THE SPECIFICATION OR AS DIRECTED BY ENGINEER.
3. EXCAVATED MATERIAL FROM AREAS WHERE INVASIVE VEGETATION IS PRESENT MAY NOT BE USED AS BORROW OR FILL IN OTHER AREAS.

SEEDING

4. LIMITS OF WARM SEASON GRASS ESTABLISHMENT ARE APPROXIMATE, AND WILL BE FINALIZED IN THE FIELD BASED ON THE CONSTRUCTION SCHEDULE AND FIELD CONDITIONS.
5. ALL AREAS DEVELOPED AND MAINTAINED AS LAWN BY ADJACENT PROPERTY OWNERS PRIOR TO CONSTRUCTION SHALL BE GRADED, PREPARED AND SEEDED TO RESTORE OR IMPROVE EXISTING CONDITIONS.
6. THE CONTRACTOR IS RESPONSIBLE FOR ANTICIPATING CORRECTIVE MEASURES REQUIRED FOR ALL SEEDING. AREAS COMPACTED BY CONSTRUCTION VEHICLES OR THE STOCKPILING OF MATERIAL MUST BE MADE FRIABLE AND FREE-DRAINING PRIOR TO THE INSTALLATION OF TOPSOIL.
7. PROCESSED AGGREGATE OR OTHER MATERIAL USED FOR ANTI-TRACKING DURING CONSTRUCTION MUST BE REMOVED PRIOR TO FINAL GRADING AND INSTALLATION OF TOPSOIL AND SEEDING.
8. ALL DISTURBED AREAS NOT SHOWN ON THE LANDSCAPE PLANS AS TURF ESTABLISHMENT 'LAWN' OR WARM SEASON GRASS ESTABLISHMENT SHALL BE SEEDED WITH TURF ESTABLISHMENT.

PLANTING

9. PROVIDE LANDSCAPE DESIGN WITH A SOURCE OF SUPPLY INCLUDING THE SIZE, SPECIES AND QUANTITY OF EACH PLANT. PLANT MATERIAL MUST BE APPROVED AT THE NURSURY PRIOR TO DELIVERY. LANDSCAPE DESIGN MAY REJECT PLANT MATERIAL AT ANY TIME.
10. THE LOCATION OF PLANTINGS ON THE PLANS IS APPROXIMATE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS TO DELIVERY SO THAT THE LAYOUT CAN BE SCHEDULED WITH LANDSCAPE DESIGN.
11. REFER THE THE STANDARD SPECIFICATION AND SUPPLEMENTALS FOR INFORMATION PERTAINING TO TOPSOIL, AND PLANTING MIX.
12. BEDS SHOWN ARE APPROXIMATE. FINAL CONFIGURATION TO DETERMINED IN THE FIELD AND TO BE MULCHED CONTINOUSLY.
13. REFER TO THE MEDIAN PLANTING DETAIL ON LDS-03 FOR ADDITIONAL INFORMATION.
14. THE LANDSCAPE CONTRACT INCLUDES NATIVE PLANTINGS IN BOTH UPLAND AND MITIGATION AREAS. THESE PLANTINGS DIFFER IN SPECIFICATIONS AND INTENDED USE.
    a. MITIGATION PLANTINGS ARE SHOWN IN ITALIC TEXT AND LISTED ON THE MITIGATION PLANT LIST. SUBSTITUTIONS OR MODIFICATIONS TO THE LAYOUT OF PLANTINGS MUST BE APPROVED BY DOT ENVIRONMENTAL PLANNING.
    b. LANDSCAPE PLANTINGS ARE SHOWN IN BLOCK TEXT AND LISTED ON THE LANDSCAPE PLANT LIST. THEY MUST CONFORM TO THE RELEVANT SECTIONS OF THE AMERICAN STANDARD FOR NURSERY STOCK AS FOLLOWS:
        1. SHADE AND FLOWERING TREES MUST MEET THE MINIMAL REQUIREMENTS OF TRUNK CALIPER, ROOT MASS, AND BRANCH HEIGHT.
        2. SHRUBS MUST MEET THE MINIMUM REQUIREMENTS FOR THE CONTAINER SIZE, ROOT MASS, NUMBER OF CANES FOR EACH 'TYPE' AND THE HIEGHT SPECIFED IN THE CONTRACT.
        3. HERBACEOUS PLANTS AND ORNAMENTAL GRASSES MUST MEET THE MINIMUM REQUIREMENTS FOR CONTAINER SIZE AND ROOT MASS SPECIFIED IN THE CONTRACT.

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: 12/23/2014

DESIGNER/DRAFTER: S. FIEDLER
CHECKED BY: M. CALABRESE
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\Landscape\LDS_142.146_001.dgn

SIGNATURE/BLOCK: OFFICE OF ENGINEERING
APPROVED BY:

PROJECT TITLE: RECONSTRUCTION OF ROUTE 195

TOWN: TOLLAND

DRAWING TITLE: LANDSCAPE DESIGN SHEET

PROJECT NO. 142-146
DRAWING NO. LDS-02
SHEET NO. C-009

LANDSCAPE PLANT LIST

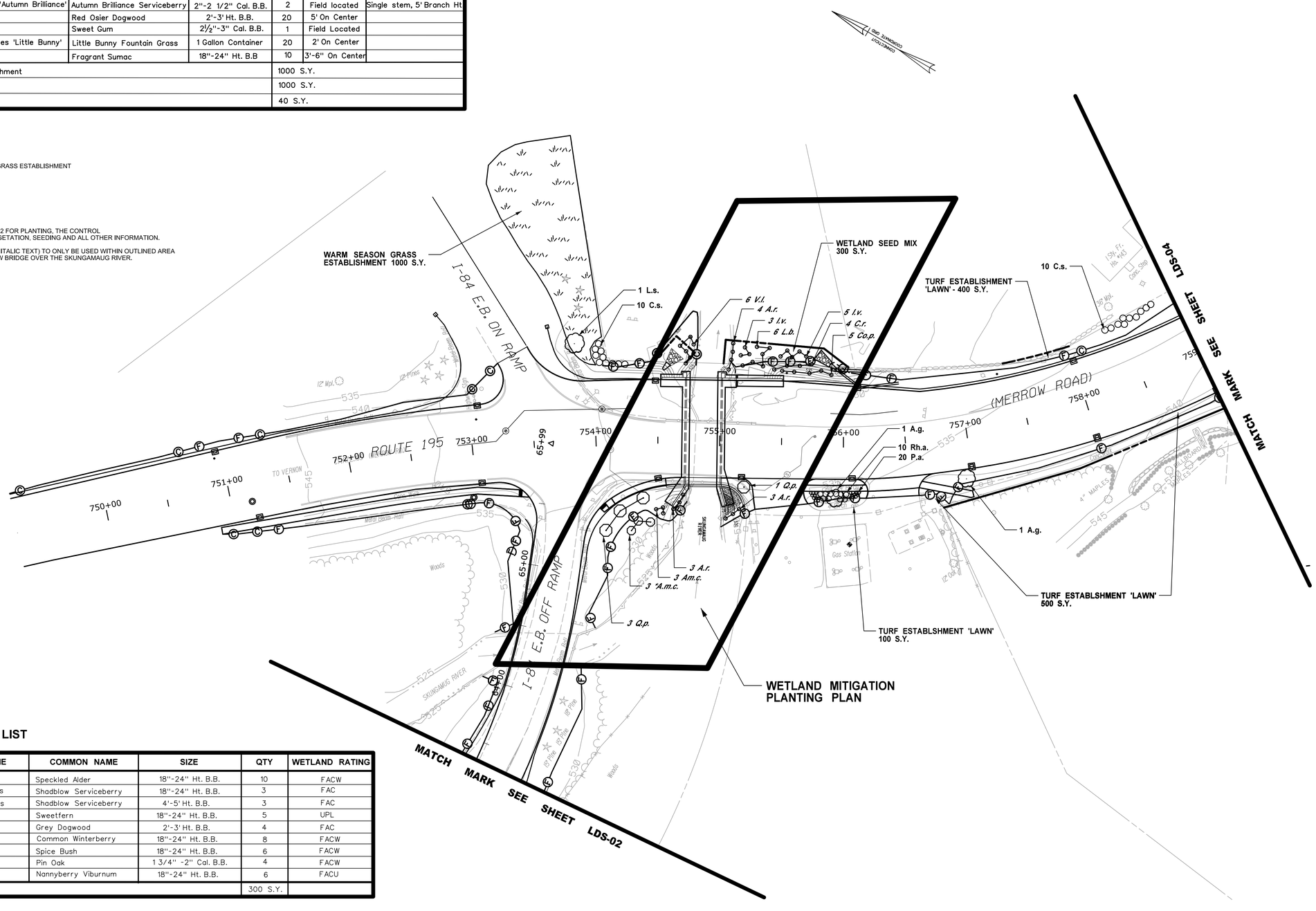
KEY	BOTANICAL NAME	COMMON NAME	SIZE	QTY.	SPACING	COMMENTS
A.g.	Amelanchier grandifolia 'Autumn Brilliance'	Autumn Brilliance Serviceberry	2"-2 1/2" Cal. B.B.	2	Field located	Single stem, 5' Branch Ht
C.s.	Cornus sericea	Red Osier Dogwood	2'-3' Ht. B.B.	20	5' On Center	
L.s.	Liquidambar styraciflua	Sweet Gum	2½"-3" Cal. B.B.	1	Field Located	
Pe.a.	Pennisetum alopecuroides 'Little Bunny'	Little Bunny Fountain Grass	1 Gallon Container	20	2' On Center	
Rh.a.	Rhus aromatica	Fragrant Sumac	18"-24" Ht. B.B	10	3'-6" On Center	
Warm Season Grass Establishment				1000 S.Y.		
Turf Establishment 'Lawn'				1000 S.Y.		
Mulching				40 S.Y.		

KEY

WARM SEASON GRASS ESTABLISHMENT

NOTES

1. REFER TO THE NOTES ON LDS-02 FOR PLANTING, THE CONTROL AND REMOVAL OF INVASIVE VEGETATION, SEEDING AND ALL OTHER INFORMATION.
2. MITIGATION PLANTS (SHOWN IN ITALIC TEXT) TO ONLY BE USED WITHIN OUTLINED AREA (BOX) SHOWN AROUND THE NEW BRIDGE OVER THE SKUNGAMAUG RIVER.



MITIGATION PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QTY	WETLAND RATING
A.r.	Alnus rugosa	Speckled Alder	18"-24" Ht. B.B.	10	FACW
Am.c.	Amelanchier canadensis	Shadblow Serviceberry	18"-24" Ht. B.B.	3	FAC
*Am.c.	Amelanchier canadensis	Shadblow Serviceberry	4'-5' Ht. B.B.	3	FAC
Co.p.	Comptonia perigrina	Sweetfern	18"-24" Ht. B.B.	5	UPL
C.r.	Cornus racemosa	Grey Dogwood	2'-3' Ht. B.B.	4	FAC
I.v.	Ilex verticillata	Common Winterberry	18"-24" Ht. B.B.	8	FACW
L.b.	Lindera benzoin	Spice Bush	18"-24" Ht. B.B.	6	FACW
Q.p.	Quercus palustris	Pin Oak	1 3/4" -2" Cal. B.B.	4	FACW
V.l.	Viburnum lentago	Nannyberry Viburnum	18"-24" Ht. B.B.	6	FACU
Wetland Seed Mix				300 S.Y.	

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: 12/23/2014

DESIGNER/DRAFTER: S. FIEDLER
CHECKED BY: M. CALABRESE
SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\Landscape\LDS_142_146_002.dgn

SIGNATURE/ BLOCK: OFFICE OF ENGINEERING
APPROVED BY:

PROJECT TITLE: RECONSTRUCTION OF ROUTE 195

TOWN: TOLLAND
DRAWING TITLE: LANDSCAPE DESIGN SHEET

PROJECT NO. 142-146
DRAWING NO. LDS-03
SHEET NO. C-010

LANDSCAPE NOTES

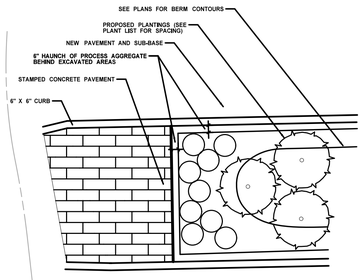
1. REFER TO THE NOTES ON LDS-01 FOR PLANTING. THE CONTROL AND REMOVAL OF INVASIVE VEGETATION, SEEDING AND ALL OTHER INFORMATION.
2. MITIGATION PLANTS TO ONLY BE USED WITHIN OUTLINED AREA (BOX) SHOWN AROUND THE NEW BRIDGE OVER THE SKUNGAMAUG RIVER.

KEY

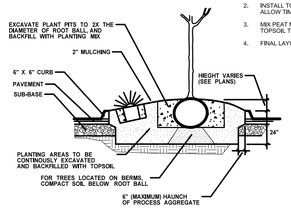
WARM SEASON GRASS ESTABLISHMENT

CONTROL AND REMOVAL OF INVASIVE VEGETATION

MEDIAN PLANTING DETAIL



PLAN



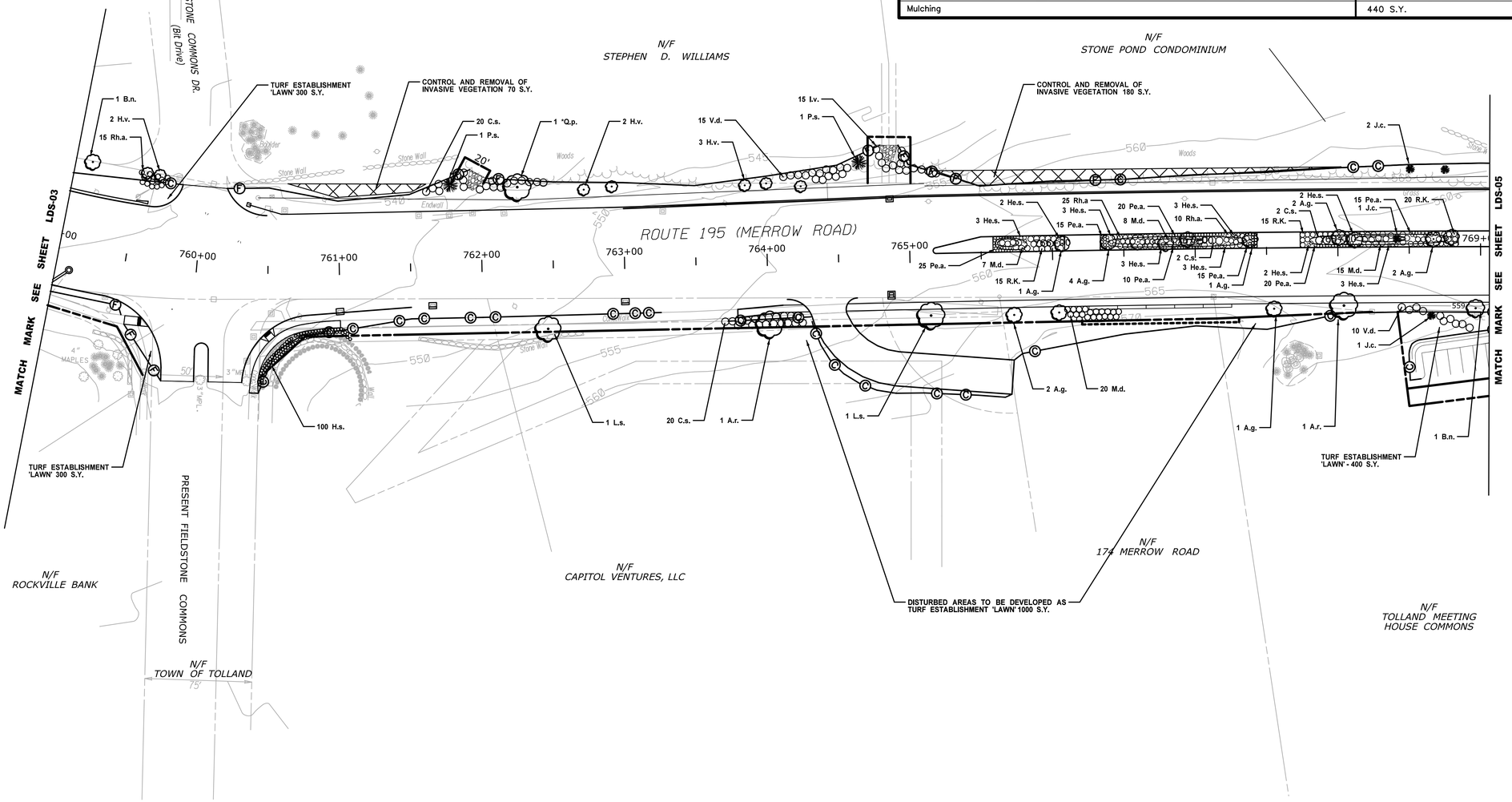
SECTION

NOTES

1. COORDINATE EXCAVATION AND PREPARATION OF MEDIAN AREAS PRIOR TO THE DELIVERY PLANT MATERIAL, REMOVING ALL FOREIGN MATERIAL.
2. THE ENGINEER SHALL REVIEW EXCAVATED AREAS PRIOR TO THE INSTALLATION OF TOPSOIL AND ENSURE DRAINAGE.
2. INSTALL TOPSOIL IN 6" LIFTS. SHAPE BERMS AS SHOWN, ALLOW TIME FOR SETTLING BEFORE PLANTING.
3. MIX PEAT MOSS AND DECOMPOSED MANURE WITH EXCAVATED TOPSOIL TO PREPARE PLANTING MIX.
4. FINAL LAYOUT OF PLANT MATERIAL TO BE COORDINATED IN THE FIELD.

LANDSCAPE PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QTY.	SPACING	COMMENTS
A.r.	Acer rubrum 'columnare'	Columnar Red Maple	2"-2 1/2" Cal. B.B.	2	Field located	Spring Dug
A.g.	Amelanchier grandifolia 'Autumn Brilliance'	Autumn Brilliance Serviceberry	2"-2 1/2" Cal. B.B.	13	Field located	Single stem, 5' branch ht.
B.n.	Betula nigra 'Heritage'	Heritage River Birch	12'-14' Ht. B.B.	2	Field located	Spring Dug
C.s.	Cornus sericea	Red Osier Dogwood	24"-36" Ht. B.B.	44	5' On Center	See note 16, LDS-02
H.v.	Hamamelis virginiana	Common Witch Hazel	5'-6' Ht. B.B.	7	2' On Center	
He.s.	Helictotrichon sempervirens	Blue Oat Grass	• 5 Container	24	3' On Center	
H.s.	Hemerocallis spp.	Daylily	1 Gallon Container	100	2' On Center	Long blooming, 12"-18" Ht.
••I.v.	Ilex verticillata	Common Winterberry	2'-3' Ht. B.B.	15	5' On Center	See note 16, LDS-02
M.d.	Microbiota decussa	Siberian Cypress	18"-24" Sprd. Cont.	50	2' On Center	
J.c.	Juniperus chinensis spp.	Chinese Juniper Species	5'-6' Ht. B.B.	4	Field Located	Narrow, upright
L.s.	Liquidambar styraciflua	American Sweet Gum	2½"-3" Cal. B.B.	2	Field Located	Spring Dug
P.s.	Pinus strobus	Eastern White Pine	5'-6' Ht. B.B.	2	Field Located	
Pe.a.	Pennisetum alopecuroides 'Little Bunny'	Little Bunny Fountain Grass	1 Gallon Container	120	2' On Center	
Rh.a.	Rhus aromatica	Fragrant Sumac	18"-24" Ht. B.B	50	3'-6" On Center	See note 16, LDS-02
R.K.	Rosa 'Knockout'	Knockout Rose	2'-3' Ht. Container	50	4' On Center	Spreading
•Q.p.	Quercus palustris	Pin Oak	2"-2½" Cal. B.B.	1	Field located	
V.d.	Viburnum dentatum	Arrowwood Viburnum	2'-3' Ht. B.B.	25	5' On Center	See note 16, LDS-02
Control & Removal of Invasive Vegetation				250 S.Y.		
Turf Establishment 'Lawn'				2000 S.Y.		
Mulching				440 S.Y.		



REV.	DATE	REVISION DESCRIPTION	SHEET. NO.

LDS_142_146_03.dgn

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:

DESIGNER: S. FIEDLER

CHECKED BY: M. CALABRESE

SCALE IN FEET

0 40 80

SCALE 1" = 40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename:

SIGNATURE/ BLOCK: OFFICE OF ENGINEERING

APPROVED BY:

PROJECT TITLE: RECONSTRUCTION OF ROUTE 195

TOWN: TOLLAND

DRAWING TITLE: LANDSCAPE DESIGN SHEET

PROJECT NO.: 142-146

DRAWING NO.: LDS-04

SHEET NO.: C-011

LANDSCAPE KEY

CONTROL AND REMOVAL OF INVASIVE VEGETATION

MITIGATION PLANT LIST

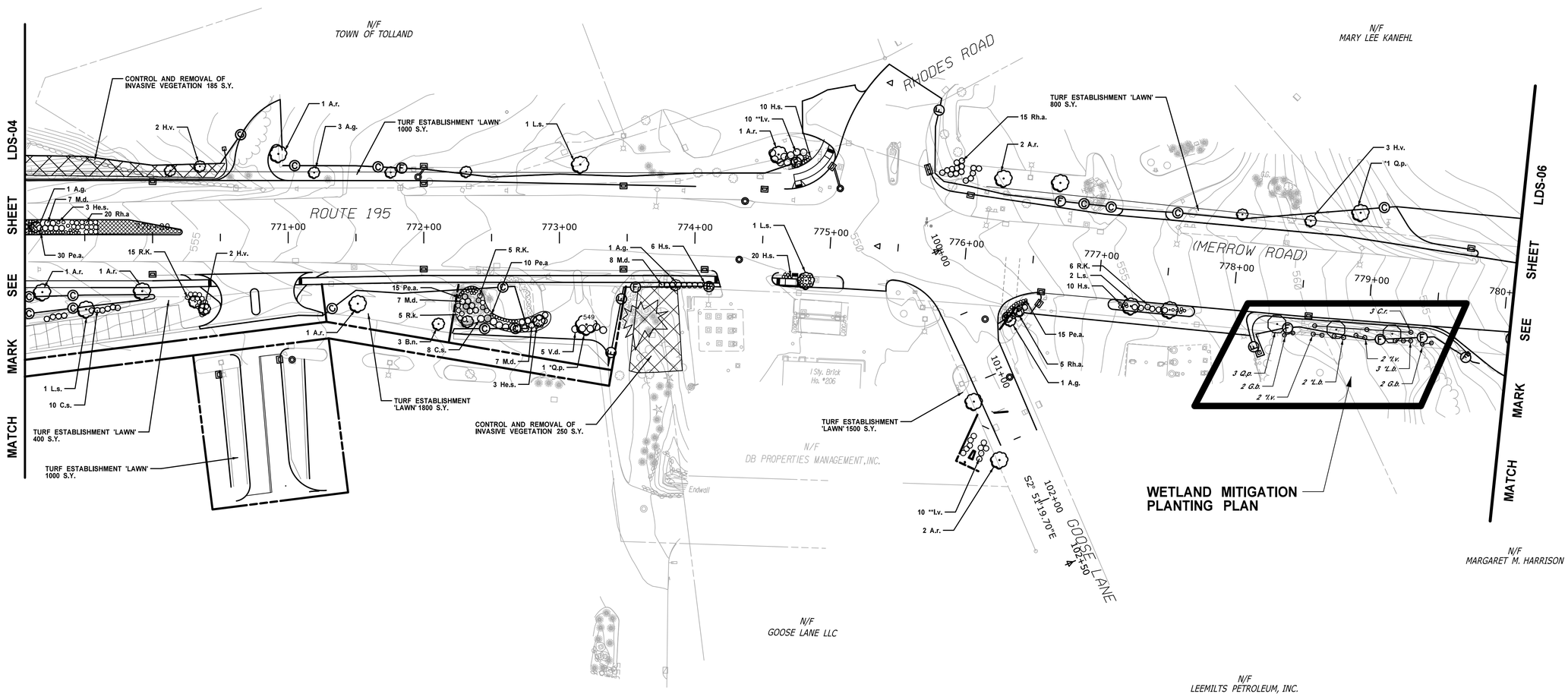
KEY	BOTANICAL NAME	COMMON NAME	SIZE	QTY	WETLAND RATING
C.r.	Cornus racemosa	Grey Dogwood	2'-3' Ht. B.B.	3	FAC
G.b.	Guylussacia baccata	Huckleberry	12"-18" Ht. B.B.	4	FACU
* I.v.	Ilex verticillata	Common Winterberry	2'-3' Ht. B.B.	4	FACW
* L.b.	Lindera benzoin	Spice bush	2'-3' Ht. B.B.	5	FACW
Q.p.	Quercus palustris	Pin Oak	1 3/4" -2" Cal. B.B.	3	FACW

NOTES

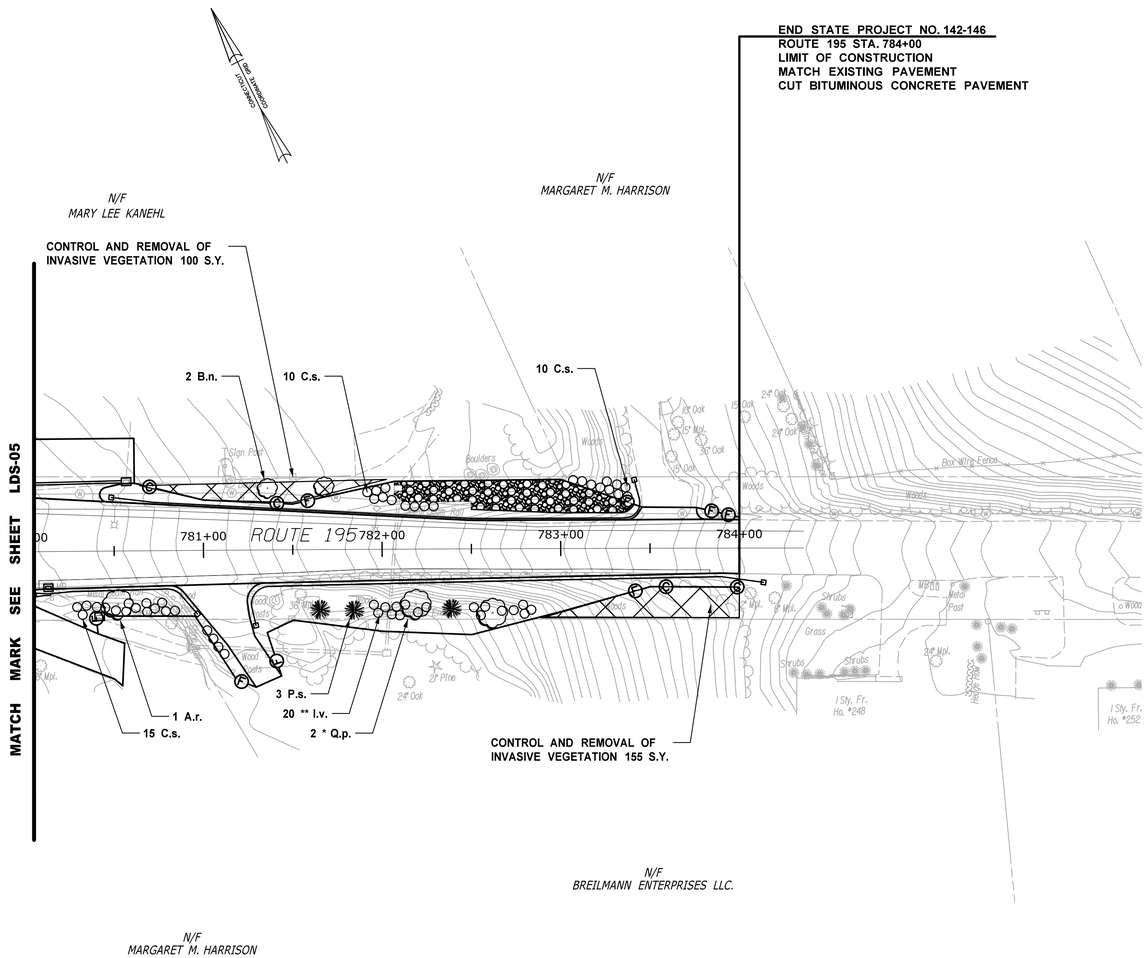
1. REFER TO LDS-02 FOR PLANTING, CONTROL AND REMOVAL OF INVASIVE VEGETATION, SEEDING AND OTHER INFORMATION.
2. MITIGATION PLANTS TO BE ONLY USED WITHIN OUTLINED AREA (BOX) SHOWN ON THE PLAN SOUTH OF STATIONS 778+00 AND 779+50.

LANDSCAPE PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QTY.	SPACING	COMMENTS
A.r.	Acer rubrum 'columnare'	Columnar Red Maple	2"-2½" Cal. B.B.	9	Field located	Spring Dug
A.g.	Amelanchier grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	2"-2 1/2" Cal. B.B.	6	Field located	Single stem, narrow, 5' branch ht.
B.n.	Betula nigra 'Heritage'	Heritage River Birch	12'-14' Ht. B.B.	3	Field located	Spring Dug
C.s.	Cornus sericea	Red Osier Dogwood	24"-36" Ht. B.B.	18	5' On Center	See Note 16, LDS-02
He.s.	Helictotrichon sempervirens	Blue Oat Grass	• 5 Container	6	3' On Center	
H.v.	Hamamelis virginiana	Common Witch Hazel	5'-6' Ht. B.B.	6	Field located	Tree form
H.s.	Hemerocallis spp.	Daylily	1 Gal. Cont.	46	2' On Center	12"-18" Ht.
** I.v.	Ilex verticillata	Common Winterberry	2'-3' Ht. B.B.	20	5' On Center	See Note 16, LDS-02
M.d.	Microbiota decussa	Siberian Cypress	18"-24" Sprd. Cont.	22	4' On Center	
L.s.	Liquidambar styraciflua	American Sweet Gum	2½"-3" Cal. B.B.	5	Field Located	Spring Dug
Pe.a.	Pennisetum alopecuroides 'Little Bunny'	Little Bunny Fountain Grass	1 Gallon Container	70	2' On Center	
Rh.a.	Rhus aromatica	Fragrant Sumac	18"-24" Ht. B.B	40	3'-6" On Center	See Note 16, LDS-02
R.k.	Rosa 'Knockout'	Knockout Rose	2'-3' Ht. Container	26	4' On Center	Spreading
*Q.p.	Quercus palustris	Pin Oak	2"-2½" Cal. B.B.	2	Field located	
V.d.	Viburnum dentatum	Arrowwood Viburnum	2'-3' Ht. B.B.	5	6' On Center	See Note 16, LDS-02
Control & Removal of Invasive Vegetation				435 S.Y.		
Turf Establishment 'Lawn'				6000 S.Y.		
Mulching				400 S.Y.		



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.	DESIGNER: S. FIEDLER CHECKED BY: M. CALABRESE SCALE IN FEET 0 40 80 SCALE 1" = 40'	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK: OFFICE OF ENGINEERING APPROVED BY:	PROJECT TITLE: RECONSTRUCTION OF ROUTE 195	TOWN: TOLLAND DRAWING TITLE: LANDSCAPE DESIGN SHEET	PROJECT NO.: 142-146 DRAWING NO.: LDS-05 SHEET NO.: C-012
	Plotted Date:		Filename:				



LANDSCAPE PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QTY.	SPACING	COMMENTS
A.r.	Acer rubrum 'columnare'	Columnar Red Maple	2"-2½" Cal. B.B.	1	Field located	Spring Dug
B.n.	Betula nigra 'Heritage'	Heritage River Birch	12'-14' Ht. B.B.	2	Field located	Spring Dug
C.s.	Cornus sericea	Red Osier Dogwood	24"-36" Ht. B.B.	35	5' On Center	
**I.v.	Ilex verticillata	Common Winterberry	2'-3' Ht. B.B.	20	5' On Center	See Note 16, LDS-01
P.s.	Pinus strobus	Eastern White Pine	5'-6' Ht. B.B.	3	Field located	
*Q.p.	Quercus palustris	Pin Oak	2"-2½" Cal. B.B.	2	Field located	Spring Dug
Mulching				100 S.Y.		
Control & Removal of Invasive Vegetation				255 S.Y.		

KEY

CONTROL AND REMOVAL OF INVASIVE VEGETATION

NOTES

1. REFER TO THE NOTES ON LDS-02 FOR PLANTING, THE CONTROL AND REMOVAL OF INVASIVE VEGETATION, SEEDING AND ALL OTHER INFORMATION.

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:

DESIGNER: S. FIEDLER
CHECKED BY: M. CALABRESE
SCALE IN FEET
0 40 80
SCALE 1" = 40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename:

SIGNATURE/ BLOCK:
OFFICE OF ENGINEERING
APPROVED BY:

PROJECT TITLE:
RECONSTRUCTION OF ROUTE 195

TOWN: TOLLAND

DRAWING TITLE: LANDSCAPE DESIGN SHEET

PROJECT NO.: 142-146
DRAWING NO.: LDS-06
SHEET NO.: C-013

Appendix D – Stormwater Monitoring Report Form

Connecticut Department of
Energy & Environmental Protection
Bureau of Materials Management & Compliance Assurance
Water Permitting & Enforcement Division

General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, issued 8/21/13, effective 10/1/13
Stormwater Monitoring Report

SITE INFORMATION

Permittee: _____

Mailing Address: _____

Business Phone: _____ ext.: _____ Fax: _____

Contact Person: _____ Title: _____

Site Name: _____

Site Address: _____

Receiving Water (name, basin): _____

Stormwater Permit No. GSN _____

SAMPLING INFORMATION (Submit a separate form for each outfall)

Outfall Designation: _____ Date/Time Collected: _____

Outfall Location(s) (lat/lon or map link): _____

Person Collecting Sample: _____

Storm Magnitude (inches): _____ Storm Duration (hours): _____

Size of Disturbed Area at any time: _____

MONITORING RESULTS

Sample #	Parameter	Method	Results (units)	Laboratory (if applicable)
1	Turbidity			
2	Turbidity			
3	Turbidity			
4	Turbidity			

(provide an attachment if more than 4 samples were taken for this outfall) Avg =

STATEMENT OF ACKNOWLEDGMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: _____

Signature: _____ Date: _____

Please send completed form to:

DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION
BUREAU OF MATERIALS MANAGEMENT AND COMPLIANCE ASSURANCE
79 ELM STREET
HARTFORD, CT 06106-5127
ATTN: NEAL WILLIAMS

Appendix E – Notice of Termination Form

General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities

Notice of Termination Form

Please complete and submit this form in accordance with the general permit (DEP-PED-GP-015) in order to ensure the proper handling of your termination. Print or type unless otherwise noted.

Note: Ensure that for commercial and industrial facilities, registrations under the *General Permit for the Discharge of Stormwater Associated with Industrial Activity* (DEP-PED-GP-014) or the *General Permit for the Discharge of Stormwater from Commercial Activities* (DEP-PED-GP-004) have been filed where applicable. For questions about the applicability of these general permits, please call the Department at 860-424-3018.

Part I: Registrant Information

1. Permit number: ***GSN***
2. Fill in the name of the registrant(s) as indicated on the registration certificate:

   Registrant:
3. Site Address:

   City/Town: State: Zip Code:
4. Date all storm drainage structures were cleaned of construction sediment:

   Date of Completion of Construction:

   Date of Last Inspection (must be at least three months after final stabilization pursuant to Section 6(b)(6)(D) of the general permit):
5. Check the post-construction activities at the site (check all that apply):

   ☐ Industrial ☐ Residential ☐ Commercial ☐ Capped Landfill

   ☐ Other (describe):

Part II: Certification

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

Signature of Permittee	Date
Name of Permittee (print or type)	Title (if applicable)

Note: Please submit this Notice of Termination Form to:

STORMWATER PERMIT COORDINATOR
BUREAU OF WATER MANAGEMENT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127