

TABLE OF CONTENTS OF SPECIAL PROVISIONS

Note: This Table of Contents has been prepared for the convenience of those using this contract with the sole express purpose of locating quickly the information contained herein; and no claims shall arise due to omissions, additions, deletions, etc., as this Table of Contents shall not be considered part of the contract.

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SUPPLEMENTAL SPECIFICATIONS TO THE STANDARD SPECIFICATIONS FORM 816

FHWA REQUIRED CONTRACT PROVISIONS

1. Federal Highway Administration (FHWA) Form 1273 and Amendment Notices
2. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements
3. Contractor Work Force Utilization (Federal Executive Order 11246) / Specific Equal Employment Opportunity
4. Requirements of Title 49, CFR , Part 26
5. Contract Wage Rates
6. Americans with Disabilities Act of 1990
7. Connecticut Statutory Labor Requirements
 - a. Construction, Alteration or Repair of Public Works Projects; Wage Rates
 - b. Debarment List - Limitation on Awarding Contracts
 - c. Construction Safety and Health Course
 - d. Awarding of Contracts to Occupational Safety and Health Law Violators Prohibited
 - e. Residents Preference in Work on Other Public Facilities (Not Applicable to Federal Aid Contracts)
8. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)
9. Executive Orders (State of CT)
10. Non Discrimination Requirement (pursuant to section 4a-60 and 4a-60a of the Connecticut General Statutes, as revised)
11. Whistleblower Provision
12. Connecticut Freedom of Information Act
 - a. Disclosure of Records
 - b. Confidential Information
13. Service of Process

14. Substitution of Securities for Retainages on State Contracts and Subcontracts
15. Health Insurance Portability and Accountability Act of 1996 (HIPAA)
16. Forum and Choice of Law
17. Summary of State Ethics Laws
18. Audit and Inspection of Plants, Places of Business and Records
19. Campaign Contribution Restriction
20. Tangible Personal Property
21. Bid Rigging and/or Fraud – Notice to Contractor
22. Consulting Agreement Affidavit

Index of Exhibits

- EXHIBIT A – FHWA Form 1273 (Begins on page 13)
- EXHIBIT B – Amendment to FHWA Form 1273 (page 27)
- EXHIBIT C – Title VI Contractor Assurances (page 28)
- EXHIBIT D – Contractor Work Force Utilization (Federal Executive Order 11246) /
Equal Employment Opportunity (page 29)
- EXHIBIT E – Health Insurance Portability and Accountability Act of 1996 (HIPAA)
(page 36)
- EXHIBIT F - SEEC Form 10 – Campaign Contribution Restriction (page 44)
- EXHIBIT G – Federal Wage Rates (Attached at the end)
- EXHIBIT H - State Wage Rates (Attached at the end)

November 16, 2011
FEDERAL AID PROJECT NO. 0085(111)
STATE PROJECT NO. 120-086

Roundabout at Salem Four Corners Routes 82 & 85

Town of Salem
Federal Aid Project No. 0085(111)

The State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges and Incidental Construction, Form 816, 2004, as revised by the Supplemental Specifications dated July 2010 (otherwise referred to collectively as "ConnDOT Form 816") is hereby made part of this contract, as modified by the Special Provisions contained herein. . The State of Connecticut Department of Transportation's "Construction Contract Bidding and Award Manual" ("Manual"), May 14, 2010 edition or latest issue, is hereby made part of this contract. If the provisions of this Manual conflict with provisions of other Department documents (not including statutes or regulations), the provisions of the Manual will govern. The Manual is available upon request from the Transportation Manager of Contracts. The Special Provisions relate in particular to the Roundabout at Salem Four Corners Routes 82 & 85 in the Town of Salem.

CONTRACT TIME AND LIQUIDATED DAMAGES

A total of Two Hundred Forty-Six (246) calendar days will be allowed for completion of all work on this project.

Two Hundred One (201) calendar days will be allowed for completion of all work, excluding the planting and the liquidated damages charge to apply will be One Thousand Nine Hundred Dollars (\$1,900) per calendar day.

In addition, starting on March 1, 2013, Forty-Five (45) calendar days will be allowed for the completion of the planting and the liquidated damages charge to apply will be One Thousand Nine Hundred Dollars (\$1,900.00) per calendar day that the planting work remains incomplete.

**NOTICE TO CONTRACTOR - SECTION 6.01 AND M.03 STAMPED
CONCRETE TRUCK APRON**

The contractor shall not be allowed to work on the splitter islands, curbing around the roundabout perimeter or the sidewalk until the truck apron concrete design strength is obtained through cylinder breaks and the truck apron concrete has been accepted by the engineer.

NOTICE TO CONTRACTOR – SUBSURFACE BORING LOGS

A subsurface investigation consisting of five hollow stem auger borings (Boring Numbers: R-1, R-2, R-3, R-4, and RW-1) were obtained for this project. Please refer to the attached Boring Logs for information. Boring locations are shown in the Contract Plans.

BORING NO.: R-1

Driller: T. Mallory		Connecticut DOT Boring Report			Hole No.: R-1			
Inspector: G. Arzt		Town: SALEM			Stat./Offset: 111+98/9ft RT			
Engineer: B. McKiernan		Project No.: 0120-0086			Northing: 234860.5			
Start Date: 11/22/2010		Route No.: 82			Easting: 733003.988			
Finish Date: 11/23/2010		Bridge No.:			Surface Elevation: 276.36			
Project Description: Intersection improvements at Salem Four Corners								
Casing Size/Type: 4" HW		Sampler Type/Size: SS 1 3/8in			Core Barrel Type: NX			
Hammer Wt.: Fall:		Hammer Wt.: 140 Fall: 30						
Groundwater Observations @ 3.7 after 24+ hours, @ after hours, @ after hours								
Depth (ft)	Sample Type/No.	SAMPLES				Generalized Strata Description	Material Description and Notes	Elevation (ft)
		Blows on Sampler per 6 inches							Pen. (in.)	Rec. (in.)	RQD %
0							4" Bituminous Pavement	275
5	S-1	10	10	16	23	24	18	270
10	S-2	100				6	5	265
15	S-3	50				1	0	Bottom of Boring
Sample Type: S=Split Spoon C=Core UP = Undisturbed Piston V = Vane Shear Test Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%								
Total Penetration in Earth: 15.1 Rock:		NOTES: boulder from 12 ft to 12 ft 6 in Well installed at 15 ft; 10ft screen, 11.5ft sand 3.4ft of chips, 1in of grout, and flush mount					Sheet 1 of 1	
No. of Samples: 3							SM-001-M REV. 1/02	

BORING NO.: R-2

Driller: T. Mallory		Connecticut DOT Boring Report			Hole No.: R-2			
Inspector: G. Arzt		Town: SALEM			Stat./Offset: 412+19/3.3ft RT			
Engineer: B. McKiernan		Project No.: 0120-0086			Northing: 234565.4			
Start Date: 11/22/2010		Route No.: 85			Easting: 733080.849			
Finish Date: 11/22/2010		Bridge No.:			Surface Elevation: 267.88			
Project Description: Intersection improvements at Salem Four Corners								
Casing Size/Type: 4" HW		Sampler Type/Size: SS 1 3/8in			Core Barrel Type: NX			
Hammer Wt.: Fall:		Hammer Wt.: 140 Fall: 30						
Groundwater Observations @ 3.8 after 24+ hours, @ after hours, @ after hours								
Depth (ft)	SAMPLES					Generalized Strata Description	Material Description and Notes	Elevation (ft)
	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %			
0						PAVEMENT STRUCTURE	7" Bituminous Pavement	265
5	S-1	24 26 15 16	24	10		GRAVELLY SAND	Light Brown F-C SAND and C-F GRAVEL, little Silt, w/Cobbles	260
10	S-2	30 37 22 18	24	3			Black and Gray C-F GRAVEL, tr f-c Sand, tr Silt, w/Cobbles	255
15	S-3	50	3	2			Brown F-C SAND and C-F GRAVEL, little Silt	
							Bottom of Boring	
Sample Type: S=Split Spoon C=Core UP = Undisturbed Piston V = Vane Shear Test								
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%								
Total Penetration in Earth: 15.25 Rock:			NOTES: 3 inch cobble at 8ft, 10" boulder from 9ft to 9ft 10in, and 4 inch cobble at 14.5ft well at 15 ft; 10ft screen, 11ft of sand, 3ft of chips grout to surface, and flush mount			Sheet 1 of 1		
No. of Samples: 3						SM-001-M REV. 1/02		

BORING NO.: R-3

Driller: T. Mallory		Connecticut DOT Boring Report			Hole No.: R-3		
Inspector: G. Arzt		Town: SALEM			Stat./Offset: 405+81/7ft RT		
Engineer: B. McKiernan		Project No.: 0120-0086			Northing: 234103.734		
Start Date: 11/22/2010		Route No.: 85			Easting: 733521.519		
Finish Date: 11/22/2010		Bridge No.:			Surface Elevation: 275.45		
Project Description: Intersection Improvements at Salem Four Corners							
Casing Size/Type: 4" HW		Sampler Type/Size: SS 1 3/8in			Core Barrel Type: NX		
Hammer Wt.: Fall:		Hammer Wt.: 140 Fall: 30					
Groundwater Observations @ 1.6 after 0 hours, @ after hours, @ after hours							
Depth (ft)	Sample Type/No.	SAMPLES			Generalized Strata Description	Material Description and Notes	Elevation (ft)
		Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)				RQD %
0					PAVEMENT STRUCTURE	7" Bituminous Pavement	275
5	S-1	14 10 13 33	24	18	GRAVELLY SAND	Light Brown F-C SAND, some c-f Gravel, little Silt	270
10	C-1		60	46	BEDROCK	Gray GNEISS medium grained massive bedding slightly fractured fresh and extremely strong	265
15						Bottom of Boring	
Sample Type: S=Split Spoon C=Core UP = Undisturbed Piston V = Vane Shear Test Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%							
Total Penetration in Earth: 10 Rock: 5			NOTES: dense material from 6ft 9in to 7ft 1in roller bit from 7ft to 10ft			Sheet 1 of 1	
No. of Samples: 2						SM-001-M REV. 1/02	

BORING NO.: R-4

Driller: T. Mallory		Connecticut DOT Boring Report			Hole No.: R-4			
Inspector: G. Arzt		Town: SALEM			Stat./Offset: 107+41/38ft RT			
Engineer: B. McKiernan		Project No.: 0120-0086			Northing: 234533			
Start Date: 11/22/2010		Route No.: 82			Easting: 732731			
Finish Date: 11/22/2010		Bridge No.:			Surface Elevation: 263.9			
Project Description: Intersection improvements at Salem Four Corners								
Casing Size/Type: 4" HW		Sampler Type/Size: SS 1 3/8in			Core Barrel Type: NX			
Hammer Wt.: Fall:		Hammer Wt.: 140 Fall: 30						
Groundwater Observations @1 after 24+ hours, @ after hours, @ after hours								
Depth (ft)	SAMPLES					Generalized Strata Description	Material Description and Notes	Elevation (ft)
	Sample Type/No.	Blows on Sampler per 6 inches							Pen. (in.)	Rec. (in.)	RQD %
0							ORGANIC SILT	
5	S-1	1	0	0	1	24	18	Black SILT, little Organics
10	S-2	3	3	4	5	24	0	
15	S-3	2	1	1	2	24	18	Dark Gray SILT, tr Organics
								Bottom of Boring
Sample Type: S=Split Spoon C=Core UP = Undisturbed Piston V = Vane Shear Test								
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%								
Total Penetration in Earth: 17 Rock:		NOTES: Well at 17 ft; 10ft screen, 11ft of sand 1.5ft of chips and flush mount. Cobble found in spoon following sample 2, may have increased blowcounts.				Sheet 1 of 1		
No. of Samples: 3						SM-001-M REV. 1/02		

BORING NO.: RW-1

Driller: T. Mallory		Connecticut DOT Boring Report			Hole No.: RW-1			
Inspector: G. Arzt		Town: SALEM			Stat./Offset: 204+43/28ft LT			
Engineer: B. McKiernan		Project No.: 0120-0086			Northing: 234803.4			
Start Date: 11/22/2010		Route No.: 82 and 85			Easting: 732885.1			
Finish Date: 11/23/2010		Bridge No.:			Surface Elevation: 269.57			
Project Description: Intersection improvements at Salem Four Corners								
Casing Size/Type: 4" HW		Sampler Type/Size: SS 1 3/8in			Core Barrel Type: NX			
Hammer Wt.: Fall:		Hammer Wt.: 140 Fall: 30						
Groundwater Observations @ 3 after 0 hours, @ after hours, @ after hours								
Depth (ft)	Sample Type/No.	SAMPLES				Generalized Strata Description	Material Description and Notes	Elevation (ft)
		Blows on Sampler per 6 inches						
0						GRAVELLY SAND		
5	S-1	15	12	9	10		Light Brown F-C SAND, little Silt, little c-f Gravel	265
10	S-2	15	16	15	22		Light Brown F-C SAND, some c-f Gravel, little Silt	260
15	S-3	50						255
15	C-1			1	0	BEDROCK	Gray GNEISS medium grained massive bedding highly fractured fresh and extremely strong	250
20	C-2			59	45			250
25				60	58		Gray GNEISS medium grained massive bedding highly fractured fresh and extremely strong	245
							Bottom of Boring	
Sample Type: S=Split Spoon C=Core UP = Undisturbed Piston V = Vane Shear Test Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%								
Total Penetration in Earth: 15 Rock: 10				NOTES: Casing refusal at 3 ft roller bit to 5 ft advance roller bit in front of casing from 5 to 15 ft				Sheet 1 of 1
No. of Samples: 5								SM-001-M REV. 1/02

NOTICE TO CONTRACTOR – USE OF STATE POLICE OFFICERS

The Department will reimburse services of State Police Officers as a direct payment to the Department of Public Safety. Payment for State Police Officers utilized by the Contractor for its convenience, not approved by the Engineer, is the responsibility of the Contractor. No separate payment item for State Police Officers is included under this contract.

Use of State Police will be in accordance with the Item No. 0971001A – Maintenance and Protection of Traffic.

NOTICE TO CONTRACTOR - VOLUNTARY PARTNERING

The Connecticut Department of Transportation (ConnDOT) intends to encourage the foundation of a cohesive partnership with the Contractor and its principal subcontractors on this project. This partnership will be structured to draw on the strengths of each organization to identify and achieve reciprocal goals. The objectives are effective and efficient contract performance and completion within budget, on schedule, and in accordance with plans and specifications.

This partnership will be bilateral in makeup, and participation will be totally voluntary. Any cost associated with effectuating this partnering will be agreed to by both parties and will be shared equally.

To implement this partner initiative, the Contractor and ConnDOT will meet and plan a partnering development seminar/team building workshop. At this planning session arrangements will be made to determine attendees at the workshop, agenda of the workshop, duration and location. Persons required to be in attendance will be the ConnDOT District Engineer and key project personnel, the Contractor's on-site project manager and key supervision personnel of both the prime and principal subcontractors. The project design engineers and key local government personnel will also be required to have Regional/District and Corporate/State level managers on the project team.

Follow-up workshops will be held periodically throughout the duration of the Contract as agreed by the Contractor and ConnDOT.

The establishment of a partnership charter on a project will not change the legal relationship of the parties to the Contract nor relieve either party from any of the terms of the Contract.

ConnDOT and the Contractor will jointly select a facilitator to conduct the partnering workshops. The Contractor will obtain the services of the chosen facilitator and ConnDOT will reimburse the Contractor for fifty percent (50%) of the costs agreed to between ConnDOT and the Contractor.

**NOTICE TO CONTRACTOR - CONNECTICUT DEPARTMENT OF
TRANSPORTATION DISCLAIMER**

Connecticut Department of Transportation bidding and other information and documents which are obtained through the Internet, World Wide Web Sites or other sources are not to be construed to be official information for the purposes of bidding or conducting other business with the Department.

It is the responsibility of each bidder and all other interested parties to obtain all bidding related information and documents from official sources within the Department.

Persons and/or entities which reproduce and/or make such information available by any means are not authorized by the Department to do so and may be liable for claims resulting from the dissemination of unofficial, incomplete and/or inaccurate information.

NOTICE TO CONTRACTOR - RIGHTS OF WAY RESTRICTIONS

The Contractor is hereby advised that at the time of advertising for bids not all the property may be acquired by the State, certain residences and/or business establishments had not been vacated, and asbestos removal by others from buildings to be disposed of had not been completed. A complete listing of the affected properties and the anticipated dates that they will become available is hereinafter provided. The Contractor is further advised that limitations, as enumerated herein below, are imposed which may interfere with the physical construction of the project. Following are statements which will set forth the restrictions on the right of entrance to property and conditions governing construction of the project.

1) The Contractor shall not occupy properties that are unacquired, perform any work thereon, or inhibit access thereto until the properties have been acquired and right of possession has been obtained. If the Contractor is allowed to proceed with the physical construction of the project, no action will be taken that will result in unnecessary inconvenience such as the discontinuance of utilities, the prevention of ingress and egress to the property, or will result in disproportionate injury or any action coercive in nature to occupants of residences (businesses, farms, or non-profit organization) who have not yet moved from the right-of-way.

2) It should be anticipated that each of the properties listed herein may be considered to have an effect upon construction operations.

3) The Contractor shall be aware that extensions of time will be granted, if necessary, for delays in construction operations caused by continued occupancy of residences, properties being unacquired or asbestos abatement concluding beyond the estimated time period.

The following is a complete listing of properties which have not been acquired, vacated and asbestos abated as of October 7, 2011 with the anticipated dates such properties will be acquired and/or vacated and abated.

Type	Name	Location	Title/Vacancy by
Land	Linda Phillips	STA 204+66 to STA 207+00 LT baseline present Norwich Rd CT Rte. 82	Est. March 30, 2012 (Title)
Land	B&D Salem Realty, LLC	STA 311+00 to STA 312+00 LT baseline present CT Rte. 85 SB	Est. October 28, 2011 (Title)
2-story Building	Frame B&D Salem Realty, LLC	STA 311+00 to STA 312+00 LT baseline present CT Rte. 85 SB	Est. January 31, 2012 (Vacancy)

NOTICE TO CONTRACTOR – WORK WITHIN THE FLOODPLAIN

Work adjacent to Harris Brook will be conducted during periods of low flow, whenever possible. The Engineer will remain aware of flow conditions during the conduct of such work and will direct the Contractor to stop this work if flow conditions threaten to cause excessive erosion, siltation, or turbidity.

Unless allowed by a CTDEEP permit, no materials shall be stored and no staging areas shall be placed below the 100-year elevation. No buoyant, hazardous, flammable, explosive, soluble, expansive, or any other materials which could be injurious to human, animal, or plant life in the event of a flood, will be stored within the 500 year flood plain at any time. No long term storage of construction equipment and/or material will occur within the flood plain unless such equipment or material is not subject to major flood damage, or is anchored, restrained, or enclosed to prevent it from floating away or is removed prior to flooding. Flood plain limits are defined on the Flood Insurance Rate Maps (FIRM) of the Town's Flood Insurance Study, prepared for the Federal Emergency Management Agency (FEMA).

The Contractor shall strictly adhere to all applicable requirements of Section 1.10.

NOTICE TO CONTRACTOR - GENERAL PERMIT FOR STORMWATER DISCHARGE

This notice is provided to summarize the requirements of the Connecticut Department of Environmental Protection's General Permit for the Discharge of Stormwater and Dewatering Wastewaters associated with Construction Activities (Permit) issued on April 9, 2010. When construction activities will result in the disturbance of a total of 1 acre or more of land regardless of phasing, the Connecticut Department of Transportation (Department) will incorporate a Stormwater Registration (Registration) and Stormwater Pollution Control Plan (SWPCP) as part of the Contract documents in order to insure compliance with all conditions of this Permit. The Permit's 'Construction activities' means activities including but not limited to clearing and grubbing, grading, excavation, and dewatering.

The Registration and SWPCP addresses pollution caused by soil erosion and sedimentation during construction as well as the long term post-maintenance use of the facility after construction is completed. The Contractor and all subcontractors will be required to sign a certified statement to comply with all applicable conditions of the Registration and SWPCP. There will be no additional payment for the Contractor to sign the certification statement and no additional payment for the Contractor to comply with the conditions of the Registration and SWPCP.

The District Engineer is responsible to sign the Registration and will be the permittee for all Department construction projects. For all local town/municipal projects, the District Engineer is not responsible to sign the Registration as the local town or municipality will be the signed permittee.

If the Contractor requires a modification to the SWPCP, it shall be in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control and the 2004 Connecticut Stormwater Quality Manual or as revised or amended. The Department shall approve or reject the modification to the SWPCP and notify the Contractor in writing as to any revisions or additional information required for approval within 30 days of the date of the Contractor's submission. No damage for delays will be granted to the Contractor based on time taken by the Department to review the Contractor's proposal, or to apply for or secure the Permit amendment, modification or revision as per Section 1.10 - Environmental Compliance, of the Standard Specifications for Roads, Bridges, and Incidental Construction Form 816 and any Supplements thereto. At no time shall the Contractor proceed with the proposed Permit amendment, modification, or revision unless the Engineer approves, in writing, the Contractor's request.

At a minimum, the Contractor along with qualified personnel (provided by the permittee) shall inspect the site for non stabilized areas, structural control measures, and locations where vehicles enter or exit the site at least once every seven calendar days and within twenty four hours of the end of a storm that is 0.1 inches or greater. If a potential source of pollution is identified, pollution preventive measures shall be implemented within twenty four hours and the SWPCP must be amended within three calendar days.

In order for the Contractor to meet the requirements set forth in the SWPCP, the Contractor shall comply with additional erosion and sedimentation control provisions included in the project.

Erosion and Sedimentation Control Provisions:

Unless specifically outlined in the Contract Plans and/or SWPCP, the Contractor is not allowed to disturb more than two (2) acres of erodible material per discharge point at any one time regardless of phasing. If the Contractor elects to deviate from the Contract Plans and/or SWPCP to disturb more than two (2) acres of erodible material per discharge point at any one time regardless of phasing, the Contractor must provide a sequenced staging plan outlining the proposed disturbed activities. In all cases, the Contractor must meet the following conditions:

- If the area of disturbance is maintained less than two (2) acres per discharge point, the Contractor may disturb additional areas if and only if the previously disturbed areas are temporarily or permanently stabilized using acceptable measures such as the standard controls which are provided in the SWPCP or as shown on the Contract Plans.
- If the construction activities create an area of disturbance to be at least two (2) acres per discharge point but no more than five (5) acres per discharge point, the Contractor must submit to the Engineer a revised SWPCP for review and approval. The SWPCP must include locations of the temporary sedimentation trap/temporary sedimentation basin per discharge point with a capacity to contain 134 cubic yards per acre of material. The Contractor shall design and construct the temporary sedimentation trap/temporary sedimentation basin in accordance with the 2002 Connecticut Guidelines for Soil and Sediment Control. The Contractor shall provide an inspection and maintenance plan for the temporary sedimentation trap/temporary sedimentation basin as part of the amended SWPCP.
- If the area of disturbance has a potential to reach more than five (5) acres per discharge point, the Contractor must submit to the Engineer a revised SWPCP for review and approval. The SWPCP must include locations of the engineered sedimentation basin per discharge point with a capacity to contain 134 cubic yards per acre of material. The Contractor shall design and construct the engineered sedimentation basin in accordance with the 2004 Connecticut Stormwater Quality Manual. The Contractor shall provide an inspection and maintenance plan for the engineered sedimentation basin as part of the amended SWPCP.

The permittee shall amend the SWPCP whenever there is a change in Contractors or subcontractors at the site, or a change in design, construction, operation, or maintenance at the site which has the potential for the discharge of pollutants. In all cases as described above, the amended SWPCP shall adhere to and comply with Section 1.10 - Environmental Compliance, of the Standard Specifications for Roads, Bridges and Incidental Construction Form 816 and any Supplements thereto. No additional payment will be made for any Permit amendment, modification, or revision which alters the Contract Plans, SWPCP, and/or estimated quantities as a result of the Department's approval of the modifications to the Contract by the Contractor. Changes or variations to the Contract Plans and/or SWPCP by the Contractor shall not result in any additional cost to the State.

NOTICE TO CONTRACTOR – ENVIRONMENTAL INVESTIGATIONS

Environmental site investigations have been conducted that evaluated soil quality from various locations and depths within the Project limits. The analytical results of these investigations indicate concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total extractable petroleum hydrocarbons (ETPH), total and leachable arsenic and total copper in soil that exceeds Connecticut's Remediation Standard Regulations (RSRs) applicable to the Pollutant Mobility Criteria (GA) and/or Residential Direct Exposure Criteria. Based on these findings, one Area of Environmental Concern (AOEC) for soil has been designated at the Project Site. Controlled Materials excavated from within these areas shall be transported to the temporary waste stockpile area (WSA) located within the infield area between the Route 82 on/off ramps on Route 11, in Salem, Connecticut. The location of the WSA is depicted on drawing ENV-3 in the Project Plans.

Concentrations of VOCs, SVOCs, ETPH, and total and leachable CT RSR metals below the applicable CT RSR criteria were detected in the soil in various other locations throughout the Project limits. Therefore two additional areas of the Project have been identified as "Low Level" Areas of Environmental Concern (LLAOECs). The presence of the compounds at these concentrations will not require material handling measures beyond those required for normal construction operations. However, the presence of these compounds will require the disposition of soils excavated from these areas to be restricted as described herein. Materials excavated from within the LLAOECs that cannot be reused within the Project limits will require disposal at an approved treatment/disposal facility in accordance with Item 0202315A, "Disposal of Controlled Materials."

All suitable material excavated within the LLAOECs shall be utilized as fill/backfill within the Project limits, in accordance with the following conditions:

1. Such soil is deemed to be structurally suitable for use as fill by the Engineer;
2. Such soil is not placed below the water table;
3. The CT Department of Environmental Protection (CTDEP) groundwater classification of the area where the soil is to be reused as fill does not preclude said reuse; and
4. Such soil is not placed in an area subject to erosion.

Soils within the LLAOECs are to be reused onsite before other soils and/or fill such that no excess soils requiring offsite disposal are generated from the LLAOECs.

The CTDEP groundwater classification beneath the Project is GA-impaired. Groundwater samples were collected within the Project limits. Groundwater data indicate exceedances of the CT RSR criteria for VOCs, SVOCs, ETPH, arsenic, lead, and zinc. Therefore, groundwater

within the AOEC and LLAOECs has been designated as a groundwater AOEC (GW AOEC). Groundwater from dewatering activities within the GW AOEC will require special handling as outlined in Item #0204213A, "Handling Contaminated Groundwater."

The Contractor is hereby notified that Controlled Materials special management or disposal procedures will be encountered during various construction activities conducted within the Project limits. Therefore, the Contractor will be required to implement appropriate health and safety measures for all construction activities to be performed within the AOEC. These measures shall include, but are not limited to, air monitoring, engineering controls, personal protective equipment and decontamination, equipment decontamination and personnel training. **WORKER HEALTH AND SAFETY PROTOCOLS WHICH ADDRESS POTENTIAL AND/OR ACTUAL RISK OF EXPOSURE TO SITE SPECIFIC HAZARDS IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.**

The Sections which shall be reviewed by the Contractor include, but are not limited to, the following:

- Item No. 0101000A – Environmental Health and Safety
- Item No. 0101117A – Controlled Materials Handling
- Item No. 0101128A – Securing, Construction, and Dismantling of a Waste Stockpile and Treatment Area
- Item No. 0101130A – Environmental Work – Solidification
- Item No. 0202315A – Disposal of Controlled Materials
- Item No. 0202318A – Management of Reusable Controlled Material
- Item No. 0204213A – Handling Contaminated Groundwater

The Contractor is alerted to the fact that a Department environmental consultant will be on site for excavation and solidification activities within the AOEC, to collect soil samples, and to observe site conditions for the State. **The WSA on the Project Plans (ENV-3) is to be used exclusively for temporary stockpiling of excavated materials from within the Project AOEC for determination of disposal classification.**

09/08/11

Information pertaining to the results of the environmental investigation discussed can be found in the document listed below. This document shall be available for review at the Office of Contracts, 2800 Berlin Turnpike, Newington, Connecticut.

- Task 210 – Surficial Site Investigation Report, Improvements to Routes 82 and 85, Salem and Montville, Connecticut. Atlantic Environmental Service, Inc., June 5, 1996.
- Task 210 – Subsurface Site Investigation Report, 3 & 7 Hartford Road, Salem, Connecticut. TRC, August 2009.

NOTICE TO CONTRACTOR - GORE AREAS

Gore areas will no longer be available for disposal of surplus material.

NOTICE TO CONTRACTOR - VEHICLE EMISSIONS

All motor vehicles and/or construction equipment (both on-highway and non-road) shall comply with all pertinent State and Federal regulations relative to exhaust emission controls and safety.

The contractor shall establish staging zones for vehicles that are waiting to load or unload at the contract area. Such zones shall be located where the emissions from the vehicles will have minimum impact on abutters and the general public.

Idling of delivery and/or dump trucks, or other equipment shall not be permitted during periods of non-active use, and it should be limited to three minutes in accordance with the Regulations of Connecticut State Agencies Section 22a-174-18(b)(3)(c):

No mobile source engine shall be allowed “to operate for more than three (3) consecutive minutes when the mobile source is not in motion, except as follows:

- (i) When a mobile source is forced to remain motionless because of traffic conditions or mechanical difficulties over which the operator has no control,
- (ii) When it is necessary to operate defrosting, heating or cooling equipment to ensure the safety or health of the driver or passengers,
- (iii) When it is necessary to operate auxiliary equipment that is located in or on the mobile source to accomplish the intended use of the mobile source,
- (iv) To bring the mobile source to the manufacturer’s recommended operating temperature,
- (v) When the outdoor temperature is below twenty degrees Fahrenheit (20 degrees F),
- (vi) When the mobile source is undergoing maintenance that requires such mobile source be operated for more than three (3) consecutive minutes, or
- (vii) When a mobile source is in queue to be inspected by U.S. military personnel prior to gaining access to a U.S. military installation.”

All work shall be conducted to ensure that no harmful effects are caused to adjacent sensitive receptors. Sensitive receptors include but are not limited to hospitals, schools, daycare facilities, elderly housing and convalescent facilities. Engine exhaust shall be located away from fresh air intakes, air conditioners, and windows.

A Vehicle Emissions Mitigation plan will be required for areas where extensive work will be performed in close proximity (less than 50 feet (15 meters)) to sensitive receptors. No work will proceed until a sequence of construction and a Vehicle Emissions Mitigation plan is submitted in writing to the Engineer for review and all comments are addressed prior to the commencement of any extensive construction work in close proximity (less than 50 feet (15 meters)) to sensitive receptors. The mitigation plan must address the control of vehicle emissions from all vehicles and construction equipment.

If any equipment is found to be in non-compliance with this specification, the contractor will be issued a Notice of Non-Compliance and given a 24 hour period in which to bring the equipment into compliance or remove it from the project. If the contractor then does not comply, the Engineer shall withhold all payments for the work performed on any item(s) on which the non-conforming equipment was utilized for the time period in which the equipment was out of compliance.

Any costs associated with this "Vehicle Emissions" notice shall be included in the general cost of the contract. In addition, there shall be no time granted to the contractor for compliance with this notice. The contractor's compliance with this notice and any associated regulations shall not be grounds for claims as outlined in Section 1.11 – "Claims".

NOTICE TO CONTRACTOR - SECTION 4.06 AND M.04 MIX DESIGNATION EQUIVALENCY

Sections 4.06 and M.04 have been replaced in their entirety with the Special Provisions included as part of this contract. These Special Provisions reflect changes in mix designations for various types of hot-mix asphalt (HMA). The following table is to be used to associate mix designations noted on the plans with that in the contract specifications and related documents. Mix designations on each row are equivalent and refer to a single mix, which shall be subject to the requirements of the Special Provisions replacing Sections 4.06 and M.04.

Mix Designation Equivalency Table

Official Mix Designation	Equivalent Mix Designation (a)	Equivalent Mix Designation (b)
(c)	Superpave 1.5 inch	Superpave 37.5 mm
HMA S1	Superpave 1.0 inch	Superpave 25.0 mm
HMA S0.5	Superpave 0.5 inch	Superpave 12.5 mm
HMA S0.375	Superpave 0.375 inch	Superpave 9.5 mm
HMA S0.25	Superpave 0.25 inch	Superpave 6.25 mm
(d)	Superpave #4	Superpave #4
Bituminous Concrete Class 1	N/A*	N/A*
Bituminous Concrete Class 2	N/A*	N/A*
Bituminous Concrete Class 3	N/A*	N/A*
Bituminous Concrete Class 4	N/A*	N/A*
Bituminous Concrete Class 12	N/A*	N/A*

(a) This mix designation is generally included with projects where the English measurement system is used. The mix designation may contain both the English measurement system designation and the SI (metric) measurement system designation, one of which would be in parenthesis.

(b) This mix designation is generally included with projects where the SI (metric) measurement system is used. The mix designation may contain both the English measurement system designation and the SI measurement system designation, one of which would be in parenthesis.

(c) This mix is no longer in use except by contract-specific Special Provision; if this mix is called for in the Plans but no such Special Provision is included for this contract a suitable substitute must be approved by the Engineer.

(d) This mix is no longer in use except by contract-specific Special Provision; if this mix is called for in the Plans but no such Special Provision is included for this contract a suitable substitute must be approved by the Engineer.

* N/A = Not applicable; mix designation has not changed.

NOTICE TO CONTRACTOR - SUPERPAVE DESIGN LEVEL INFORMATION

Hot-Mix Asphalt (HMA) constructed according to the Superpave mix-design system is required to attain a Superpave Design Level and is required to use a Performance Graded (PG) binder. The Superpave Design Levels required for this project are listed in Table 1. The required PG binder is indicated for each mix with an “X” in the appropriate box in Table 1.

TABLE 1 – Superpave Design Level and Performance Graded (PG) Binder

Project No. 120 - 86 will require the following Superpave Design Level(s):				
Mix Designation	PG Binder	Route 82	Route 85	Route
	PG64-22	Design Level	Design Level	Design Level
HMA S0.5	X	2	2	-
HMA S1	X	2	2	-

NOTICE TO CONTRACTOR - TRAFFIC DRUMS AND TRAFFIC CONES

Traffic Drums and 42-inch (1 m) Traffic Cones shall have four six-inch (150 mm) wide stripes (two - white and two - orange) of flexible bright fluorescent sheeting.

The material for the stripes shall be one of the following, or approved equal:

- 3M Scotchlite Diamond Grade Flexible Work Zone Sheeting, Model 3910 for the white stripes and Model 3914 for the orange stripes,
- Avery Dennison WR-7100 Series Reboundable Prismatic Sheeting, Model WR-7100 for the white stripes and Model WR-7114 for the orange stripes.

NOTICE TO CONTRACTOR - NCHRP 350 REQ. FOR WORK ZONE TRAFFIC CONTROL DEVICES

CATEGORY 1 DEVICES (traffic cones, traffic drums, tubular markers, flexible delineator posts)

Prior to using the Category 1 Devices on the project, the Contractor shall submit to the Engineer a copy of the manufacturer's self-certification that the devices conform to NCHRP Report 350.

CATEGORY 2 DEVICES (construction barricades, construction signs and portable sign supports)

Prior to using Category 2 Devices on the project, the Contractor shall submit to the Engineer a copy of the Letter of Acceptance issued by the FHWA to the manufacturer documenting that the devices (both sign and portable support tested together) conform to NCHRP Report 350 (TL-3).

Specific requirements for these devices are included in the Special Provisions.

Information regarding NCHRP Report 350 devices may be found at the following web sites:

FHWA: http://safety.fhwa.dot.gov/roadway_dept/road_hardware/index.htm

ATSSA: <http://www.atssa.com/resources/NCHRP350Crashtesting.asp>

NOTE: The portable wooden sign supports that have been traditionally used by most contractors in the State of Connecticut do NOT meet NCHRP Report 350 criteria and shall not be utilized on any project advertised after October 01, 2000.

CATEGORY 3 DEVICES (Truck-Mounted Attenuators & Work Zone Crash Cushions)

Prior to using Category 3 Devices on the project, the Contractor shall submit to the Engineer a copy of the Letter of Acceptance issued by the FHWA to the manufacturer documenting that the devices conform to NCHRP Report 350.

SECTION 1.02 – PROPOSAL REQUIREMENTS AND CONDITIONS

Article 1.02.04 – Examination of Plans, Specifications, Special Provisions and Site of Work:

Replace the third sentence of the last paragraph with:

The Department cannot ensure a response to inquiries received later than ten (10) days prior to the original scheduled opening of the related bid.

SECTION 1.03 - AWARD AND EXECUTION OF CONTRACT

Article 1.03.02 - Award and Execution of Contract:

In the second sentence of the only paragraph, "The award, if made, etc.", change "within 60 days after the opening of the proposals" to read "on or before March 30, 2012."

Article 1.03.07 – Insurance:

The first paragraph is revised as follows:

Before the Contract is executed, the Contractor must file with the Commissioner a certificate of insurance, fully executed by an insurance company or companies satisfactory to the Commissioner, on a form **acceptable to** the Department, for the insurance policy or policies required below, which policy or policies shall be in accordance with the terms of said Certificate of Insurance. Continuance of the required insurance during the entire term of the Contract shall be the responsibility of the Contractor and is a condition of the Contract.

Add the following after the second paragraph:

The Contractor shall produce, within five (5) business days, a copy or copies of all applicable insurance policies when requested by the State. In providing said policies, the Contractor may redact provisions of the policy that are proprietary. This provision shall survive the suspension, expiration or termination of this Contract.

Replace the like named paragraph with the following:

4. Owner's and Contractor's Protective Liability Insurance for and in the Name of the State:

With respect to the Contractor's Project operations and also those of its subcontractors, the Contractor shall carry, for and on behalf of the State, insurance which shall provide coverage of at least \$1,000,000 for each accident or occurrence resulting in damages from (1) bodily injury to or death of persons and/or (2) injury to or destruction of property. Subject to that limit per accident or occurrence, the policy shall provide an aggregate coverage of at least \$2,000,000 for all pertinent damages arising during the policy period.

Delete subsections 8, 9 and 10 and replace them with the following:

8. Compensation:

There shall be no direct compensation allowed the Contractor on account of any premium or other charge necessary to obtain and keep in effect any insurance or bonds in connection with

the Project, but the cost thereof shall be considered included in the general cost of the Project work.

9. Protection and Indemnity Insurance for Marine Construction Operations in Navigable Waters:

If a vessel of any kind will be involved in Project work, the Contractor shall obtain the following additional insurance coverage:

A. Protection and Indemnity Coverage of at least \$300,000 per vessel or equal to at least the value of hull and machinery, whichever is greater.

B. If there is any limitation or exclusion with regard to crew and employees under the protection and indemnity form, the Contractor must obtain and keep in effect throughout the Project a workers' compensation policy, including coverage for operations under admiralty jurisdiction, with a limit of liability of at least \$300,000 per accident or a limit equal to at least the value of the hull and machinery, whichever is greater, or for any amount otherwise required by statute.

Article 1.03.08 - Notice to Proceed and Commencement of Work:

Change the first and second paragraphs to read as follows:

The Contractor will commence and proceed with the Contract work on the date specified in a written notice to proceed issued by the Engineer to the Contractor. The date specified will be within 17 days of the award.

SECTION 1.06 - CONTROL OF MATERIALS

Article 1.06.01 - Source of Supply and Quality:

Add the following:

For the following items the Contractor shall submit a complete description of the item, together with nine (9) copies of shop drawings, cuts and other descriptive literature which completely illustrates such items presented for formal approval. Such approval shall not change the requirements for a certified test report and materials certificate as may be called for.

Conductors
Floodlight/Stanchion/Anchors
Handholes
Conduit
Conductors
Object Markers
Service (Metered)
Light Standard Foundations

Required catalog cuts for all items listed above shall be submitted in one package at the same time. All approvals or disapprovals and comments will be returned in one package.

When required by the contract documents or when ordered by the Engineer, the Contractor shall prepare and submit (9) sets of catalog cuts and/or shop drawings for all illumination items in one package at the same time to the following for approval prior to ordering or fabrication.

Mr. Theodore H. Nezames
Connecticut Department of Transportation
Facilities Electrical
2800 Berlin Turnpike
P.O. Box 317546
Newington, Connecticut 06131-7546

Article 1.06.07 - Certified Test Reports, and Materials Certificate.

1) For the materials in the following items, a Certified Test Report will be required confirming their conformance to the requirements set forth in these plans or specifications or both. Should the consignee noted on a Certified Test Report be other than the Prime Contractor, then Materials Certificates shall be required to identify the shipment.

Floodlight
Conductors
Foundations

2) For materials in the following items, a Materials Certificate will be required confirming their conformance to the requirements set forth in these plans or specifications or both.

Conductors
Floodlight
Conduit

SECTION 1.07 - LEGAL RELATIONS AND RESPONSIBILITIES

Article 1.07.05 - Load Restrictions:

Delete all three paragraphs and replace them with the following:

“(a) Vehicle Weights: This sub article will apply to travel both on existing pavements and pavements under construction. The Contractor shall comply with all legal load restrictions as to vehicle size, the gross weight of vehicles, and the axle weight of vehicles while hauling materials. Throughout the duration of the contract, the Contractor shall take precautions to ensure existing and newly installed roadway structures and appurtenances are not damaged by construction vehicles or operations.

Unless otherwise noted in contract specifications or plans, on and off road equipment of the Contractor, either loaded or unloaded, will not be allowed to travel across any bridge or on any highway when such a vehicle exceeds the statutory limit or posted limit of such bridge or highway. Should such movement of equipment become necessary the Contractor shall apply for a permit from the Department for such travel, as provided in the Connecticut General Statutes (CGS). The movement of any such vehicles within the project limits or detour routes shall be submitted to the Engineer for project record. Such permit or submittal will not excuse the Contractor from liability for damage to the highway caused by its equipment.

The Contractor is subject to fines, assessments and other penalties that may be levied as a result of violations by its employees or agents of the legal restrictions as to vehicle size and weight.

(b) Storage of Construction Materials/Equipment on Structures: Storage is determined to be non-operating equipment or material. The Contractor shall not exceed the statutory limit or posted limit for either an existing or new structure when storing materials and/or construction equipment. When a structure is not posted, then the maximum weight of equipment or material stored in each 12 foot wide travel lane of any given span shall be limited to 750 pounds per linear foot combined with a 20,000 pound concentrated load located anywhere within the subject lane. If anticipated storage of equipment or material exceeds the above provision, then the Contractor shall submit his proposal of storage supported by calculations stamped by a Professional Engineer registered in the State of Connecticut, to the Engineer for approval 14 days prior to the storage operation. Operations related to structural steel demolition or erection shall follow the guidelines under Section 6.03. All other submittals shall include a detailed description of the material/equipment to be stored, the quantity of storage if it is stockpiled materials, the storage location, gross weight with supporting calculations if applicable, anticipated duration of storage, and any environmental safety, or traffic protection that may be required. Storage location on the structure shall be clearly defined in the field. If structures are in a state of staged construction or demolition, additional structural analysis may be required prior to authorization of storage.”

Article 1.07.10 - Contractor's Duty to Indemnify the State against Claims for Injury or Damage:

Add the following after the only paragraph:

“It is further understood and agreed by the parties hereto, that the Contractor shall not use the defense of Sovereign Immunity in the adjustment of claims or in the defense of any suit, including any suit between the State and the Contractor, unless requested to do so by the State.”

Article 1.07.11 - Opening of Section of project to Traffic or Occupancy:

Add the following sentence to the last paragraph;

“In cases in which guiderail is damaged by the traveling public, repair or replacement will be reimbursable as contained elsewhere herein.”

SECTION 1.08 - PROSECUTION AND PROGRESS

Article 1.08.01 – Transfer of Work or Contract: *Add the following after the last paragraph:*

The Contractor shall pay the subcontractor for work performed within thirty (30) days after the Contractor receives payment for the work performed by the subcontractor. Also, any retained monies on a subcontractor's work shall be paid to the subcontractor within thirty (30) days after satisfactory completion of all the subcontractor's work.

For the purpose of this Item, satisfactory completion shall have been accomplished when:

- (1) The subcontractor has fulfilled the contract requirements of both the Department and the subcontract for the subcontracted work, including the completion of any specified material and equipment testing requirement or plant establishment period and the submission of all submittals (i.e.: certified payrolls, material samples and certifications, required state and federal submissions, etc.) required by the specifications and the Department, and
- (2) The work done by the subcontractor has been inspected and approved by the Department and the final quantities of the subcontractor's work have been determined and agreed upon.

If the Contractor determines that a subcontractor's work is not complete, the Contractor shall notify the subcontractor and the Engineer, in writing, of the reasons why the subcontractor's work is not complete. This written notification shall be provided to the subcontractor and the Engineer within twenty-one (21) days of the subcontractor's request for release of retainage.

The Engineer will institute administrative procedures to expedite the determination of final quantities for the subcontractor's satisfactorily completed work.

The inspection and approval of a subcontractor's work does not eliminate the Contractor's responsibilities for all the work as defined in Article 1.07.12, "Contractor's Responsibility for Work."

The inspection and approval of the subcontractor's work does not release the subcontractor from its responsibility for maintenance and other periods of subcontractor responsibility specified for the subcontractor's items of work. Failure of a subcontractor to meet its maintenance, warranty and/or defective work responsibilities may result in a finding that the subcontractor is non-responsible on future subcontract assignments.

For any dispute regarding prompt payment or release of retainage, the alternate dispute resolution provisions of this article shall apply.

The above requirements are also applicable to all sub-tier subcontractors and the above provisions shall be made a part of all subcontract agreements.

Failure of the Contractor to comply with the provisions of this section may result in a finding that the Contractor is non-responsible on future projects.

Article 1.08.04 - Limitation of Operations - Add the following:

TIME RESTRICTIONS

In order to provide for traffic operations as outlined in the Special Provision "Maintenance and Protection of Traffic," the Contractor will not be allowed to perform any work that will interfere with the described traffic operations on all project roadways as follows:

ROUTE 82 AND ROUTE 85

Monday through Friday, between 6:00 a.m. and 8:00 pm
All Saturdays and Sundays

The Contractor will be required to maintain one lane of traffic in each direction along with at least an additional 10' travel path where turn lanes exist during all Saturdays and Sundays and the following time periods:

From Labor Day to Memorial Day

Monday through Friday between 7:00 am and 8:30 am and between 3:00 pm and 6:00 pm.
All Saturdays and Sundays

From Memorial Day to Labor Day

Monday through Friday between 2:00 pm and 7:00 pm
All Saturdays and Sundays

Replace 1.08.13 – "Termination of the Contractor's Responsibility" with the following:

1.08.13 - Acceptance of Work and Termination of the Contractor's Responsibility:

The Contractor's responsibility for non-administrative Project work will be considered terminated when the final inspection has been held, any required additional work and final cleaning-up have been completed, all final operation and maintenance manuals have been submitted, and all of the Contractor's equipment and construction signs have been removed from the Project site. When these requirements have been met to the satisfaction of the Engineer, the Commissioner will accept the work by certifying in writing to the Contractor, that the non-administrative Project work has been satisfactorily completed.

SECTION 4.06 - BITUMINOUS CONCRETE

Section 4.06 is being deleted in its entirety and replaced with the following:

4.06.01—Description

4.06.02—Materials

4.06.03—Construction Methods

4.06.04—Method of Measurement

4.06.05—Basis of Payment

4.06.01—Description: Where reference is made to bituminous concrete, it shall also refer to hot-mix asphalt (HMA) mixtures using the Marshall or Superpave mix-design method.

Work under this section shall include the production, delivery and placement of a non-segregated, smooth and dense bituminous concrete mixture brought to proper grade and cross section. This section shall also include the method and construction of longitudinal joints. The Contractor shall furnish ConnDOT with a Quality Control Plan as described in Article 4.06.03.

The terms listed below as used in this specification are defined as:

Course: A lift or multiple lifts comprised of the same HMA mixture placed as part of the pavement structure.

Density Lot: All material placed in a single lift and as defined in Article 4.06.03.

Disintegration: Wearing away or fragmentation of the pavement. Disintegration will be evident in the following forms: Polishing, weathering-oxidizing, scaling, spalling, raveling, potholes or loss of material.

Dispute Resolution: A procedure used to resolve conflicts resulting from discrepancies between the Engineer and the Contractor's density results that may affect payment.

Hot Mix Asphalt (HMA): A bituminous concrete mixture.

Lift: An application of a HMA mixture placed and compacted to a specified thickness in a single paver pass.

Marshall: A HMA mixture design designated as "Bituminous Concrete Class ()".

Production Lot: All material placed during a continuous daily paving operation.

Superpave: A HMA mixture design designated as "HMA S*". Where "S" indicates Superpave and * indicates the sieve related to the nominal maximum aggregate size of the mix. For example Superpave 0.50 inch is now designated as HMA S0.5.

Segregation: A non-uniform distribution of a HMA mixture in terms of volumetrics, gradation or temperature.

Quality Assurance (QA): All those planned and systematic actions necessary to provide confidence that a product or facility will perform as designed.

Quality Control (QC): The sum total of activities performed by the vendor (producer, manufacturer, and contractor) to ensure that a product meets contract specification requirements.

4.06.02—Materials: All materials shall conform to the requirements of Section M.04.

1. Materials Supply: The HMA mixture must be from one source of supply and originate from one HMA Plant unless authorized by the Engineer.

2. Recycle Option: The Contractor has the option of recycling reclaimed asphalt pavement (RAP) or Crushed Recycled Container Glass (CRCG) in HMA mixtures in accordance with Section M.04. CRCG shall not be used in the final lift of the surface course.

4.06.03—Construction Methods:

1. Material Documentation: All vendors producing bituminous concrete must have their truck-weighing scales, storage scales, and mixing plant automated to provide a detailed ticket.

Delivery tickets must include the following information:

- a. State of Connecticut printed on ticket.
- b. Name of producer, identification of plant, and specific storage bin (silo) if used.
- c. Date and time of day.
- d. Mixture Designation (If RAP is used, the plant printouts shall include RAP dry weight, percentage and daily moisture content.) Class 3 mixtures for machine-placed curbing must state "curb mix only".
- e. Net weight of mixture loaded into truck (When RAP is used, RAP moisture shall be excluded from mixture net weight).
- f. Gross weight (Either equal to the net weight plus the tare weight or the loaded scale weight).
- g. Tare weight of truck – Daily scale weight.
- h. Project number, purchase order number, name of contractor (if contractor other than producer).
- i. Truck number for specific identification of truck.
- j. Individual aggregate, RAP, and virgin asphalt high/target/low weights shall be printed on batch plant tickets (For drum plants and silo loadings, the plant printouts shall be printed out at 5 minute intervals maintained by the vendor for a period of three years after the completion of the project).
- k. For every mixture designation the running daily total delivered and sequential load number.

The net weight of mixture loaded into the truck must be equal to the cumulative measured weight of its components.

The Contractor must notify the Engineer immediately if, during the production day, there is a malfunction of the weighing or recording system in the automated plant or truck-weighing scales. Manually written tickets containing all required information will be allowed for one hour, but for no longer, provided that each load is weighed on State-approved scales. At the Engineer's sole discretion, trucks may be approved to leave the plant if a State inspector is present to monitor weighing. If such a malfunction is not fixed within forty-eight hours, mixture will not be approved to leave the plant until the system is fixed to the Engineer's satisfaction. No damages will be considered should the State be unable to provide an inspector at the plant.

The State reserves the right to have an inspector present to monitor batching and /or weighing operations.

2. Transportation of Mixture: Trucks with loads of bituminous concrete being delivered to State projects must not exceed the statutory or permitted load limits referred to as gross vehicle weight (GVW). The Contractor shall furnish a list of all vehicles and allowable weights transporting mixture.

The State reserves the right to check the gross and tare weight of any delivery truck. A variation of 0.4 percent or less in the gross or tare weight shown on the delivery ticket and the certified scale weight shall be considered evidence that the weight shown on the delivery ticket is correct. If the gross or tare weight varies from that shown on the delivery ticket by more than 0.4 percent, the Engineer will recalculate the net weight. The Contractor shall take action to correct discrepancy to the satisfaction of the Engineer.

If a truck delivers mixture to the project and the ticket indicates that the truck is overweight, the load will not be rejected but a "Measured Weight Adjustment" will be taken in accordance with Article 4.06.04.

The mixture shall be transported from the mixing plant in trucks that have previously been cleaned of all foreign material and that have no gaps through which mixture might inadvertently escape. The Contractor shall take care in loading trucks uniformly so that segregation is minimized. Loaded trucks shall be tightly covered with waterproof covers acceptable to the Engineer. Mesh covers are prohibited. The front and rear of the cover must be fastened to minimize air infiltration. The Contractor shall assure that all trucks are in conformance with this specification. Trucks found not to be in conformance shall not be allowed to be loaded until re-inspected to the satisfaction of the Engineer.

Truck body coating and cleaning agents must not have a deleterious effect on the transported mixture. The use of solvents or fuel oil, in any concentration, is strictly prohibited for the coating of the inside of truck bodies. When acceptable coating or agents are applied, truck bodies shall be raised immediately prior to loading to remove any excess agent in an environmentally acceptable manner.

3. Paving Equipment: The Contractor shall have the necessary paving and compaction equipment at the project site to perform the work. All equipment shall be in good working order and any equipment that is worn, defective or inadequate for performance of the work shall be repaired or replaced by the Contractor to the satisfaction of the Engineer. During the paving operation, the use of solvents or fuel oil, in any concentration, is strictly prohibited as a release agent or cleaner on any paving equipment (i.e., rollers, pavers, transfer devices, etc.).

Refueling of equipment is prohibited in any location on the paving project where fuel might come in contact with bituminous concrete mixtures already placed or to be placed. Solvents for use in cleaning mechanical equipment or hand tools shall be stored clear of areas paved or to be paved. Before any such equipment and tools are cleaned, they shall be moved off the paved or to be paved area; and they shall not be returned for use until after they have been allowed to dry.

Pavers: Each paver shall have a receiving hopper with sufficient capacity to provide for a uniform spreading operation and a distribution system that places the mix uniformly, without segregation. The paver shall be equipped with and use a vibratory screed system with heaters or burners. The screed system shall be capable of producing a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture. Pavers with extendible screed units as part of the system shall have auger extensions and tunnel extenders as necessary. Automatic screed controls for grade and slope shall be used at all times unless otherwise authorized by the Engineer. The controls shall automatically adjust the screed to compensate for irregularities in the preceding course or existing base. The controls shall maintain the proper transverse slope and be readily adjustable, and shall operate from a fixed or moving reference such as a grade wire or floating beam.

Rollers: All rollers shall be self-propelled and designed for compaction of bituminous concrete. Roller types shall include steel-wheeled, pneumatic or a combination thereof and may be capable of operating in a static or dynamic mode. Rollers that operate in a dynamic mode shall have drums that use a vibratory or oscillatory system or combination of. The vibratory system achieves compaction through vertical amplitude forces. Rollers with this system shall be equipped with indicators that provide the operator with amplitude, frequency and speed settings/readouts to measure the impacts per foot during the compaction process. The oscillatory system achieves compaction through horizontal shear forces. Rollers with this system shall be equipped with frequency indicators. Rollers can operate in the dynamic mode using the oscillatory system on concrete structures such as bridges and catch basins if at the lowest frequency setting.

Pneumatic tire rollers shall be self-propelled and equipped with wide-tread compaction tires capable of exerting an average contact pressure from 60 to 90 pounds per square inch uniformly over the surface, adjusting ballast and tire inflation pressure as required. The Contractor shall furnish evidence regarding tire size; pressure and loading to confirm that the proper contact pressure is being developed and that the loading and contact pressure are uniform for all wheels.

Lighting: For paving operations, which will be performed during hours of darkness, the paving equipment shall be equipped with lighting fixtures as described below, or with approved lighting

fixtures of equivalent light output characteristics. A sufficient number of spare lamps shall be available on site as replacements in the event of failures. The Contractor shall provide brackets and hardware for mounting light fixtures and generators to suit the configuration of the rollers and pavers. Mounting brackets and hardware shall provide for secure connection of the fixtures, minimize vibration, and allow for adjustable positioning and aiming of the light fixtures. Lighting shall be aimed to maximize the illumination on each task and minimize glare to passing traffic. The Contractor shall provide generators on rollers and pavers of the type, size, and wattage, to adequately furnish 120 V AC of electric power to operate the specified lighting equipment. A sufficient amount of fuel shall be available on site. There shall be switches to control the lights. Wiring shall be weatherproof and installed to all applicable codes. The minimum lighting requirements are found in tables 4.06-1 and 4.06-2:

Table 4.06-1: Paver Lighting

Fixture	Quantity	Remarks
Type A	3	Mount over screed area
Type B (narrow) or Type C (spot)	2	Aim to auger and guideline
Type B (wide) or Type C (flood)	2	Aim 25 feet behind paving machine

Table 4.06-2: Roller Lighting

Fixture*	Quantity	Remarks
Type B (wide)	2	Aim 50 feet in front of and behind roller
Type B (narrow)	2	Aim 100 feet in front of and behind roller
OR		
Type C (flood)	2	Aim 50 feet in front of and behind roller
Type C (spot)	2	Aim 100 feet in front of and behind roller

*All fixtures shall be mounted above the roller.

Type A: Fluorescent fixture shall be heavy-duty industrial type. It shall be enclosed and sealed to keep out dirt and dampness. It shall be UL listed as suitable for wet locations. The fixture shall contain two 4-foot long lamps - Type "F48T12CWHO". The integral ballast shall be a high power factor, cold weather ballast, and 120 volts for 800 MA HO lamps. The housing shall be aluminum, and the lens shall be acrylic with the lens frame secured to the housing by hinging latches. The fixture shall be horizontal surface mounting, and be made for continuous row installation.

Type B: The floodlight fixture shall be heavy-duty cast aluminum housing, full swivel and tilt mounting, tempered-glass lens, sealed door, reflector to provide a wide distribution or narrow distribution as required, mogul lamp socket for 250 watt Metal Halide lamp, 120 volt integral ballast, and be UL listed as suitable for wet locations.

Type C: The power beam holder shall have ribbed die cast aluminum housing and a clear tempered-glass lens to enclose the fixture. There shall be an arm fully adjustable for aiming, with a male-threaded mount with serrated teeth and lock nuts. There shall be a

120-volt heatproof socket with extended fixture wiring for an "Extended Mogul End Prong" lamp base. The fixture shall have gaskets, and shall be UL listed as suitable for wet locations. The lamps shall be 1000-watt quartz PAR64, both Q1000PAR64MFL (flood) and Q1000PARNSP (spot) will be required.

Material Transfer Vehicle (MTV): A MTV shall be used when placing a HMA surface course that is a minimum of 5,000 feet in length and on a roadway that has an overall width of 28 feet or more. A surface course is defined as the total thickness of the same HMA mix that extends up to and includes the final wearing surface whether it is placed in a single or multiple lifts, and regardless of any time delays between lifts.

The MTV must be a self-propelled vehicle specifically designed for the purpose of delivering the HMA mixture from the delivery truck to the paver. The MTV must have the capability to remix the bituminous concrete mixture.

The use of a MTV will be subject to the requirements stated in Article 1.07.05- Load Restrictions. The Engineer may limit the use of the vehicle if it is determined that the use of the MTV may damage highway components, utilities, or bridges. The Contractor shall submit to the Engineer at time of pre-construction the following information:

- The make and model of the MTV to be used.
- The individual axle weights and axle spacing for each separate piece of paving equipment (haul vehicle, MTV and paver).
- A working drawing showing the axle spacing in combination with all three pieces of equipment that will comprise the paving echelon.

4. Seasonal Requirements: Paving, including placement of temporary pavements, shall be divided into two seasons; In-Season and Extended Season. In-Season shall be from May 1 – September 30 and Extended Season shall be from October 1- April 30. The following requirements shall apply unless otherwise authorized or directed by the Engineer:

- The final lift of HMA shall not be placed during the Extended Season.
- HMA mixes shall not be placed when the air or base temperature is below 40°F.

Additional Requirements for Extended Season:

- The minimum mixture temperature for all HMA mixtures when discharged into the paver or transfer vehicle hopper shall be 290°F. The temperature will be taken from the initial discharge of mixture from the truck. If found to be below the minimum requirement, the truck will not be allowed to unload remaining mixture.
- The Contractor shall use a minimum of 3 rollers with operators for paving lengths greater than 1000 feet. Two rollers must be capable of operating in the dynamic mode.
- The Contractor's Quality Control Plan shall include a section on Extended Season paving and address paver speed, roller patterns and balancing mixture delivery and placement operations to meet specification requirements.

5. Superpave Test Section: The Engineer may require the Contractor to place a test section whenever the requirements of this specification or Section M.04 are not met. The Contractor shall submit the quantity of mixture to be placed and the location of the test section for review and acceptance by the Engineer. The equipment used in the construction of a passing test section shall be used throughout production.

If a test section fails to meet specifications, the Contractor shall stop production, make necessary adjustments to the job mix formula, plant operations, or procedures for placement and compaction. The Contractor shall construct test sections, as allowed by the Engineer, until all the required specifications are met. All test sections shall also be subject to removal as set forth in Article 1.06.04.

6. Transitions for Roadway Surface: Transitions shall be formed at any point on the roadway where the pavement surface deviates, vertically, from the uniform longitudinal profile as specified on the plans. Whether formed by milling or by bituminous concrete mixture, all transition lengths shall conform to the criteria below unless otherwise specified.

Permanent Transitions: A permanent transition is defined as any transition that remains as a permanent part of the work. All permanent transitions, leading and trailing ends shall meet the following length requirements:

- a) Posted speed limit is greater than 35 MPH: 30 feet per inch of vertical change (thickness)
- b) Posted speed limit is 35 MPH or less: 15 feet per inch of vertical change (thickness).
- c) Bridge Overpass and underpass transition length will be 75 feet either
 - (1) Before and after the bridge expansion joint, or
 - (2) Before or after the parapet face of the overpass.

In areas where it is impractical to use the above described permanent transition lengths the use of a shorter permanent transition length may be permitted when approved by the Engineer.

Temporary Transitions: A temporary transition is defined as a transition that does not remain a permanent part of the work. All temporary transitions shall meet the following length requirements:

- a) Posted speed limit is greater than 35 MPH
 - (1) Leading Transitions = 15 feet per inch of vertical change (thickness)
 - (2) Trailing Transitions = 6 feet per inch of vertical change (thickness)
- b) Posted speed limit is 35 MPH or less
 - (1) Leading and Trailing = 4 feet per inch of vertical change (thickness)

Note: Any temporary transition to be in-place over the winter shutdown period, holidays, or during extended periods of inactivity (more than 7 calendar days) shall conform to the “Permanent Transition” requirements shown above.

7. Spreading and Finishing of Mixture: Prior to the placement of the bituminous concrete, the underlying base course shall be brought to the plan grade and cross section within the allowable tolerance. Immediately before placing the mixture, the area to be surfaced shall be cleaned by sweeping or by other means acceptable to the Engineer. The HMA mixture shall not be placed whenever the surface is wet or frozen. The temperature of the mix at time of placement must be between 265°F and 325°F. The Engineer will verify the mix temperature by means of a probe or infrared type of thermometer. Rejection of mixture based on temperature will only be allowed if verified by means of a probe type thermometer.

Placement: The HMA mixture shall be placed and compacted to provide a smooth, dense surface with a uniform texture and no segregation at the specified thickness and dimensions indicated in the plans and specifications. The maximum paver speed during placement shall not exceed 40 ft/min unless authorized by the Engineer.

When unforeseen weather conditions prevent further placement of the mix, the Engineer is not obligated to accept or place the bituminous concrete mixture that is in transit from the plant.

In advance of paving, traffic control requirements shall be set up daily, maintained throughout placement, and shall not be removed until all associated work including density testing is completed.

The Contractor shall inspect the newly placed pavement for defects in the mixture or placement before rolling is started. Any deviation from standard crown or section shall be immediately remedied by placing additional mixture or removing surplus mixture. Such defects shall be corrected to the satisfaction of the Engineer.

Where it is impractical due to physical limitations to operate the paving equipment, the Engineer may permit the use of other methods or equipment. Where hand spreading is permitted, the mixture shall be placed by means of suitable shovels and other tools, and in a uniformly loose layer at a thickness that will result in a completed pavement meeting the designed grade and elevation.

Placement Tolerances: Each lift of HMA placed at a uniform specified thickness shall meet the following requirements for thickness and area. Any pavement exceeding these limits shall be subject to an HMA adjustment or removal. Lift tolerances will not relieve the Contractor from meeting the final designed grade. Lifts of specified non-uniform thickness, i.e. wedge or shim course, shall not be subject to thickness and area adjustments.

- a) Thickness- Where the total thickness of the lift of mixture exceeds that shown on the plans beyond the tolerances shown in Table 4.06-3, the longitudinal limits of such variation

including locations and intervals of the measurements will be documented by the Engineer for use in calculating a HMA adjustment in Article 4.06.04.

TABLE 4.06-3 Thickness Tolerances

Mixture Designation	Lift Tolerance
Class 4 and HMA S1	+/- 3/8 inch
Class 1, 2 and 12 and HMA S0.25, S0.375, S0.5	+/- 1/4 inch

Where the thickness of the lift of mixture is less than that shown on the plans beyond the tolerances shown in Table 4.06-3, the Contractor, with the approval of the Engineer, shall take corrective action in accordance with this specification.

- b) Area- Where the width of the lift exceeds that shown on the plans by more than the specified thickness of each lift, the longitudinal limits of such variation including locations and intervals of the measurements will be documented by the Engineer for use in calculating a HMA adjustment in Article 4.06.04.
- c) Delivered Weight of Mixture - When the delivery ticket shows that the truck exceeds the allowable gross weight for the vehicle type the quantity of tons representing the overweight amount will be documented by the Engineer for use in calculating a HMA adjustment in Article 4.06.04.

Transverse Joints: All transverse joints shall be formed by saw-cutting a sufficient distance back from the previous run, existing bituminous concrete pavement or bituminous concrete driveways to expose the full thickness of the lift. A brush of tack coat shall be used on any cold joint immediately prior to additional bituminous concrete mixture being placed.

Tack Coat Application: A thin uniform coating of tack coat shall be applied to the pavement immediately before overlaying and be allowed sufficient time to break (set). All surfaces in contact with the HMA that have been in place longer than 3 calendar days shall have an application of tack coat. The tack coat shall be applied by a non-gravity pressurized spray system that results in uniform overlapping coverage at an application rate of 0.03 to 0.05 gallons per square yard for a non-milled surface and an application rate of 0.05 to 0.07 gallons per square yard for a milled surface. For areas where both milled and un-milled surfaces occur, the tack coat shall be an application rate of 0.03 to 0.05 gallons per square yard. The Engineer must approve the equipment and the method of measurement prior to use. The material for tack coat shall not be heated in excess of 160°F and shall not be further diluted.

Compaction: The Contractor shall compact the mixture to meet the density requirements as stated in Article 4.06.03 and eliminate all roller marks without displacement, shoving, cracking, or aggregate breakage.

The Contractor shall only operate rollers in the dynamic mode using the oscillatory system at the lowest frequency setting on concrete structures such as bridges and catch basins. The use of the vibratory system on concrete structures is prohibited.

Rollers operating in the dynamic mode shall be shut off when reversing directions.

If the Engineer determines that the use of compaction equipment in the dynamic vibratory mode may damage highway components, utilities, or adjacent property, the Contractor shall provide alternate compaction equipment. The Engineer may allow the Contractor to operate rollers in the dynamic mode using the oscillatory system at the lowest frequency setting.

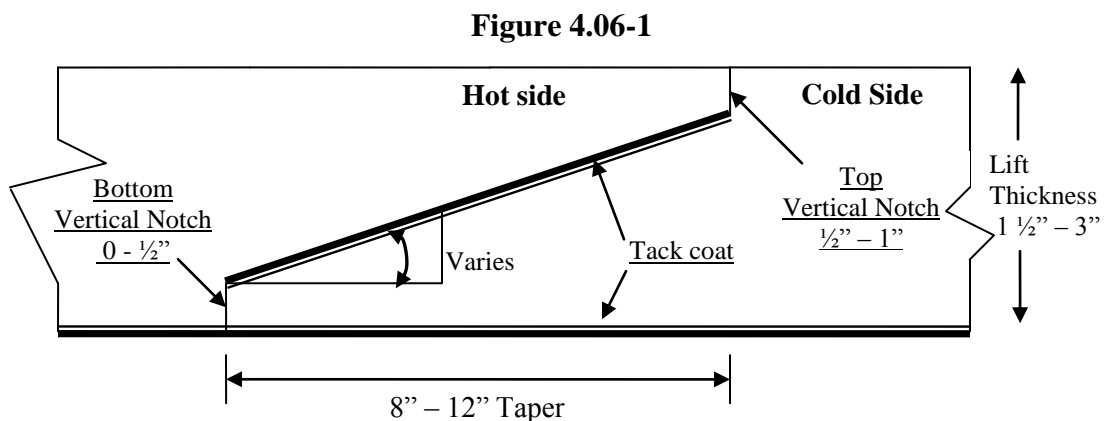
These allowances will not relieve the Contractor from meeting pavement compaction requirements.

Surface Requirements: The pavement surface of any lift shall meet the following requirements for smoothness and uniformity. Any irregularity of the surface exceeding these requirements shall be corrected by the Contractor.

- a) Smoothness- Each lift of the surface course shall not vary more than $\frac{1}{4}$ inch from a Contractor-supplied 10 foot straightedge. For all other lifts of HMA, the tolerance shall be $\frac{3}{8}$ inch. Such tolerance will apply to all paved areas.
- b) Uniformity- The paved surface shall not exhibit segregation, rutting, cracking, disintegration, flushing or vary in composition as determined by the Engineer.

8. HMA Longitudinal Joint Construction Methods: Unless noted on the plans or the contract documents or directed by the Engineer, the Contractor shall use Method I- Notched Wedge Joint (see figure 4.06-1) when constructing longitudinal joints where lift thicknesses are between $1\frac{1}{2}$ and 3 inches, except for HMA S1 and Class 4 mixes. Method II Butt Joint (see figure 4.06-2) shall be used for lifts less than $1\frac{1}{2}$ inches or greater than 3 inches and HMA S1 and Class 4 mixes. During placement of multiple lifts of HMA, the longitudinal joint shall be constructed in such a manner that it is located at least 6 inches from the joint in the lift immediately below. The joint in the final lift shall be at the centerline or at lane lines.

Method I - Notched Wedge Joint:



A notched wedge joint shall be constructed, as shown in the figure using a device that is capable of adjusting the top and bottom vertical notches independently and is attached to the paver screed.

The taper portion of the joint must be placed over the longitudinal joint in the lift immediately below. The top vertical notch must be located at the centerline or lane line in the final lift. The requirement for paving full width “curb to curb” as described in Method II will be waived in those areas where the notched wedge joint is utilized.

The taper portion of the wedge joint shall be compacted and not be exposed to traffic for more than 5 calendar days.

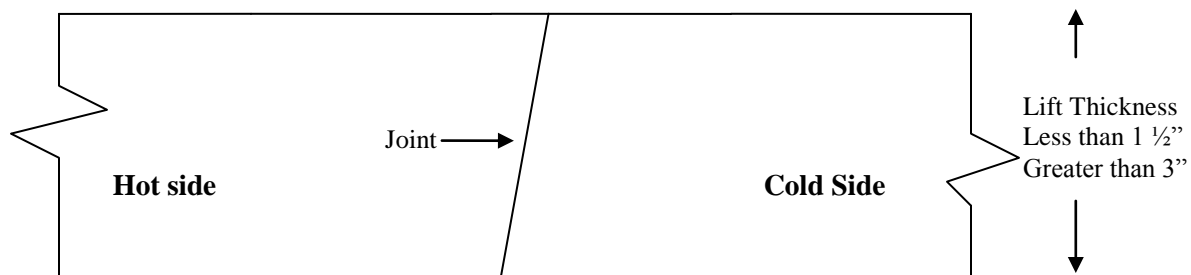
The existing pavement surface under the wedge joint must have an application of tack coat material. Prior to placing completing pass (hot side), an application of tack coat must be applied to the tapered section.

Any exposed wedge joint must be located to allow for the free draining of water from the road surface.

The Engineer reserves the right to define the paving limits when using a wedge joint that will be exposed to traffic.

Method II - Butt Joint:

Figure 4.06-2

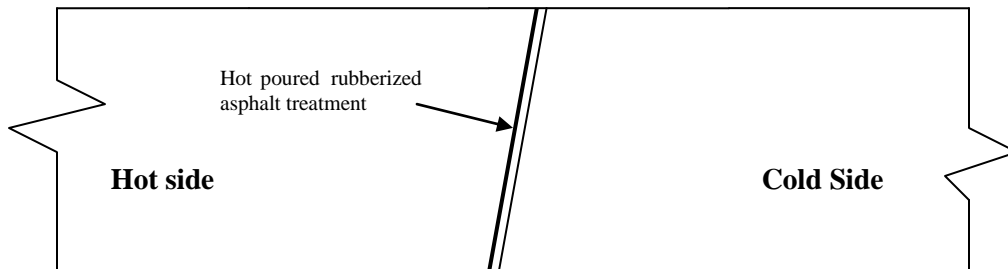


When adjoining HMA passes are placed, the Contractor shall utilize equipment that creates a near vertical edge (refer to figure). The completing pass (hot side) shall have sufficient mixture so that the compacted thickness is not less than the previous pass (cold side). The end gate on the paver should be set so there is an overlap onto the cold side of the joint.

The Contractor shall not allow any butt joint to be incomplete at the end of a work shift unless otherwise allowed by the Engineer. When using this method, the Contractor is not allowed to leave a vertical edge exposed at the end of a work shift and must complete paving of the roadway full width “curb to curb.”

Method III- Butt Joint with Hot Poured Rubberized Asphalt Treatment: When required by the contract or allowed by the Engineer, Method III (see figure 4.06-3) may be used.

Figure 4.06-3



All of the requirements of Method II must be met with Method III. In addition, the longitudinal vertical edge must be treated with a joint seal material meeting the requirements of Section M.04 prior to placing a completing pass. The joint seal material shall be applied in accordance with the manufacturer's recommendation so as to provide a uniform coverage and avoid excess bleeding onto the newly placed pavement.

9. Contractor Quality Control (QC) Requirements for HMA Placement: A Quality Control Plan (QCP) shall be required for any project that has a total of 2500 tons or more of HMA. Quality Control is defined as all those planned and specified actions or operations necessary to produce bituminous concrete that will meet contract specification requirements. The Contractor shall be responsible for quality control throughout the production and placement operations. Therefore, the Contractor must ensure that the materials, mixture and work provided by Subcontractors, Suppliers and Producers also meet contract specification requirements.

Quality Control Plan: Prior to placement and production, the Contractor shall submit a QCP to the Engineer for approval. The QCP shall include separate sections; HMA Plant Production and HMA Placement. The sections shall describe the organization and procedures which the Contractor shall use to administer quality control. The QCP shall include the procedures used to control the HMA production and placement process, to determine when immediate changes to the processes are needed, and to implement the required changes. The QCP must address the actions, inspection, sampling and testing necessary to keep the production and placement operations in control, to determine when an operation has gone out of control and to respond to correct the situation and bring it back into control.

The QCP shall also include the name and qualifications of a Quality Control Manager. The Quality Control Manager shall be responsible for the administration of the QCP, including compliance with the plan and any plan modifications. The Quality Control Manager shall be directly responsible to the Contractor and shall have the authority to make decisions where the quality of the work or product is concerned. All sampling, inspection and test reports shall be reviewed and signed by the Quality Control Manager prior to submittal to the Engineer.

Approval of the QCP will be based on the inclusion of all of the required information. Approval of the QCP does not imply any warranty by the Engineer that adherence to the plan will result in production of HMA that complies with these specifications. It shall remain the responsibility of the Contractor to demonstrate such compliance. The Contractor may propose in writing a supplement to the QCP as work progresses and must propose a supplement whenever there are changes in production or placement of HMA or to quality control procedures or personnel. HMA production and placement may be suspended by the Engineer until the revisions to the QCP have been put into effect.

The Quality Control Plan shall also include the name and qualifications of any outside testing laboratory performing any QC functions on behalf of the Contractor.

Quality Control Inspection, Sampling and Testing: The Contractor shall perform all quality control sampling and testing, provide inspection, and exercise management control to ensure that HMA production and placement conforms to the requirements as outlined in its QCP during all phases of the work.

a) Control Charts: The Contractor shall develop and maintain control charts and shall be distributed as directed by the Engineer. The control charts shall identify the project, test number, test parameter, applicable upper and lower specification limits, and test data. The control charts shall be used as part of the quality control system to document variability of the HMA production and placement process. The control charts shall be kept current. The control charts shall be updated each day of HMA production, and up-to-date copies shall be distributed prior to the beginning of the next day's production of HMA.

b) Records of Inspection and Testing: For each day of HMA production and placement, the Contractor shall document all test results and inspections on forms approved by the Engineer. The document shall be certified by the Quality Control Manager or his representative that the information in the document is accurate, and that all work complies with the requirements of the contract.

The Contractor shall submit sampling, testing and inspection documents to the Engineer within 24 hours or by noon of the next day's HMA production. If the document is incomplete or in error, a copy of the document will be returned to the Contractor with the deficiencies noted by the Engineer. The Contractor shall correct the deficiencies and return the updated document to the Engineer by the start of the following working day. When errors or omissions in the sampling, inspection or testing documents repeatedly occur, the Contractor shall correct the procedures by which the documents are produced.

If control charts, sampling, testing and inspection documents are not distributed or provided as required within the time specified the Engineer may require work to be suspended until the missing documents have been provided.

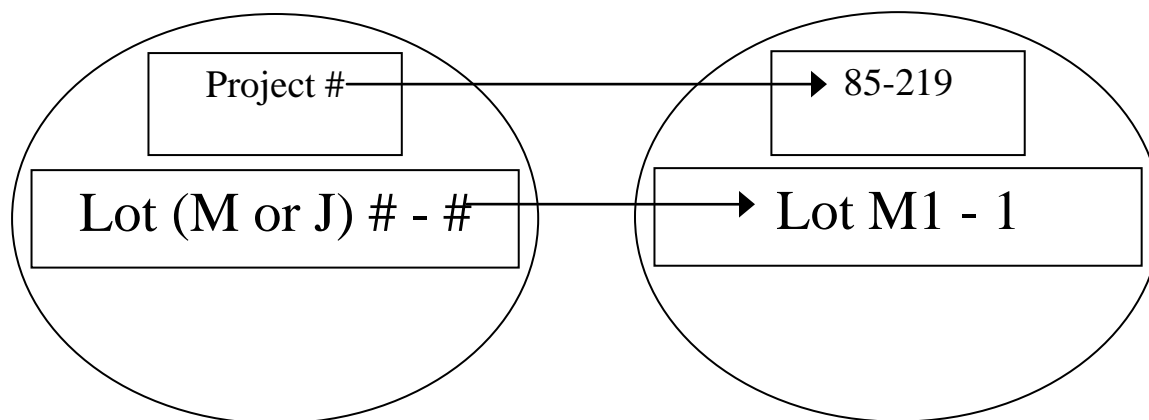
The contractor may obtain two cores per year, per mix, per project to assist with density quality control activities, provided this is detailed in the QCP.

Additional requirements for HMA plant production are defined in Section M.04.

10. Density Testing of HMA Utilizing Core Samples: This procedure describes the frequency and the method the Contractor shall use to obtain pavement cores from the project. Coring shall be performed on each lift specified to a thickness of one and one-half (1 ½) inches or more. Each lift shall have the HMA pavement including the longitudinal joints compacted to the degree specified in Tables 4.06-9 and 4.06-10. The density of each core shall be determined using the production lot's average maximum theoretical gravity established from the plant production testing. Bituminous concrete Class 4 and HMA S1 are excluded from the longitudinal joint density requirements.

The Contractor shall extract cores (6 inch diameter-wet sawed) from sampling locations determined by the Engineer. The Engineer will witness the extraction and labeling of cores. The cores shall be labeled by the Contractor with the project number, lot number, and sub-lot number on the top surface of the core. When labeling the core lot number, include whether the core is from a mat lot or joint lot by using an "M" for a mat core and "J" for a joint core. For example, a core from the first sub-lot of the first mat lot shall be labeled with "Lot M1 - 1". The first number refers to the lot and the second number refers to the sub-lot. Refer to Figure 4.06-4. The side of the cores shall be labeled with the vendor number and date placed. The Contractor shall deliver the cores to the Department's Central Testing Lab in a safe manner to ensure no damage occurs to the cores. The Contractor shall use a container approved by the Engineer. In general the container shall consist of an attached lid container made out of plastic capable of being locked shut and tamper proof. The Contractor shall use foam, bubble wrap, or another suitable material to prevent the cores from being damaged during transportation. Once the cores and any needed paperwork are in the container the Engineer will secure the lid using a security seal. The Central Lab will break the security seal and take possession of the cores upon receipt.

Figure 4.06-4



Frequency of sampling is in accordance with the following tables:

TABLE 4.06-4 - TESTING REQUIREMENT FOR BRIDGE DENSITY LOT

Length of Each Structure (Feet)	MAT – No. of Cores per Pass	JOINT - No. of cores per Joint
Less than 1000	1	2
1000 or greater	1 per 1000 feet or portions thereof	1 per 1000 feet or portions thereof

TABLE 4.06-5 – TESTING REQUIREMENT FOR NON-BRIDGE DENSITY LOT

Required Paver Passes for Full Width	No. of Mat Cores	No. of Joint Cores	Maximum Lot Length (Feet)
1 ⁽¹⁾	4	0	10000
2 ⁽¹⁾	4	4	5000
3 ⁽¹⁾	4	4	2500
4 ⁽¹⁾	4	4	2500
5 ⁽¹⁾	4	4	1250
6 ⁽¹⁾	4	4	1250

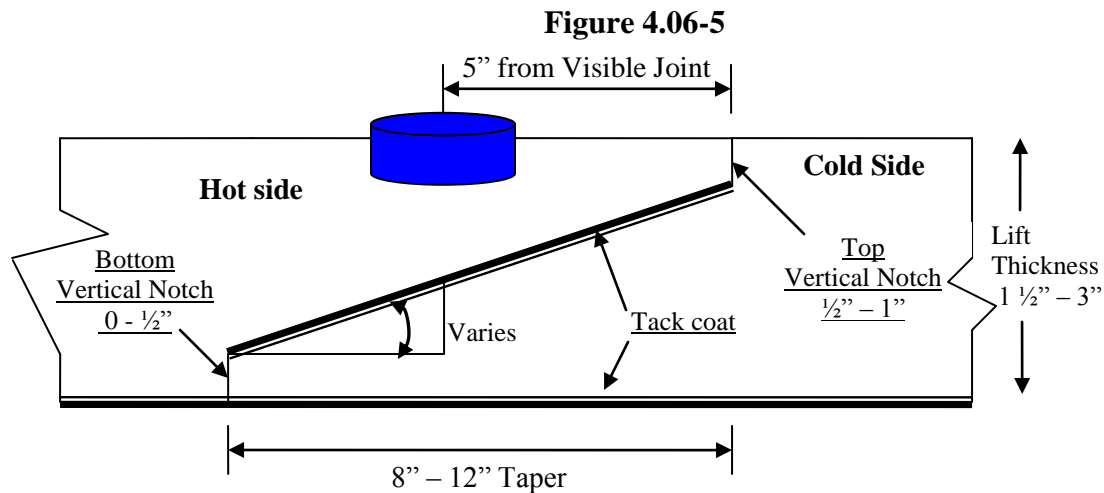
Note (1): The number of “Required Paver Passes for Full Width” shall be used to determine the “Maximum Lot Length”.

A density lot will be complete when the full designed paving width of the established lot length has been completed and shall include all longitudinal joints that exist between the curb lines regardless of date(s) paved. Prior to paving, the total length of the project to be paved shall be split up into equal lot sizes for testing purposes. Each lot should not exceed the lengths shown in table 4.06-5. One adjustment will apply for each lot. The tons shall be determined using the yield calculation in Article 4.06.04. The last lot shall be the difference between the total payable tons for the project and the sum of the previous lots.

After the compaction process has been completed, the material shall be allowed to cool sufficiently to allow the cutting and removal of the core without damage. The Contractor shall core to a depth that allows extraction so that the uppermost layer being tested for density will not be affected.

A mat core shall not be taken any closer than one foot from the edge of a paver pass. If a random number locates a core less than one foot from any edge, locate the core so that the sample is one foot from the edge.

Joint cores must be taken so that the center of the core is 5 inches from the visible joint on the hot mat side. Refer to figure 4.06-5.



Cores may be obtained daily or weekly. All cores must be cut within 5 calendar days of placement. Any core that is damaged or obviously defective while being obtained will be replaced with a new core from a location within 2 feet measured in a longitudinal direction.

Core holes shall be filled immediately upon core extraction by removing any free water, applying tack coat to the cut surface, filling with same HMA mixture, and compacting with hand compactor or other mechanical means to the maximum compaction possible. The HMA mixture shall be compacted to 1/8 inch above the finished pavement prior to opening the roadway to traffic.

11. Acceptance Inspection, Sampling and Testing: Inspection, sampling, and testing to be used by the Engineer shall be performed at the minimum frequency specified in Section M.04 and stated herein.

Sampling for acceptance shall be established using ASTM D 3665, or a statistically based procedure of random sampling approved by the Engineer.

HMA Plant Material Acceptance: The Contractor shall provide the required acceptance sampling, testing and inspection during all phases of the work in accordance with Section M.04.

HMA Density Acceptance: The Engineer will perform all acceptance testing on the cores in accordance with AASHTO T 331(M).

12. Density Dispute Resolution Process: The Contractor and Engineer will work in partnership to avoid potential conflicts and to resolve any differences that may arise during quality control or acceptance testing for density. Both parties will review their sampling and testing procedures and results and share their findings. If the Contractor disputes the Engineer's test results, the Contractor must submit in writing a request to initiate the Dispute Resolution Process within 10 calendar days of the notification of the test results. No request for dispute resolution will be allowed unless the Contractor provides quality control results supporting its position. Should the dispute not be resolved through evaluation of existing testing data or procedures, the Engineer

may authorize the Contractor to obtain a maximum of four additional representative core samples per disputed lot. The core samples must be extracted no later than 30 calendar days from the date of Engineer's authorization. Core sample locations shall be established using ASTM D 3665 or a statistically based procedure of random sampling approved by the Engineer. Core samples shall be extracted and filled using the procedure outlined in Article 4.06.03. The results from the dispute resolution cores shall be added to the results from the acceptance cores and averaged for determining the final HMA density.

13. Corrective Work Procedures: Any portion of the completed pavement that does not meet the requirements of the specification shall be corrected at the expense of the Contractor. Any corrective courses placed as the final wearing surface shall not be less than 1½ inches in thickness after compaction.

If pavement placed by the Contractor does not meet the specifications, and the Engineer requires its replacement or correction, the Contractor shall:

- a) Propose a corrective procedure to the Engineer for review and approval prior to any corrective work commencing. The proposal shall include:
 - Limits of pavement to be replaced or corrected, indicating stationing or other landmarks that are readily distinguishable.
 - Proposed work schedule.
 - Construction method and sequence of operations.
 - Methods of maintenance and protection of traffic.
 - Material sources.
 - Names and telephone numbers of supervising personnel.
- b) Perform all corrective work in accordance with the Contract and the approved corrective procedure.

14. Protection of the Work: The Contractor shall protect all sections of the newly finished pavement from damage that may occur as a result of the Contractor's operations for the duration of the Project. Prior to the Engineer's authorization to open the pavement to traffic, the Contractor is responsible to protect the pavement from damage.

15. Cut Bituminous Concrete Pavement: Work under this item shall consist of making a straight-line cut in the bituminous concrete pavement to the lines delineated on the plans or as directed by the Engineer. The cut shall provide a straight, clean, vertical face with no cracking, tearing or breakage along the cut edge.

4.06.04—Method of Measurement:

1. Bituminous Concrete Class () or HMA S* : The quantity of bituminous concrete measured for payment will be determined by the documented net weight in tons accepted by the Engineer in accordance with this specification and Section M.04.

2. HMA Adjustments: Adjustments may be applied to bituminous concrete quantities and will be measured for payment using the following formulas:

Yield Factor for Adjustment Calculation = 0.0575 Tons/SY/inch

Actual Area = [(Measured Length (ft)) x (Avg. of width measurements (ft))]

Actual Thickness (t) = Total tons delivered / [Actual Area (SY) x 0.0575 Tons/SY/inch]

- a) Area: If the average width exceeds the allowable tolerance, an adjustment will be made using the following formula. The tolerance for width is equal to the specified thickness (in.) of the lift being placed.

Tons Adjusted for Area (T_A) = [(L x W_{adj})/9] x (t) x 0.0575 Tons/SY/inch = (-) Tons

Where: L = Length (ft)

(t) = Actual thickness (inches)

W_{adj} = (Designed width (ft) + tolerance /12) - Measured Width)

- b) Thickness: If the actual thickness is less than the allowable tolerance, the Contractor shall submit a repair procedure to the Engineer for approval. If the actual thickness exceeds the allowable tolerance, an adjustment will be made using the following formula:

Tons Adjusted for Thickness (T_T) = A x t_{adj} x 0.0575 = (-) Tons

Where: A = Area = {[L x (Designed width + tolerance (lift thickness)/12)] / 9}

t_{adj} = Adjusted thickness = [(Dt + tolerance) - Actual thickness]

Dt = Designed thickness (inches)

- c) Weight: If the quantity of bituminous concrete representing the mixture delivered to the project is in excess of the allowable gross vehicle weight (GVW) for each vehicle, an adjustment will be made using the following formula:

Tons Adjusted for Weight (T_W) = GVW – DGW = (-) Tons

Where: DGW = Delivered gross weight as shown on the delivery ticket or measured on a certified scale.

- d) Mixture Adjustment: If the quantity of bituminous concrete representing the produced mixture exceeds one or more of the production tolerances for Marshall (Table 4.06-6) or Superpave mix designs (Table 4.06-7 and 4.06-8), an adjustment will be made using the following formulas. The Department's Division of Material Testing will calculate the daily adjustment values for T_{MD} and T_{SD}.

- (1) *Marshall Design*- The tolerances shown in Table 4.06-6 for gradation and binder content will be used to determine whether a mixture adjustment will apply. If the mixture does not meet the requirements of Section M.04, an adjustment will be computed using the following formula:

$$\text{Tons Adjusted for Marshall Design (T}_{MD}) = M \times 0.10$$

Where: M = Tons of bituminous concrete mixture exceeding the tolerances in Table 4.06-5.

**TABLE 4.06-6
TOLERANCES FOR CONSECUTIVE TESTS (MARSHALL)**

Classes	Criteria	% Tolerances (+/-)
-	Binder	0.4
1, 2, 4, 5, 5A & 5B	#200	2.0
1, 2, 4	#50	4
1, 2, 5, 5A & 5B	#30	5
1, 2, 4, 5, 5A & 5B	#8	6
1, 2, 4, 5, 5A & 5B	#4	7
1, 2, 4, 5, 5A & 5B	$\frac{3}{8}$ & $\frac{1}{2}$ inch	8

- (2) *Superpave Design*- The adjustment values in Table 4.06-7 and 4.06-8 shall be calculated for each sub lot based on the Air Void and Liquid Binder Content test results for that sub lot. The total adjustment for each day's production (lot) will be computed using tables and the following formulas:

$$\text{Tons Adjusted for Superpave Design (T}_{SD}) = [(\text{AdjAV}_t + \text{AdjPB}_t) / 100] \times \text{Tons}$$

$$\text{Percent Adjustment for Air Voids} = \text{AdjAV}_t = [\text{AdjAV}_1 + \text{AdjAV}_2 + \text{AdjAV}_i + \dots + \text{AdjAV}_n] / n$$

Where: AdjAV_t = Total percent air void adjustment value for the lot
 AdjAV_i = Adjustment value from Table 4.06-6 resulting from each sub lot
 lot
 n = number of air void tests in a production lot

**TABLE 4.06-7
ADJUSTMENT VALUES FOR AIR VOIDS (SUPERPAVE)**

Adjustment Value (AdjAV_i) (%)	HMA S0.25, S0.375, S0.5, S1 Air Voids (AV)
+2.5	3.5 - 4.5
0.0	3.0 - 3.4 or 4.6 - 5.0
- 5.0	2.7 - 2.9 or 5.1 - 5.3
- 10.0	2.3 - 2.6 or 5.4 - 5.7
-20.0	≤ 2.2 or ≥ 5.8

$$\text{Percent Adjustment for Liquid Binder} = \text{AdjPB}_t = [(\text{AdjPB}_1 + \text{AdjPB}_2 + \text{AdjPB}_i + \dots + \text{AdjPB}_n)] / n$$

Where: AdjPB_t = Total percent liquid binder adjustment value for the lot
 AdjPB_i = Adjustment value from Table 4.06-7 resulting from each sub lot
 n = number of binder tests in a production lot

TABLE 4.06-8

Adjustment Value (AdjAV_i) (%)	HMA S0.25, S0.375, S0.5, S1 Pb (refer to Table M.04.03-5)
0.0	Equal to or above the min. liquid content
- 10.0	Below the min. liquid content

- e) Density Adjustment: The quantity of bituminous concrete measured for payment for a specified lift of pavement 1½ inches or greater may be adjusted for density. Separate density adjustments will be made for each lot and will not be combined to establish one density adjustment.

$$\text{Tons Adjusted for Density (T}_D) = [\{ (PA_M \times .40) + (PA_J \times .60) \} / 100] \times \text{Density Lot Tons}$$

Where: T_D = Total tons adjusted for density for each lot
 PA_M = Mat density percent adjustment from Table 4.06-9
 PA_J = Joint density percent adjustment from Table 4.06-10

**TABLE 4.06-9
ADJUSTMENT VALUES FOR PAVEMENT MAT DENSITY**

Average Core Result Percent Density	Percent Adjustment for non-bridge lots	Percent Adjustment for bridge lots
97.1 – 100	-2.5	- 2.5
94.5 – 97.0	+2.5	+2.5
92.0 – 94.4	0.0	0.0
91.0 – 91.9	-2.5	- 10.0
89.1 – 90.9	-15.0	- 30.0
87.0 – 89.0	-30.0	- 50.0
86.9 or less	Remove and Replace	Remove and Replace

**TABLE 4.06-10
ADJUSTMENT VALUES FOR PAVEMENT JOINT DENSITY**

Average Core Result Percent Density	Percent Adjustment for non-bridge lots	Percent Adjustment for bridge lots
97.1 – 100	-2.5	- 2.5
94.5 – 97.0	+2.5	+2.5
91.0 – 94.4	0.0	0.0
90.0 – 90.9	-7.5	- 7.5
89.0 – 89.9	-15.0	-15.0
87.0 – 88.9	-30.0	- 50.0
86.9 or less	Remove and Replace	Remove and Replace

3. Transitions for Roadway Surface: The installation of permanent transitions shall be measured under the appropriate item used in the formation of the transition.

- The quantity used for the installation of temporary transitions shall be measured for payment under the appropriate HMA item used in the formation of the transition. The installation and removal of a bond breaker, and the removal and disposal of any temporary transition formed by milling or with bituminous concrete pavement is not measured for payment.

4. Cut Bituminous Concrete Pavement: The quantity of bituminous concrete pavement cut will be measured in accordance with Article 2.02.04.

5. Material for Tack Coat: The quantity of tack coat will be measured for payment by the number of gallons furnished and applied on the Project and approved by the Engineer.

Method of Measurement:

- a. Container Method- Material furnished in a container will be measured to the nearest ½ gallon. The volume will be determined by either measuring the volume in the original container by a method approved by the Engineer or using a separate graduated container capable of measuring the volume to the nearest ½ gallon. The container in which the

material is furnished must include the description of material, including lot number or batch number and manufacturer or product source.

- b. Truck Method- The Engineer will establish a weight per gallon of the bituminous material based on the specific gravity at 60°F for the material furnished. The number of gallons furnished will be determined by weighing the material on scales furnished by and at the expense of the Contractor.

6. Material Transfer Vehicle (MTV) - The furnishing and use of a MTV will be measured separately for payment based on the actual number of tons of HMA surface course delivered to a paver using the MTV.

4.06.05—Basis of Payment:

1. Bituminous Concrete Class (), HMA S*: The furnishing and placing of bituminous concrete will be paid for at the Contract unit price per ton for "Bituminous Concrete, Class ()" or "HMA S* ()."

- All costs associated with providing illumination of the work area are included in the general cost of the work.
- All costs associated with constructing longitudinal joints are included in the general cost of the work.
- All costs associated with obtaining cores for core correlation and dispute resolution are included in the general cost of the work.

2. HMA Adjustment Costs: The "HMA Adjustment Costs" will be calculated using the formulas shown below if all of the measured adjustments in Article 4.06.04 do not equal zero. A payment will be made for a positive adjustment. A deduction from monies due the Contractor will be made for a negative adjustment.

$$\text{Production Lot: } [T_T + T_A + T_W + (T_{MD} \text{ or } T_{SD})] \times \text{Unit Price} = \text{Est. (P)}$$

$$\text{Density Lot: } T_D \times \text{Unit Price} = \text{Est. (D)}$$

Where: Unit Price = Contract unit price per ton per type of mixture

T_* = Total tons of each adjustment calculated in Article 4.06.04

Est. () = Pay Unit represented in dollars representing HMA incentive or disincentive.

The estimated cost figure if included in the bid proposal or estimate is not to be altered in any manner by the bidder. If the bidder should alter the amount shown, the altered figure will be disregarded and the original cost figure will be used to determine the amount of the bid for the Contract.

3. Transitions for Roadway Surface: The installation of permanent transitions shall be paid under the appropriate item used in the formation of the transition. The quantity used for the installation of temporary transitions shall be paid under the appropriate HMA item used in the formation of the transition. The installation and removal of a bond breaker, and the removal and disposal of any temporary transition formed by milling or with bituminous concrete pavement is included in the general cost of the work.

4. The cutting of bituminous concrete pavement will be paid in accordance with Article 2.02.05.

5. Material for tack coat will be paid for at the Contract unit price per gallon for "Material for Tack Coat".

6. The Material Transfer Vehicle (MTV) will be paid at the Contract unit price per ton for a "Material Transfer Vehicle".

<u>Pay Item*</u>	<u>Pay Unit*</u>
Bituminous Concrete, Class ()	ton
HMA S*	ton
HMA Adjustment Cost	est.
Material for Tack Coat	gal.
Material Transfer Vehicle	ton

*For contracts administered by the State of Connecticut, Department of Administrative Services, the pay items and pay units are as shown in contract award price schedule.

SECTION 12.00 – GENERAL CLAUSES FOR HIGHWAY SIGNING

Description:

Work under this item shall conform to the requirements of Section 12.00 supplemented as follows:

12.00.06 – Data Labels:

For the purpose of developing and maintaining a highway sign inventory and for the purpose of sampling and testing reflective sheeting, the Contractor shall affix a Data Label(s) to the back of each sign face-extruded aluminum sign and each sign face-sheet aluminum sign in the vicinity of the lower left hand corner or quadrant. Data Labels shall be 2 (two) separate 5 (five) inch by 3 (three) inch (125mm by 75mm), non-reflective weatherproof films with black copy on a yellow background having a pressure sensitive adhesive backing.

A “Fabrication” Data Label is to include information about the sign fabricator, date of fabrication and the sheeting manufacturer - type. An “Installation” Data Label is to include The State Project Number or Maintenance Permit Number that installed the sign and date of installation.

The cost of the data labels coded and in place on the sign shall be included in the unit cost of the respective sign material. Payment for the respective quantities of each sign face-extruded aluminum sign and each sign face-sheet aluminum sign may be withheld until all Data Label(s) have been installed to the satisfaction of the Engineer.

The Data Label designs, with additional notes relative to design requirements are attached herewith.

NON REFLECTIVE, WEATHERPROOF FILM
BLACK COPY, YELLOW BACKGROUND

CONN DOT SIGN FACE DATA LABEL											
Fabricator: (Insert NAME or State) Sheeting Manufacturer - Type (Insert NAME - TYPE)											
Date Fabricated - Month / Year											
J	F	M	A	M	J	J	A	S	O	N	D
11	12	13	14	15	16	17	18	19	20	21	22

CONN DOT SIGN FACE DATA LABEL											
Installed By Project No: (Insert 000-0000 or State) Permit No: (Insert D_-000000)											
Date Installed - Month / Year											
J	F	M	A	M	J	J	A	S	O	N	D
11	12	13	14	15	16	17	18	19	20	21	22

Data Labels To Be 5 Inch By 3 inch Each (125mm x 75mm),
With Face Designs As Shown Above.
All Copy Ink Must Be Durable And Not Fade, Discolor or Smudge.
All Variable Legends To Be Included At Label Fabrication.
Only One "Installed By" Permit or Project Number, Should Be Provided
Sign Fabrication and / or Installation by State Forces, Insert "State"
The Month And Year Of Fabrication And Installation;
May Be Punched Or Marked Out.

The Back Of The Data Label Must Contain A Precoated
Pressure-Sensitive Adhesive Covered By A Removable Liner.
At Application, The Liner Must Be Removable Without Soaking In
Water Or Other Solvents.
The Adhesive Must Form A Durable Bond To Surfaces That Are
Smooth, Clean, Corrosion-Free and Weather Resistant.

Completed Data Labels Must Not Discolor, Crack, Craze, Blister,
Delaminate, Peel, Chalk, Or Lose Adhesion When Subjected
To Temperatures From -30 Degrees To 200 Degrees Fahrenheit.

SECTION 12.08 - SIGN FACE-SHEET ALUMINUM

Work under this item shall conform to the requirements of Section 12.08 amended as follows:

General: Delete all references to parapet mounted sign supports.

Article M.18.15 – Sign Mounting Bolts: *Replace with the following:*

Bolts used for sign mounting shall be stainless steel and conform to ASTM F593, Group 1 or 2 (Alloy Types 304 or 316). Locking nuts shall be stainless steel and shall conform to ASTM F594 (Alloy Types 304 or 316). Washers shall also be stainless steel and shall conform to ASTM A240 (Alloy Types 304 or 316).

SECTION M.04 - BITUMINOUS CONCRETE

M.04.01—Bituminous Concrete Materials and Facilities

M.04.02—Mix Design and Job Mix Formula (JMF)

M.04.03—Production Quality Control (QC) Testing and Control of Mixture

M.04.01—Bituminous Concrete Materials and Facilities: Each source of material, and facility used to produce and test bituminous concrete (HMA) must be qualified on an annual basis by the Engineer. The basis of approval for plant machinery, material processing & controls, and field laboratory requirements are available from the Engineer. Test Procedures and Specifications referenced herein are in accordance with the latest AASHTO and ASTM Standard Test Procedures and Specifications. Such references when noted with an (M) have been modified by the Engineer and are detailed in Table M.04.03-6.

The Contractor shall submit to the Engineer all sources of coarse aggregate, fine aggregate, mineral filler and PG binder. The Contractor shall submit a Material Safety Data Sheet (MSDS) for each grade of binder to be used on the Project. The Contractor shall not change material sources without prior approval of the Engineer.

An adequate quantity of each size aggregate, mineral filler and bitumen shall be maintained at the HMA plant site at all times while the plant is in operation to ensure that the plant can consistently produce bituminous concrete mixtures that meet the job mix formula (JMF) as specified in Article M.04.02. The quantity of such material shall be reviewed by the Engineer on an individual plant basis and is dependent upon the plant's daily production capacity, but shall never be less than one day's production capacity. Less than one day's production capacity may be cause for the job mix formula to be rejected.

1. Coarse Aggregate:

- a. **Requirements:** The coarse aggregate shall consist of clean, hard, tough, durable fragments of crushed stone or crushed gravel of uniform quality. Aggregates from multiple sources of supply must not be mixed or stored in the same stockpile.
- b. **Basis of Approval:** The request for approval of the source of supply shall include a washed sieve analysis in accordance with AASHTO T 27. The G_{sa} , G_{sb} , and P_{wa} shall be determined in accordance with AASHTO T 85. The coarse aggregate must not contain more than 1% crusher dust, sand, soft disintegrated pieces, mud, dirt, organic and other injurious materials. When tested for abrasion using AASHTO T 96, the aggregate loss must not exceed 40%. When tested for soundness using AASHTO T 104 with a magnesium sulfate solution, the coarse aggregate must not have a loss exceeding 10% at the end of 5 cycles.

For HMA mixtures, materials shall also meet the coarse aggregate angularity criteria as specified in Tables M.04.02-2 thru M.04.02-4 for blended aggregates retained on the #4 sieve when tested according to ASTM D 5821. The amount of aggregate particles of the

coarse aggregate blend retained on the #4 sieve that are flat or elongated shall be determined in accordance with ASTM D 4791 and shall not exceed 10% by weight when tested to a 3:1 ratio, as shown in Tables M.04.02-2 thru M.04.02-4.

2. Fine Aggregate:

Requirements: The fine aggregate from each source quarry/pit deposit shall consist of clean, hard, tough, rough-surfaced and angular grains of natural sand; manufactured sand prepared from washed stone screenings; stone screenings, slag or gravel; or combinations thereof, after mechanical screening or manufactured by a process approved by the Engineer. The Contractor is prohibited from mixing two or more sources of fine aggregate on the ground for the purpose of feeding into an HMA plant.

- a. All fine aggregate shall meet the listed criteria shown in items #1 thru #7 of Table M.04.01-1. Table M.04.01-1 indicates the quality tests and criteria required for all fine aggregate sources. Individually approved sources of supply shall not be mixed or stored in the same stockpile. The fine aggregates must be free from injurious amounts of clay, loam, and other deleterious materials.

For Superpave mixtures, in addition to the above requirements, the fine aggregate angularity shall be determined by testing the materials passing the #8 sieve in accordance with AASHTO T 304, Method A. Qualification shall be based on the criteria listed in Tables M.04.02-2 thru M.04.02-4. The fine aggregate shall also be tested for clay content as a percentage contained in materials finer than the #8 sieve in accordance with AASHTO T 176.

Table M.04.01-1: Fine Aggregate Criteria by Pit/Quarry Source

Item	Title	AASHTO Protocol	Criteria
1	Grading	T 27 and T 11	100% Passing the 3/8 inch 95% Passing the #4 minimum
2	Absorption	T 84	3% maximum
3	Plasticity limits	T 90	0 or not detectable
4	L.A. Wear	T 96	50% maximum(fine aggregate particle size # 8 and above)
5	Soundness by Magnesium Sulfate	T 104	20% maximum @ 5 cycles
6	Clay Lumps and Friable Particles	T 112	3% maximum
7	Deleterious Criteria	As determined by the Engineer	<u>Deleterious substances include:</u> Organic or inorganic calcite, hematite, shale, clay or clay lumps, friable materials, coal-lignite, shells, loam, mica, clinkers, or organic matter (wood, etc). -Shall not contain more than 3% by mass of any individual listed constituent and not more than 5% by mass in total of all listed constituents.

If Fine aggregate is tested by the CTDOT twice and does not meet above criteria.			
8	Pit/source Petrographic Analysis	C 295 (ASTM)	<ul style="list-style-type: none"> • Required to be performed by the Contractor at no expense to the Department. • Report assignable cause(s), corrective action taken to mitigate source and written request for resample. • If fine aggregate fails upon retest, Contractor may be permitted to request trial use on roadway for evaluation using the subject fine aggregate in HMA, to be monitored for no more than 48 months. • Evaluation location(s); mix size & level; terms and costs related to this application; determination of performance, and approval will be established at the sole discretion of the Engineer.

- b. Basis of Approval: A Quality Control Plan for Fine Aggregate (QCPFA) provided by the Contractor shall be submitted for review and approval for each new source documenting how conformance to Items 1 through 7 as shown in Table M.04.01-1 is monitored. The QCPFA must be resubmitted any time the process, location or manner of how the fine aggregate (FA) is manufactured changes, or as requested by the Engineer. The QCPFA must include the locations and manufacturing processing methods. The QCPFA for any source may be suspended by the Engineer due to the production of inconsistent mixtures.

The Contractor shall submit all test results to the Engineer for review. The Contractor shall also include a washed sieve analysis in accordance with AASHTO T 27/T 11. Any fine aggregate component or final combined product shall have 100% passing the 3/8 inch sieve and a minimum of 95% passing the # 4. The G_{sa}, G_{sb}, and P_{wa} shall be determined in accordance with AASHTO T 84.

The Contractor will be notified by the Engineer if any qualified source of supply fails any portion of Table M.04.01-1. One retest will be allowed for the Contractor to make corrections and/or changes to the process. If, upon retest, the material fails again, the use of the material will not be permitted without additional testing.

The Contractor may solicit additional testing by a third party acceptable to the Engineer to perform a Petrographic analysis (ASTM C 295), at its expense. The Contractor shall submit the results of the analysis with recommended changes to the manufacturing process to the Engineer. The Contractor shall submit fine aggregate samples for testing by the Engineer after the recommended changes have been made.

Upon review of the Petrographic analysis report and identified items that were corrected, the source may be re-sampled and tested by the Engineer.

- c. The Contractor may request that the use of such material not meeting the requirements be considered on select project(s) for certain applications. HMA pavement incorporating such material will be monitored and evaluated for a period not to exceed 48 months, at the direction of the Department and at the expense of the Contractor. Terms of any evaluation and suitable application will be predetermined by the Engineer.

If the Engineer determines, upon evaluation, that the fine aggregate performance is adequate and not harmful to the pavement's serviceability, the Department may approve the material for use in HMA mixtures in similar applications.

3. Mineral Filler:

- a. Requirements: Mineral filler shall consist of finely divided mineral matter such as rock dust, including limestone dust, slag dust, hydrated lime, hydraulic cement, or other accepted mineral matter. At the time of use it shall be freely flowing and devoid of agglomerations. Mineral Filler shall be introduced and controlled at all times during production in a manner acceptable to the Engineer.
- b. Basis of Approval: The request for approval of the source of supply shall include the location, manufacturing process, handling and storage methods for the material. Mineral filler shall conform to the requirements of AASHTO M-17

4. Liquid Bituminous Materials:

- a. Performance grade (PG) binder Requirements:
 - i. Binders shall contain uniformly mixed and blended liquid bituminous materials that are free of contaminants such as fuel oils and other solvents. Such binders shall be properly heated and stored to prevent damage or separation. A PG binder shall be classified by the supplier as a "Neat" binder for each lot and be so labeled on each bill of lading. Neat PG binders shall be asphalts free from modification with: fillers, extenders, reinforcing agents, adhesion promoters, thermoplastic polymers, acid modification and other additives, and shall indicate such information on each bill of lading and certified test report.
 - ii. The blending at mixing plants of PG binder from different suppliers is strictly prohibited. Contractors who blend PG binders will be classified as a supplier and will be required to certify the binder in accordance with AASHTO R-26(M). The asphalt binder shall be Performance Grade 64-22 Neat asphalt. The binder shall meet the requirements of AASHTO M-320(M) and AASHTO R-29(M). The Contractor shall submit a Certified Test Report and bill of lading representing each delivery in

accordance with AASHTO R-26(M). The Certified Test Report must also indicate the binder specific gravity at 77°F; rotational viscosity at 275°F and 329°F and the mixing and compaction viscosity-temperature chart for each shipment.

- iii. The Contractor shall submit the name(s) of personnel responsible for receipt, inspection, and record keeping of PG binder materials. Contractor plant personnel shall document specific storage tank(s) where binder will be transferred and stored until used, and provide binder samples to the Engineer upon request. The person(s) shall assure that each shipment (tanker truck) is accompanied by a statement certifying that the transport vehicle was inspected before loading and was found acceptable for the material shipped and that the binder will be free of contamination from any residual material, along with two (2) copies of the bill of lading.
 - iv. Basis of Approval: The request for approval of the source of supply shall list the location where the material will be manufactured, and the handling and storage methods, along with necessary certification in accordance with AASHTO R-26(M). Only suppliers/refineries that have an approved “Quality Control Plan for Performance Graded Binders” formatted in accordance with AASHTO R-26(M) will be allowed to supply PG binders to Department projects.
- b. Cut-backs (medium cure type)
- i. Requirements: The liquid petroleum materials shall be produced by fluxing an asphalt base with appropriate petroleum distillates to produce the grade specified.
 - ii. Basis of Approval: The request for approval of the source of supply shall be submitted at least seven days prior to its use listing the location where the materials will be produced, and manufacturing, processing, handling and storage methods. The Contractor shall submit a Certified Test Report in accordance with Section 1.06 and a Material Safety Data Sheet (MSDS) for the grade to be used on the Project. The liquid asphalt shall be MC-250 conforming to AASHTO M-82.
- c. Emulsions
- i. Requirements: The emulsified asphalt shall be homogeneous and not be used if exposed to freezing temperatures.
 - ii. Basis of Approval: The request for approval of the source of supply must include the location where the materials will be produced, and manufacturing, processing, handling and storage methods.
 - 1. Emulsified asphalts shall conform to the requirements of AASHTO M-140. Materials used for tack coat shall not be diluted and meet grade RS-1. When ambient temperatures are 80°F and rising, grade SS-1 or SS-1h may be substituted if accepted by the Engineer. Each shipment shall be accompanied with a Certified Test Report listing Saybolt viscosity, residue by evaporation, penetration of residue, and weight per gallon.

2. Cationic emulsified asphalt shall conform to the requirements of AASHTO M-208(M). Materials used for tack coat shall not be diluted and meet grade CRS-1. The settlement and demulsibility test will not be performed unless deemed necessary by the Engineer. When ambient temperatures are 80°F and rising, grade CSS-1 or CSS-1h may be substituted if accepted by the Engineer. Each shipment shall be accompanied with a Certified Test Report listing Saybolt viscosity, residue by evaporation, penetration of residue, and weight per gallon.

5. Reclaimed Asphalt Pavement (RAP):

- a. Requirements: RAP shall consist of asphalt pavement constructed with asphalt and aggregate reclaimed by cold milling or other removal techniques approved by the Engineer. For bituminous mixtures containing RAP, the Contractor shall submit a JMF in accordance with Article M.04.02 to the Engineer for review.
- b. Basis of Approval: The RAP material will be accepted on the basis of one of the following criteria:
 - i. When the source of all RAP material is from pavements previously constructed on Department projects, the Contractor shall provide a materials certificate listing the detailed locations and lengths of those pavements and that the RAP is only from those locations listed.
 - ii. When the RAP material source or quality is not known, the Contractor shall test the material and provide the following information along with a request for approval to the Engineer at least 30 calendar days prior to the start of the paving operation. The request shall include a material certificate stating that the RAP consists of aggregates that meet the specification requirements of subarticles M.04.01-1 through 3 and that the binder in the RAP is substantially free of solvents, tars and other contaminants. The Contractor is prohibited from using unapproved material on Department projects and shall take necessary action to prevent contamination of approved RAP stockpiles. Stockpiles of unapproved material shall remain separate from all other RAP materials at all times. The request for approval shall include the following:
 1. A 50-pound sample of the RAP to be incorporated into the recycled mixture.
 2. A 25-pound sample of the extracted aggregate from the RAP.
 3. After recovery of binder from the RAP by AASHTO T 170(M), the viscosity test results shall be reported when tested at 140°F by AASHTO T 202 or T 316.
 4. A statement that RAP material has been crushed to 100% passing the ½ inch sieve and remains free from contaminants such as joint compound, wood, plastic, and metals.

6. Crushed Recycled Container Glass (CRCG):

- a. Requirements: The Contractor may propose to use clean and environmentally-acceptable CRCG in an amount not greater than 5% by weight of total aggregate.

- b. Basis of Approval: The Contractor shall submit to the Engineer a request to use CRCG. The request shall state that the CRCG contains no more than 1% by weight of contaminants such as paper, plastic and metal and conform to the following gradation:

CRCG Grading Requirements	
<u>Sieve Size</u>	<u>Percent Passing</u>
3/8-inch	100
No. 4	35-100
No. 200	0.0-10.0

7. Joint Seal Material:

Requirements: Joint seal material shall be a hot-poured rubber compound intended for use in sealing joints and cracks in Asphalt Concrete Pavements. Joint seal material must meet the requirements of AASHTO M-324 – Type 2.

8. Plant production requirements

a. Storage Silos:

- i. The Contractor may use silos for short-term storage of Superpave mixtures with prior notification and approval of the Engineer. A silo must have heated cones and an unheated silo cylinder if it does not contain a separate internal heating system. Prior approval must be obtained for storage times greater than those indicated. When multiple silos are filled, the Contractor shall discharge one silo at a time. Simultaneous discharge of multiple silos is not permitted.

<u>Type of silo cylinder</u>	<u>Maximum storage time for all classes (hr)</u>
Open Surge	4
Unheated – Non-insulated	8
Unheated – Insulated	18
Heated – No inert gas	To be determined by the Engineer

- ii. For all classes of mixture sampled from hauling vehicles at the plant after storage in silos (virgin or mixture containing RAP) except 5, 5A, and 5B, the binder properties of the recovered asphalt shall meet the PG binder grade specified when recovered by AASHTO T 170(M) and tested in accordance with AASHTO R-29 and M-320(M).
- iii. If mixture coming out of a silo continuously does not meet the requirements of M.04.03, or the binder does not meet the PG requirements, the Engineer shall deem that silo unacceptable for use.

- b. Aggregates: The Contractor shall ensure that aggregate stockpiles are managed to provide uniform gradation and particle shape, prevent segregation and cross contamination in a manner acceptable to the Engineer. For drum plants only, the Contractor shall determine the percent moisture content a minimum of twice daily, prior to production and half way through production. The Contractor shall perform cold feed gradation analysis (AASHTO T 27(M) & T 11) for each component aggregate to ensure values remain

within the tolerances stated in Table M.04.02 when compared to the latest JMF for that class.

- c. Mixture: The dry and wet mix times shall be sufficient to provide proper coating (minimum 95% as determined by AASHTO T 195(M)) of all particles with bitumen and produce a uniform mixture. The Contractor shall make necessary adjustments to ensure bituminous concrete mixtures are free from moisture throughout. The Contractor shall make necessary adjustments to ensure all types of bituminous concrete mixtures contain no more than 0.5% moisture throughout when tested in accordance with AASHTO T 329.
- d. RAP: The Contractor shall indicate the percent of RAP, the moisture content (as a minimum, determined twice daily – prior to production and halfway through production), and the net dry weight of RAP added to the mixture on each truck ticket. For each day of production, the production shall conform to the job mix formula and RAP percentage and no change shall be made without the prior approval of the Engineer.
- e. Documentation system: The mixing plant documentation system shall include equipment for accurately proportioning the components of the mixture by weight and in the proper order, controlling the cycle sequence and timing the mixing operations. Recording equipment shall monitor the batching sequence of each component of the mixture and produce a printed record of these operations on each truck ticket, as specified herein. Tolerance controls shall be automatically or manually adjustable to provide proportions within these tolerances for any batch size. The automatic proportioning system shall be capable of consistently delivering mixtures within these limits for the full range of batch sizes.

An asterisk (*) shall be automatically printed next to any individual batch weight(s) exceeding these tolerances. The entire batching and mixing interlock cut-off circuits shall interrupt and stop the automatic batching operations when an error exceeding the acceptable tolerance occurs in proportioning.

Each Aggregate Component:	±1.0 % total target batch weight
Mineral Filler	±0.5 % of the total batch
Bituminous Material	±0.1 % of the total batch
Zero Return (Aggregate)	±0.5 % of the total batch
Zero Return (Bituminous Material)	±0.1 % of the total batch

There must be provisions so that scales are not manually adjusted during the printing process. In addition, the system shall be interlocked to allow printing only when the scale has come to a complete rest. A unique printed character (m) shall automatically be printed on the truck and batch plant printout when the automatic batching sequence is interrupted or switched to auto-manual or full manual during proportioning. For each day's production, each project shall be provided a clear, legible copy of these recordings on each truck ticket.

f. Field Laboratory:

The Contractor shall furnish the Engineer an acceptable field laboratory, to test bituminous mixtures during production and the Engineer shall have priority to use it for testing. The HMA plant production field laboratory shall have a minimum of 300 square feet, have a potable water source and drainage in accordance with the CT Department of Public Health Drinking Water Division, be equipped with all necessary testing equipment as well as with a PC, printer, and telephone with a dedicated hard-wired phone line. In addition, the PC shall have a high speed internet connection with a minimum upstream of 384 Kbps and a functioning web browser with unrestricted access to <https://ctmail.ct.gov>. This equipment shall be maintained in clean and good working order at all times and be made available for use by the Engineer.

The laboratory shall be equipped with a suitable heating system capable of maintaining a minimum temperature of 65°F. It shall be clean and free of all materials and equipment not associated with the laboratory. Windows shall be installed to provide sufficient light and ventilation. During summer months, the laboratory temperature shall not exceed ambient temperature. Light fixtures and outlets shall be installed at convenient locations, and a telephone shall be within audible range of the testing area. The laboratory shall be equipped with an adequate workbench that has a suitable length, width, and sampling tables, and be approved by the Engineer.

The field laboratory testing apparatus, supplies, and safety equipment shall be capable of performing all tests in their entirety that are referenced in AASHTO R 35(M), *Standard Practice for Superpave Volumetric Design for Hot-Mix Asphalt (HMA)* and AASHTO M 323, *Standard Specification for Superpave Volumetric Mix Design*. In addition, the quantity of all equipment and supplies necessary to perform the tests must be sufficient to initiate and complete the number of tests identified in Table M.04.03-2 for the quantity of mixture produced at the plant on a daily basis. The Contractor shall ensure that the Laboratory is adequately supplied at all times during the course of the project with all necessary testing materials and equipment.

g. Mixing Plant and Machinery:

The mixing plant used in the preparation of the bituminous concrete shall comply with AASHTO M-156(M)/ASTM D 995 for a Batch Plant or a Drum Dryer Mixer Plant, and be approved by the Engineer.

M.04.02—Mix design and Job Mix Formula (JMF)

1. Marshall Method - Class 1, 2, 3, 4, 5, 5A, 5B and 12:

- a. Requirements: When specified, the Marshall method shall be employed to develop a bituminous concrete mix design that includes a JMF consisting of target values for gradation and bitumen content for each class of bituminous concrete designated for the project in accordance with the latest Asphalt Institute's MS-2 manual. Each class of bituminous concrete must meet the requirements as shown in Table M.04.02-1.

- b. Basis of Approval: The Contractor shall submit to the Engineer a request for approval of the JMF annually in accordance with one of the methods described herein. Prior to the start of any paving operations, the JMF and production percentage of bitumen must be accepted by the Engineer, and the Contractor must demonstrate the ability to meet the accepted JMF and production percentage of bitumen for each class of mixture. Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%.

The Engineer will test each class of mixture for compliance with the submitted JMF and Table M.04.02-1. The maximum theoretical density (Gmm) will be determined by AASHTO T 209(M). If the mixture does not meet the requirements, the JMF shall be adjusted within the ranges shown in Table M.04.02-1 until an acceptable mixture is produced. All equipment, tests and computations shall conform to the Marshall method in accordance with AASHTO T 245(M).

An accepted JMF from the previous operating season may be acceptable to the Engineer provided that there are no changes in the sources of supply for the coarse aggregate, fine aggregate, recycled material (if applicable) and the plant operation had been consistently producing acceptable mixture.

The Contractor shall not change sources of supply after a JMF has been accepted. Before a new source of supply for materials is used, a new JMF shall be submitted to the Engineer for approval.

- c. Marshall mixture (virgin): For bituminous concrete mixtures that contain no recycled material, the limits prescribed in Table M.04.02-1 govern. The Contractor shall submit to the Engineer for approval, a JMF with the individual fractions of the aggregate expressed as percentages of the total weight of the mix and the source(s) of all materials. The JMF shall indicate two bitumen contents; the JMF target percentage and a production percentage (actual amount added to mix) of bitumen for each mix class by total weight. For surface course Class 1, a 0.45 power gradation chart shall also be submitted on which is plotted the percentage passing each sieve. The JMF shall also indicate the target temperature of completed mixture as it is dumped from the mixer and tested in accordance with Article M.04.03.
- d. Marshall mixtures with RAP: In addition to subarticles M.04.02 – 1a through c, RAP in bituminous concrete shall comply with requirements stated in Article M.04.01, and as stated herein. Upon approval of the Engineer, a maximum of 15% RAP may be used with no binder grade modification. RAP material shall not be used with any other recycling option.
- The Contractor may increase the RAP percentage in 5% increments up to a maximum of 30% provided a new JMF is accepted by the Engineer. The following information shall be included in the JMF submittal:
- Gradation and asphalt content of the RAP.
 - Percentage of RAP to be used.
 - Virgin aggregate source(s).

- Total binder content based on total mixture weight.
 - Production pull percentage of added virgin binder based on total mixture weight.
 - Gradation of combined bituminous concrete mixture (including RAP).
 - Grade of virgin added, if greater than 15% of total mix weight.
- e. Marshall mixture with CRCG: In addition to subarticle M.04.02 – 1a through c, for bituminous concrete that contains CRCG, the Contractor shall submit a materials certificate to the Engineer stating that the mixture and its components comply with requirements stated in subarticle M.04.01 - (6). Additionally, 1% hydrated lime, or other accepted non-stripping agent, shall be added to all mixtures containing CRCG. CRCG material shall not be used with any other recycling option.

2. Cold Patch Method - Class 5, 5A, 5B:

- a. Requirements: This mixture must be capable of being stockpiled and workable at all times. A non-stripping agent accepted by the Engineer shall be used in accordance with manufacturer's recommendations. The Contractor shall take necessary steps to ensure that this mixture uses aggregate containing no more than 1% moisture and is not exposed to any rain, snow, or standing water for a period of 6 hours after being mixed. This mixture shall be mixed and stockpiled at the point of production on a paved surface at a height not greater than 4 feet during the first 48 hours prior to its use.
- i. Class 5A mixture shall have 3/8 to 1/2 inch polypropylene fibers that have been approved by the Engineer added at a rate of 6 pounds per ton of mixture.
 - ii. Class 5B mixture shall have 1/4 inch polyester fibers that have been approved by the Engineer added at the rate of 2 1/2 pounds per ton of mixture.
 - iii. Class 5 mixture shall not contain fibers.
- b. Basis of Approval: The aggregates, fibers and binder (MC-250) shall meet the requirements as specified in subarticles M.04.01-1 through 4 and in Table M.04.02-1. The use of recycled material is not permitted with these classes of bituminous concrete. Mixtures not conforming to the binder content as shown in Table M.04.02-1 shall be subject to rejection. There is a two test minimum per day of production. Mixtures not conforming to the gradation as shown in Table M.04.02-1 shall be subject to payment adjustment as specified in Section 4.06.

TABLE M.04.02 – 1 MASTER RANGES FOR MARSHALL BITUMINOUS CONCRETE MIXTURES

Notes: (a) 75 blow (Marshall Criteria). (b) 3-6% when used for a roadway wearing surface. (c) For divided highways with 4 or more lanes, a stability of 1500 lbs is required. (d) Contains an accepted non-stripping compound. (e) To help prevent stripping, the mixed material will be stockpiled on a paved surface and at a height not greater than 4 feet during the first 48 hours. (f) As determined by AASHTO T 245(M). (g) The percent passing the #200 sieve shall not exceed the percentage of bituminous asphalt binder determined by AASHTO T 164(M) or AASHTO T 308(M). (h) Mixture with 5% or more aggregate retained on ¾" sieve. (i) Mixtures finer than condition (h) above. (j) Class 5 mixture shall contain no fibers. Class 5A mixture shall have 3/8 to ½ inch polypropylene fibers that have been previously accepted by the Engineer added at a minimum rate of 6 pounds per ton of mixture. Class 5B mixture shall have ¼ inch polyester fibers that have been previously accepted by the Engineer added at the minimum rate of 2 1/2 pounds per ton of mixture

CLASS	1	2	3	4	12	5 (e)(j)	5A (e)(j)	5B (e)(j)	JMF % Tol. (±)
Grade of PG Binder content %	PG 64-22 5.0 – 6.5	PG 64-22 5.0 – 8.0	PG 64-22 6.5 - 9.0	PG 64-22 4.0 - 6.0	PG 64-22 7.5 - 10.0	MC-250 (d) 6.0 - 7.5	MC-250 (d) 6.0 - 7.5	MC-250 (d) 6.0 - 7.5	0.4
Sieve Size	Percent Passing (%)								
# 200	3.0 – 8.0 (g)	3.0 – 8.0 (g)	3.0 – 8.0 (g)	0.0 – 5.0 (g)	3.0 – 10.0 (g)	0.0 - 2.5	0.0 - 2.5	0.0 - 2.5	2.0
# 50	6 – 26	8 – 26	10 - 30	5 - 18	10 - 40				4
# 30	10 - 32	16 - 36	20 - 40		20 - 60	2 - 15	2 – 15	2 - 15	5
# 8	28 - 50	40 - 64	40 - 70	20 - 40	60 - 95	10 - 45	10 – 45	10 - 45	6
# 4	40 - 65	55 - 80	65 - 87	30 - 55	80 - 95	40 - 100	40 – 100	40 - 100	7
¼"									
3/8 "	60 - 82	90 - 100	95 - 100	42 - 66	98 - 100	100	100	100	8
½ "	70 - 100	100	100		100				8
¾"	90 - 100			60 - 80					8
1"	100								
2"				100					
Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%									
Mixture Temperature									
Binder	325°F maximum					140-185° F			
Aggregate	280-350° F					100-175° F			
Mixtures	265-325° F				275-325° F	120-175° F			25° F
Mixture Properties									
VOIDS - %	3.0 – 6.0 (a)	2.0 – 5.0 (b)	0 – 4.0		0 - 5.0 (a)				
Stability (f) lbs. min.	1200 (c)	1000	1000		1000				
FLOW (f) in.	.08 - .15	.08 - .15	.08 - .18		.08 - .15				
VMA % - min.	15(h) :16 (i)								

3. Superpave Design Method – S0.25, S0.375, S0.5, and S1

- a. Requirements: The Contractor or its representative shall design and submit Superpave mix designs annually for approval. The design laboratory developing the mixes shall be approved by the Engineer. The mix design shall contain the nominal maximum aggregate size and include a JMF consisting of target values for gradation and bitumen content for each HMA mix type designated for the project, as specified in Tables M.04.02-2 thru Table M.04.02-5 and in accordance with the latest requirements of AASHTO M 323(M) and AASHTO R 35(M).

The contractor shall provide a certified test report with supporting documentation from an accredited AASHTO Materials Reference Laboratory (AMRL) with the use of NETTCP Certified Technicians for aggregate consensus properties for each type & level, as specified in Table M.04.02-3. In addition the G_{sa} , G_{sb} , P_{wa} shall also be provided for each component aggregate. New mixes shall be tested in accordance with AASHTO T 283(M) *Standard Method of Test for Resistance of Compacted Hot Mix Asphalt (HMA) to Moisture-Induced Damage*. The AASHTO T 283(M) test results and specimens shall be submitted by the Contractor for review. The tensile strength ratio must be greater than 80 percent, and the specimen shall not show more than minimal evidence of stripping as determined by the Engineer. The mix design shall conform to all criteria applicable to the selected traffic level equivalent single-axle loads (ESAL) as specified in this contract. Each HMA mix type must meet the requirements shown in Tables M.04.02-2 thru Table M.04.02-5.

In addition, minimum binder content values apply to all types of HMA mixtures, as stated in Table M.04.02-5. For mixtures containing RAP, the virgin production and the anticipated proportion of binder contributed by the RAP cannot be less than the total permitted binder content value for that type nor the JMF minimum binder content.

Superpave Mixture (virgin): For HMA mixtures that contain no recycled material, the limits prescribed in Tables M.04.02-2 thru Table M.04.02-5 apply. The Contractor shall submit a JMF, on a form provided by the Engineer, with the individual fractions of the aggregate expressed as percentages of the total weight of the mix and the source(s) of all materials to the Engineer for approval. The JMF shall indicate the corrected target binder content and applicable binder correction factor (ignition oven or extractor) for each mix type by total weight of mix. The mineral filler (dust) shall be defined as that portion of blended mix that passes the #200 sieve by weight when tested in accordance with AASHTO T 30(M). The dust-to-effective asphalt (D/Pbe) ratio shall be between 0.6 and 1.2 by weight. The dry/wet mix times and hot bin proportions (batch plants only) for each type shall be included in the JMF.

The percentage of aggregate passing each sieve shall be plotted on a 0.45 power gradation chart and shall be submitted for all HMA mixtures. This chart shall delineate the percentage of material passing each test sieve size as defined by the JMF. The percentage of aggregate passing each standard sieve shall fall within the specified control

points, but outside the restricted zone limits as shown in Tables M.04.02-2 thru Table M.04.02-5. Mixes with documented performance history which pass through the restricted zone may be permitted for use as long as all other physical and volumetric criteria meets specifications as specified in Tables M.04.02-2 thru Table M.04.02-5 and with prior approval from the Engineer. A change in the JMF requires that a new chart be submitted.

Superpave Mixtures with RAP: In addition to subarticles M.04.02 – 3 a through c, for HMA that contains RAP, the Contractor shall submit a materials certificate to the Engineer stating that the RAP complies with requirements stated in Article M.04.01. Upon approval of the Engineer, the use of RAP will be allowed with the following conditions:

- RAP amounts up to 15% may be used with no binder grade modification.
- RAP amounts up to 20% may be used provided a new JMF is approved by the Engineer. The JMF submittal shall include the grade of virgin binder added and test results that show the combined binder (recovered binder from the RAP and virgin binder at the mix design proportions) meets the requirements of the specified binder grade.

The RAP shall be crushed after milling or other removal method so that 100 % passes the 0.5 inch sieve. Also, under no circumstances shall the top-size aggregate in the RAP exceed the nominal maximum aggregate size allowed by the job mix formula for that mix. The Contractor shall assure that the RAP is free from contaminating substances such as joint seal compound. The aggregate type used, either gravel, trap rock or a blend of the two, shall be maintained and consistent throughout the entire roadway. The final Superpave mixture shall conform to specifications as amended herein. RAP material shall not be used with any other recycling option.

- b. Basis of Approval: On an annual basis the Contractor shall submit to the Engineer a request for approval of the HMA mixture, the mix design, and JMF in accordance with one of the methods described herein. Prior to the start of any paving operations, the JMF must be approved by the Engineer, and the Contractor must demonstrate the ability to meet the accepted JMF and production percentage of bitumen for each type of mixture. HMA mixture supplied to the project without an approved mix design, JMF and approved facility will be rejected. The JMF shall also indicate the target temperature of completed mixture as it is dumped from the mixer and tested in accordance with Article M.04.03. Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%.

HMA Plant Trials: Upon submittal and approval of the mix design by the Engineer, the Contractor shall test and evaluate plant-produced mixture (PPT) in accordance with these specifications when required.

The JMF shall be accepted if the HMA Plant mixture and materials meet all criteria as specified in Tables M.04.02-2 thru Table M.04.02-5. If the mixture does not meet the requirements, the contractor shall adjust the JMF within the ranges shown in Tables M.04.02-2 thru Table M.04.02-5 until an acceptable mixture is produced. All equipment, tests, and computations shall conform to the latest AASHTO R-35(M) and AASHTO M-323(M).

Any JMF, once approved, shall only be acceptable for use when it is produced by the designated HMA plant, it utilizes the same component aggregates and binder source, and it continues to meet all criteria as specified herein, and component aggregates are maintained within the tolerances shown in Table M.04.02-2.

The Contractor shall not change any component source of supply including consensus properties after a JMF has been accepted. Before a new source of materials is used, a revised JMF shall be submitted to the Engineer for approval. Any approved JMF applies only to the plant for which it was submitted. Only one mix with one JMF will be approved for production at any one time. Switching between approved JMF mixes with different component percentages or sources of supply is prohibited.

The following information must be included in the mix design submittal:

- a. Gradation, specific gravities and asphalt content of the RAP,
- b. Material Certificate stating that all RAP inventory conforms to all material specifications,
- c. Percentage of RAP to be used.

Superpave mixture with CRCG: In addition to subarticles M.04.02 – 3 a through c, for HMA mixtures that contain CRCG, the Contractor shall submit a materials certificate to the Engineer stating that the CRCG complies with requirements stated in Article M.04.01, as applicable. Additionally, 1% hydrated lime, or other accepted non-stripping agent, shall be added to all mixtures containing CRCG. CRCG material shall not be used with any other recycling option.

- c. Mix Status: Each Plant will have each type of HMA mixture evaluated based on previous years production compliance, for the next construction paving season, as determined by the Engineer. Based on the rating a type receives it will determine whether the mixture can be produced without the prior completion of a PPT. Ratings will be provided to each HMA producer annually at the beginning of the paving season.

- 1) Rating Procedure: Ratings for each type are as follows:

“A” – Approved:

Rating assigned to a mixture type from a producer with a current rating of 70% or better based on specification compliance based on binder content (Pb), air voids (Va), maximum theoretical gravity (G_{mm}), and Voids in Mineral Aggregate (VMA).

“PPT” – Pre-Production Trial:

Rating assigned to a type of mixture when there is no production history from the previous year, has a change in one or more aggregate components from the JMF on record, a change in RAP percentage, or is a new JMF not previously on record.

HMA mixtures rated with a “PPT” cannot be shipped or used on Department projects. A passing “PPT” test shall be performed with NETTCP certified personnel on that type of mixture by the HMA producer and meet all specifications (Table M.04.02-2 thru Table M.04.02-5) before production shipment may be resumed. At no time shall mixture rated “PPT” be shipped to Department projects.

Contractors that have mix types rated a “PPT” may use one of the following methods to change the rating to an “A.”

Option A: Schedule a day when a Department inspector can be at the HMA facility to witness a passing “PPT” test or,

Option B: When the Contractor or their representative performs a “PPT” test without being witnessed by an inspector, the Contractor shall submit the test results and a split sample including 2 gyratory molds, 5,000 grams of boxed HMA for binder and gradation determination, and 5,000 grams of cooled loose HMA for Gmm determination for verification testing and approval. Passing verifications will designate the HMA type to be on an “A” status. Failing verifications will require the contractor to submit additional trials.

Option C: When the Contractor or their representative performs a “PPT” test without being witnessed by a Department inspector, the Engineer may verify the mix in the Contractor’s laboratory. Passing verifications will designate the HMA type to be an “A” status. Failing verifications will require the Contractor to submit additional trials.

When Option (A) is used and the “PPT” test meets all specifications, the “PPT” test is considered a passing test and the rating for that mix is changed to “A”. When the “PPT” test is not witnessed, the “PPT” Option (B) procedure must be followed and the mixtures along with the test results delivered to the Materials Testing Lab. The test results must meet the “B” tolerances established by the Engineer.

“U” – No Acceptable Mix Design on File:

Rating assigned to a type of mixture that does not have a JMF submitted, or the JMF submitted has not been approved, or is incomplete. A mix design or JMF must be submitted annually seven (7) days prior in order to obtain an “A,” or “PPT” status for that mix. A “U” will be used only to designate the mix status until the mix design has been approved, and is accompanied with all supporting data as specified. HMA mixtures rated with a “U” cannot be used on Department projects.

TABLE M.04.02- 2: SUPERPAVE MASTER RANGE FOR MIXTURE DESIGN CRITERIA

Notes: (1) Minimum Pb as specified in Table M.04.02-5. (2) Voids in Mineral Aggregates shall be computed as specified herein. (3) Control point range is also defined as the master range for that mix. (4) Dust is considered to be the percent of materials passing the #200 sieve.

Sieve inches	S0.25				S0.375				S0.5				S1			
	CONTROL POINTS (3)		RESTRICTED ZONE		CONTROL POINTS(3)		RESTRICTED ZONE		CONTROL POINTS(3)		RESTRICTED ZONE		CONTROL POINTS(3)		RESTRICTED ZONE	
	Min (%)	Max (%)	Max (%)	Min (%)	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)
2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-
1.0	-	-	-	-	-	-	-	-	-	-	-	-	90	100	-	-
3/4	-	-	-	-	-	-	-	-	100	-	-	-	-	90	-	-
1/2	100	-	-	-	100	-	-	-	90	100	-	-	-	-	-	-
3/8	97	100	-	-	90	100	-	-	-	90	-	-	-	-	-	-
#4	-	90	-	-	-	90	-	-	-	-	-	-	-	-	39.5	39.5
#8	32	67	47.2	47.2	32	67	47.2	47.2	28	58	39.1	39.1	19	45	26.8	30.8
#16	-	-	31.6	37.6	-	-	31.6	37.6	-	-	25.6	31.6	-	-	18.1	24.1
#30	-	-	23.5	27.5	-	-	23.5	27.5	-	-	19.1	23.1	-	-	13.6	17.6
#50	-	-	18.7	18.7	-	-	18.7	18.7	-	-	15.5	15.5	-	-	11.4	11.4
#100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
#200	2.0	10.0	-	-	2.0	10.0	-	-	2.0	10.0	-	-	1.0	7.0	-	-
Pb (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VMA (2) (%)	16.0 ± 1				16.0 ± 1				15.0 ± 1				13.0 ± 1			
VA (%)	4.0 ± 1				4.0 ± 1				4.0 ± 1				4.0 ± 1			
Gse	JMF value				JMF value				JMF value				JMF value			
Gmm	JMF ± 0.030				JMF ± 0.030				JMF ± 0.030				JMF ± 0.030			
Dust/Pbe(4)	0.6 – 1.2				0.6 – 1.2				0.6 – 1.2				0.6 – 1.2			
Agg. Temp	280 – 350F				280 – 350F				280 – 350F				280 – 350F			
Mix Temp	265 – 325 F				265 – 325 F				265 – 325 F				265 – 325 F			

**TABLE M.04.02-3
SUPERPAVE MASTER RANGE FOR CONSENSUS PROPERTIES OF COMBINED AGGREGATE STRUCTURES**

Notes: (1) If less than 25 % of a given layer is within 4 inches of the anticipated top surface, the layer may be considered to be below 4 inches for mixture design purposes.					
Traffic Level	Design ESALs (80 kN)	Coarse Aggregate Angularity ⁽¹⁾ ASTM D 5821	Fine Aggregate Angularity ⁽⁷⁾ AASHTO T 304	Flat or Elongated Particles ASTM D 4791	Sand Equivalent AASHTO T 176
-----	(million)			> # 4	-----
1*	< 0.3	55/- -	40	10	40
2	0.3 to < 3.0	75/- -	40	10	40
3	≥ 3.0	95/90	45	10	45
	Design ESALs are the anticipated project traffic level expected on the design lane, projected over a 20 year period, regardless of the actual expected design life of the roadway.	Criteria presented as minimum values. 95/90 denotes that a minimum of 95% of the coarse aggregate, by mass, shall have one fractured face and that a minimum of 90% shall have two fractured faces.	Criteria presented as minimum percent air voids in loosely compacted fine aggregate passing the #8 sieve.	Criteria presented as maximum Percent by mass of flat or elongated particles of materials retained on the #4 sieve, determined at 3:1 ratio.	Criteria presented as minimum values for fine aggregate passing the #8 sieve.

* NOTE: Level 1 for use by Towns and Municipalities ONLY.

TABLE M.04.02- 4: SUPERPAVE MASTER RANGE FOR TRAFFIC LEVELS AND DESIGN VOLUMETRIC PROPERTIES.

Traffic Level	Design ESALs (million)	Number of Gyration by Superpave Gyrotory Compactor			Percent Density of Gmm from HMA specimen			Voids Filled with Asphalt (VFA) Based on Nominal mix size – inch			
		Nini	Ndes	Nmax	Nini	Ndes	Nmax	0.25	0.375	0.5	1
1*	< 0.3	6	50	75	≤ 91.5	96.0	≤ 98.0	70 - 80	70 - 80	70 - 80	67 - 80
2	0.3 to < 3.0	7	75	115	≤ 90.5	96.0	≤ 98.0	65 - 78	65 - 78	65 - 78	65 - 78
3	≥ 3.0	8	100	160	≤ 90.0	96.0	≤ 98.0	73 - 76	73 - 76	65 - 75	65 - 75

* NOTE: Level 1 for use by Towns and Municipalities ONLY.

**TABLE M.04.02– 5: SUPERPAVE MINIMUM BINDER CONTENT
BY MIX TYPE & LEVEL.**

Mix Type	Level	Binder Content Minimum ⁽¹⁾
S0.25	1*	5.6
S0.25	2	5.5
S0.25	3	5.4
S0.375	1*	5.6
S0.375	2	5.5
S0.375	3	5.4
S0.5	1*	5.0
S0.5	2	4.9
S0.5	3	4.8
S1	1*	4.6
S1	2	4.5
S1	3	4.4

* NOTE: Level 1 for use by Towns and Municipalities ONLY.

M.04.03—Production Quality Control (QC) Testing, Approval and Control of Mixture:

The Contractor shall submit a Quality Control plan for HMA production specifically for the plant producing the HMA mixture in accordance with subarticle 4.06.03-9 for review and approval of the Engineer. The plan must also include a list of sampling & testing methods and frequencies used during production, and the names of all Quality Control plant personnel and their duties. In addition;

- i. All plant personnel involved with sampling and testing for Quality Control purposes must have a current certification as an NETTCP HMA Plant Technician or Interim HMA Plant Technician and be in good standing. Technicians found by the Engineer to be non-compliant with NETTCP and Department policies may be suspended by the Engineer from participating in the production of mixtures for Department projects until their actions can be reviewed by NETTCP.
- ii. The Contractor shall maintain a list of laboratory equipment used in their quality control processes including but not limited to, balances, scales, manometer/vacuum gauge, thermometers, gyratory compactor, clearly showing calibration and/or inspection dates, in accordance with AASHTO R-18.

In addition, based on the mix design method the following also applies.

1. **Materials Sampling & Testing Methods for Marshall Mixes:** The Contractor shall furnish the Engineer a field laboratory accepted by the Engineer to test bituminous mixtures during production. Material samples will be obtained from the hauling vehicles by the Engineer at the plant during each day's production as indicated in the Department's "Schedule of

Minimum Requirements for Sampling Materials for Test.” The following test procedures will be used:

AASHTO T 30(M)	Mechanical Analysis of Extracted Aggregate
AASHTO T 40(M)	Sampling Bituminous Materials
AASHTO T 164(M)/ AASHTO T 308(M)	Quantitative Extraction/Ignition Oven of Bitumen from Bituminous Paving Mixtures
AASHTO T 245(M)	Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus
AASHTO T 209(M)	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
AASHTO T 269(M)	Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
AASHTO T 329	Moisture Content of Hot-Mix Asphalt (HMA) by Oven Method

- a. Cessation of Supply: Marshall Mix Production shall cease for the Project from any plant that consistently fails to produce mixture that meets the JMF and volumetric properties. The criteria for ceasing the supply of a class of mixture from any plant are as follows:
 - i. Off-Test Status: The results of AASHTO T 164(M) and T 30(M) will be used to determine if the mixture is within the tolerances shown in Table M.04.02-1. The Contractor will be notified that a plant is "off test" for a class of mixture when the test results indicate that any single value for bitumen content or gradation are not within the tolerances shown in Table M.04.02-1 for that class of mixture.
 - ii. When multiple plants and silos are located at one site, mixture supplied to one project is considered as coming from one source for the purpose of applying the “off test” adjusted payment.
 - iii. If a test indicates that the bitumen content or gradation are outside the tolerances, the Contractor may make a single JMF change on classes 1, 2, 3, 4 and 12 as allowed by the Engineer prior to any additional testing. A JMF change shall include the date and name of the Engineer that allowed it. Consecutive test results outside the requirements of Table M.04.02-1 JMF tolerances may result in rejection of the mixture.
 - iv. The Engineer may cease supply of mixture from the plant when the test results from three non-consecutive samples of a class of mixture are not within the JMF tolerances or the test results from two non-consecutive samples not within the master range indicated in Table M.04.02-1 during any one production period, due to inconsistent production.
 - v. Any modification to the JMF shall not exceed 50% of the JMF tolerances indicated in Table M.04.02-1 for any given component of the mixture without approval of the Engineer. When such an adjustment is made to the bitumen, the corresponding production percentage of bitumen shall be revised accordingly.

- b. Adjustments for Off test Mixture under Cessation of Supply: The HMA plant shall cease supplying to the project:
 - i. When the test results from three consecutive samples are “off test” and not within the JMF tolerances or,
 - ii. The test results from two consecutive samples are “off test” and not within the ranges indicated in Table M.04.02 – 1 or,
 - iii. When the percent of material passing the minus #200 sieve material exceeds the percent of extracted bitumen content for three consecutive samples during any production period of the values stated in Table M.04.02-1:
 - a. The quantity of mixtures shipped to the project determined to be “off test” and outside the tolerances will be tabulated by the Engineer and will be adjusted in accordance with Section 4.06.
 - b. Following cessation, a trial production period will be required at the plant for that class of mixture. Use of that class of mixture from that plant will be prohibited on the Project until the plant has demonstrated the ability to consistently produce acceptable mixture.
 - c. When the Engineer has accepted the mixtures from the trial production period, the use of that mixture on the Project may resume.

2. Material Sampling & Testing Methods for Superpave Mixes:

- a. Samples of mixtures will be obtained from the hauling vehicles at the plant during each day's production, as indicated in Table M.04.03– 1. The Contractor shall perform necessary moisture susceptibility testing annually or when material component sources change, and for all levels of HMA S0.5 plant produced mixtures, as specified in the latest version of AASHTO T 283(M). The AASHTO T 283(M) test results and specimens shall be submitted by the Contractor for approval. The tensile strength ratio must be greater than 80 percent, and the specimen shall not show more than minimal evidence of stripping as determined by the Engineer. This shall be completed within 30 days of beginning of production. Superpave mixtures that require anti-strip additives (either liquid or mineral) shall continue to meet all requirements specified herein for binder and HMA. The Contractor shall submit the name, manufacturer, percent used, and MSDS sheet for the anti-strip additive (if applicable) to the Engineer. In addition;
 - i. The Contractor shall maintain all testing equipment within a field laboratory in good working order.
 - ii. The Contractor shall not modify or use the equipment within the field laboratory without the consent of the Engineer. Any such action by the Contractor may be cause for the Engineer to re-inspect equipment, check calibrations, which could delay production at that facility until such checks are completed.
 - iii. The Contractor shall take immediate action to replace, repair, and/or recalibrate any piece of equipment that is deemed by the Engineer to be out of calibration, malfunctioning, or not in operation. If an acceptance test was performed using such

- equipment, split test samples may be retrieved for verification at the discretion of the Engineer.
- iv. Production without the use of required testing equipment will be permitted for only 1 hour. Additional production beyond the first hour may be considered by the Engineer. If permitted to continue production, box samples will be taken, tested, and incorporated as stated in Article M.04.03 and subarticle 4.06.04-1b. No production shall be permitted beyond that day until the subject equipment is repaired or replaced to the satisfaction of the Engineer.
 - v. Compaction of samples shall be accomplished utilizing an accepted Superpave Gyratory Compactor (SGC), supplied by the Contractor. The SGC shall be located at the HMA plant supplying mixture to the project.
 - vi. The Engineer is responsible for determining the acceptance of HMA and will perform verification testing on QC production samples in accordance with the Department's QA Program for Materials..
- b. Additional QC plan Requirements for Plants producing Superpave Mix Design mixture:
- i. The Contractor shall perform all listed component aggregates and Superpave mixture Quality Control testing in accordance with the test procedures and schedule listed in Table M.04.03-1, as a minimum, any day that Superpave mixtures are produced.
 - ii. The Contractor shall propose a QC test frequency for AASHTO T 27(M) on the cold feed material and AASHTO T 308 for RAP binder content.
 - iii. All process control (PC) test data shall be kept on file for the duration of the project for review by the Engineer.
- c. Determination of Off-Test status:
- i. Off Test Status: Superpave mixes shall be considered "*off test*" when any Control Point Sieve, VA, VMA, and Gmm values are outside of the limits specified in Table M.04.03-3 and the computed binder content (Pb) established by AASHTO T308(M) or as documented on the vehicle delivery ticket is below the minimum binder content stated in subarticle M.04.03-5. Note that further testing of samples or portions of samples not initially tested for this purpose cannot be used to change the status.
 - ii. Any time the HMA mixture is considered Off-test:
 1. The Contractor shall notify the Engineer (and project staff) when the plant is "*off test*" for a type of mixture. When multiple plants and silos are located at one site, mixture supplied to one project is considered as coming from one source for the purpose of applying the "*off test*" determination.
 2. The Contractor must take immediate actions to correct the deficiency, minimize "*off test*" production to the project, and obtain an additional Process Control (PC) test after any corrective action to verify production is in conformance to the

specifications. A PC test will not be used for acceptance and is solely for the use of the Contractor in its quality control process.

d. Test Section:

The test section, as specified in Section 4.06, shall be considered acceptable if payment for HMA mixture tested at the plant is no less than 100% and the field density meets the specified requirements.

**Table M.04.03– 1: Contractor Quality Control Testing Procedures
& Minimum Frequency of Test**

Protocol	Reference	Description	Frequency (min)
1	AASHTO T 27	Sieve Analysis of Fine and Coarse Aggregate	Determined by Contractor
2	AASHTO T 329	Moisture content of RAP (before start and halfway thru production - when used)	2/day
3	AASHTO T 255(M)	Moisture content of each cold feed aggregate (before start and halfway thru production - drum plants only)	2/day
4	AASHTO T 308(M)	Binder content of RAP by Ignition Oven method (before start of production when used)	Determined by Contractor
5	AASHTO T 168(M)	Sampling of HMA	See Note (3)
6	AASHTO T 308(M)	Binder content by Ignition Oven method (adjusted for aggregate correction factor)	See Note (3) & Note (4)
7	AASHTO T 30(M)	Gradation of extracted aggregate for HMA mixture	See Note (3)
8	AASHTO T 312(M)	⁽¹⁾ Superpave Gyrotory molds compacted to N_{des}	See Note (3)
9	AASHTO T 166(M)	⁽²⁾ Bulk specific gravity of HMA	See Note (3)
10	AASHTO R 35(M)	⁽²⁾ Air voids, VMA	See Note (3)
11	AASHTO T 209(M)	Maximum specific gravity of HMA (average of two tests)	See Note (3)
12	AASHTO T 329	Moisture content of Production HMA	See Note (3)
<p>Notes: (1) One set equals two six-inch molds. Molds to be compacted to N_{max} for PPTs and N_{des} for production testing (2) Average value of one set of six-inch molds. (3) Test frequency shall be based on HMA quantity produced per day. Table M.04.03-2 denotes the number of tests required for daily QC by the Contractor. (4) The aggregate correction factor will be determined by the Engineer.</p>			

**Table M.04.03 – 2: Contractor Acceptance Testing Required
Based on Daily Production per Type/Level/Plant⁽¹⁾**

Daily quantity produced in tons	Minimum number of tests required ⁽²⁾
0 to 150	No testing required (if mix already accepted) ⁽³⁾
151 to 600	1 test
601 to 1,200	2 tests
1,201 to 1,800	3 tests
1,801 and greater ⁽⁴⁾	4 tests

Notes:

(1) For the purpose of the Contractor complying with the number of tests stated in Table M.04.03-2, tons of the same type/level per plant shall be combined from multiple state projects. A minimum of one (1) acceptance test shall be performed for every four days of production for every same type/level mix (days of production may or may not be consecutive days). An acceptance test shall not be performed within 150 tons of production from a previous acceptance test unless approved by the Engineer.

(2) All testing shall be selected using stratified – random sampling of total estimated daily tons in accordance with ASTM D 3665, except that the first test shall be randomly taken from the first round of trucks, the first 151 tons subplot, or as otherwise ordered by the Engineer. QC samples shall be saved and stored at the HMA facility for 7 days for Engineer retrieval, after which they may be disposed of.

(3) When directed by the Engineer, a minimum of 1 test is required for bridge and critical areas.

(4) An additional random test shall be taken by the Contractor for each additional 600 tons.

- e. Cessation of Supply for Superpave mixtures with no payment adjustment: Production of HMA shall cease for the Project from any plant that consistently fails to produce mixture that meets the JMF and volumetric properties. The quantity of Superpave mixtures shipped to the project that is “off-test” will not be adjusted for deficient mixtures.

An HMA production plant will be required to cease supplying mixtures to the project when:

1. HMA mixture is “off test” on three (3) consecutive tests for VMA or Gmm, regardless of date of production due to inconsistency (i.e., small production requires 1 test per day for multiple days).
2. HMA mixture is “off test” on two (2) consecutive tests for the Control Point sieves in one day’s production.
3. Following cessation, the Contractor shall immediately make necessary material or HMA plant corrections and run a Pre-Production Trial (PPT) for that type of mixture. Use of that type of mixture from that plant will be prohibited to the Project until the plant has demonstrated the ability to consistently produce acceptable mixture. When the Contractor has a passing test and has received approval from the Engineer, the use of that mixture to the Project shall resume.

f. Cessation of Supply for Superpave mixtures with payment adjustment:

Production of HMA shall cease for the Project from any plant that consistently fails to produce mixture that meets the Superpave minimum binder content by mix type and level listed in Table M.04.02-5. The quantity of Superpave mixtures shipped to the project that is “off-test” will be adjusted for deficient mixtures in accordance with Section 4.06.

An HMA production plant will be required to cease supplying mixtures to the project when:

1. The binder content (Pb) is below the requirements of Table M.04.03-5 on the ignition oven test result after two (2) consecutive tests, regardless of date of production.
2. Following cessation, the Contractor shall immediately make necessary material or HMA plant corrections and run a Pre-Production Trial (PPT) for that type of mixture. Use of that type of mixture from that plant will be prohibited to the Project until the plant has demonstrated the ability to consistently produce acceptable mixture. When the Contractor has a passing test and has received approval from the Engineer, the use of that mixture to the Project shall resume.

3. **JMF Changes for Superpave mixtures production:** It is understood that a JMF change is effective from the time it was submitted forward and is not retroactive to the previous test or tests. JMF changes are permitted to allow for trends in aggregate and mix properties but every effort shall be employed by the Contractor to minimize this to ensure a uniform and dense pavement.

- a. JMF changes to the G_{mm} or mix Absorption Correction Factor (A_{cf}) are only permitted prior to or after a production shift for all HMA types of mixtures and only when they:
 - i. Are requested in writing and pre-approved by the Engineer;
 - ii. Are based on a minimum of a two test trend;
 - iii. Are documented with a promptly submitted revised JMF on form provided by the Engineer.
 - iv. A revised JMF submittal shall include the date and name of the Engineer that allowed it.

TABLE M.04.03– 3: SUPERPAVE MASTER RANGE FOR HMA MIXTURE PRODUCTION

Notes: (1) 300°F minimum after October 15. (2) Minimum Pb as specified in Table M.04.03-5 (3) Control point range is also defined as the master range for that mix. (4) JMF tolerances shall be defined as the limits for production compliance. VA & Pb payment is subject to adjustments, as defined in sub-article 4.06.04 - 2.

Sieve	S0.25		S0.375		S0.5		S1		Tolerances
	CONTROL POINTS (4)		CONTROL POINTS (4)		CONTROL POINTS (4)		CONTROL POINTS (4)		JMF Limits (4)
inches	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)	±Tol
2.0	-	-	-	-	-	-	-	-	
1.5	-	-	-	-	-	-	100	-	
1.0	-	-	-	-	-	-	90	100	
3/4	-	-	-	-	100	-	-	90	
1/2	100	-	100	-	90	100	-	-	
3/8	97	100	90	100	-	90	-	-	
#4	-	90	-	90	-	-	-	-	
#8	32	67	32	67	28	58	19	45	
#16	-	-	-	-	-	-	-	-	
#200	2.0	10.0	2.0	10.0	2.0	10.0	1.0	7.0	
Pb ⁽²⁾	-	-	-	-	-	-	-	-	note (2)
VMA (%)	16.0		16.0		15.0		13.0		1.0
VA (%)	4.0		4.0		4.0		4.0		1.0
Gmm	JMF value		JMF value		JMF value		JMF value		0.030
Agg. Temp	280 – 350F		280 – 350F		280 – 350F		280 – 350F		
Mix Temp	265 – 325 F ⁽¹⁾		265 – 325 F ⁽¹⁾		265 – 325 F ⁽¹⁾		265 – 325 F ⁽¹⁾		

TABLE M.04.03– 4: SUPERPAVE MASTER RANGE FOR TRAFFIC LEVELS AND DESIGN VOLUMETRIC PROPERTIES.

Traffic Level	Design ESALs	Number of Gyration by Superpave Gyrotory Compactor	
	(million)	Nini	Ndes
1*	< 0.3	6	50
2	0.3 to < 3.0	7	75
3	≥3.0	8	100

* NOTE: Level 1 for use by Towns and Municipalities ONLY.

TABLE M.04.03– 5: SUPERPAVE MINIMUM BINDER CONTENT BY MIX TYPE & LEVEL.

Mix Type	Level	Binder Content Minimum ⁽¹⁾
S0.25	1*	5.6
S0.25	2	5.5
S0.25	3	5.4
S0.375	1*	5.6
S0.375	2	5.5
S0.375	3	5.4
S0.5	1*	5.0
S0.5	2	4.9
S0.5	3	4.8
S1	1*	4.6
S1	2	4.5
S1	3	4.4

* NOTE: Level 1 for use by Towns and Municipalities ONLY.

**Table M.04.03-6:
Modifications to Standard AASHTO and ASTM Test Specifications and Procedures.**

AASHTO Standard Specification							
Reference	Modification						
AASHTO M 320	<p>1. Mass change for PG 64-22 shall be a maximum loss of 0.5% when tested in accordance with AASHTO T 240.</p> <p>2. The two bottles used for the mass change determination may be re-heated and used for further testing.</p>						
AASHTO Standard Methods of Test							
Reference	Modification						
AASHTO T 27	Section 7.7 Samples are not washed						
AASHTO T 30	Section 6.2 thru 6.5 Samples are not routinely washed						
AASHTO M-156 /ASTM D 995	<p>Section 8.7.3 <i>Accuracy: Batch Plants</i> The automation proportioning system shall be capable of consistently delivering mixtures within the full range of batch sizes within the following tolerances:</p> <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;"><i>Total Batch Weight Of</i></td> <td></td> </tr> <tr> <td style="text-align: center;"><i>Paving Mix. %</i></td> <td></td> </tr> <tr> <td style="text-align: center;"><i>Batch aggregate component</i></td> <td style="text-align: center;">$\pm 1.0\%$</td> </tr> </table> <p>Note: AASHTO T 40 is modified as follows: Section 9.1.1 Sampling valve is located on bottom third of storage tank.</p>	<i>Total Batch Weight Of</i>		<i>Paving Mix. %</i>		<i>Batch aggregate component</i>	$\pm 1.0\%$
<i>Total Batch Weight Of</i>							
<i>Paving Mix. %</i>							
<i>Batch aggregate component</i>	$\pm 1.0\%$						
AASHTO T 164	<p>Method A APPARATUS: Section 6. ConnDOT in addition to AASHTO apparatus includes infrared lamp and substitutes graduated cylinder with a 1000 ml flask.</p> <p>Section 7. Reagent. Must be Conn D.O.T. approved *****</p> <p>Article 9.2.1 all classes of HMA except Class 4 are scooped from the sample container.</p> <p>Section 10.1 and 10.2 Moisture content is periodically determined on production samples as plant conditions require.</p> <p>Section 12.1 See Section 10</p> <p>Section 12.5 Filter paper is dried and weighed in field using heat lamp or oven when an ash test is performed.</p> <p>Article 12.6.1 Extract is collected if an ash test is to be performed</p> <p>Article 12.6.2 Performed on selected samples only</p>						

	Article 12.6.3 A three test running average is used to correct for total binder in HMA.
AASHTO T 168	<p>Samples are taken at one point in the pile. All types of bituminous concrete except Class 4 are scooped from the sample container instead of remixing and quartering. (Method verified by laboratory study).</p> <p>Samples from a hauling vehicle are taken from only one point instead of three as specified.</p> <p>Selection of Samples: Sampling is equally important as the testing, and the sampler shall use every precaution to obtain samples that are truly representative of the bituminous mixture.</p> <p>Box Samples: In order to enhance the rate of processing samples taken in the field by construction or maintenance personnel the samples will be tested in the order received and data processed to be determine conformance to material specifications and to prioritize inspections by laboratory personnel.</p>
AASHTO T 170	<p>Recovery of Asphalt from Solution by Abson Method</p> <p>Delete the referenced section and replace with the language shown:</p> <p>5.0 Apparatus</p> <p>5.1 Centrifuge- batch unit capable of exerting a minimum centrifugal force of 770 times gravity or a continuous unit capable of exerting a minimum force of 3000 times gravity.</p> <p>5.2. Centrifuge tubes- a 250mL wide mouth bottles</p> <p>5.3.1. Extraction Flasks- a 500mL three angle necks and joints flask with 24/40 side necks.</p> <p>5.3.2. Glass Tubing- Heat resistant glass tubing, having 10mm inside diameter and a gooseneck shaped delivery tube, for connecting the flask to the condenser.</p> <p>5.3.3. Inlet Aeration Tube- 180mm in length having a 6mm outside diameter with a 10-mm bulb carrying six staggered holes approximately 1.5 mm in diameter.</p> <p>5.3.4. Electric Heating Mantle- Variable transformer to fit a 500 mL flask.</p> <p>5.3.5 Water-jacketed Condenser- Allihn type, with 200 mm minimum jacket length.</p> <p>5.3.6. Thermometer- an ASTM low distillation thermometer having a range of -2 to 300°C (30 to 580°F), respectively, and conforming to the requirements in ASTM specification E 1</p> <p>5.3.7. Gas Flow Meter- A type capable of indicating a gas flow of up to 1000 mL per minute.</p> <p>5.3.8. Corks- No. 20</p> <p>5.3.9. Flexible Elastomeric Tubing</p> <p>5.3.10. Separatory Funnel-500 ml capacity or larger</p> <p>6.0. Reagents and Materials</p> <p>6.1. Carbon Dioxide Gas- A pressurized tank, with pressure-reducing valve. The solvent for extracting the asphalt from the mixtures should be reagent grade</p>

	<p>trichloroethylene or methylene chloride. Other solvents may affect the bitumen to change its properties significantly from that as it exists in the mixture.</p> <p>8. Sample</p> <p>8.1. The sample shall consist of the solution from previous extraction of a sample of sufficient mass to result in approximately 105 to 110 g of recovered bitumen.</p> <p>9. Procedure</p> <p>9.1. The entire procedure, from the start of the extraction to the final recovery, must be completed within 8 hours.</p> <p>9.2 Centrifuge the solution from the previous extraction for a minimum of 30 minutes at 770 times gravity (approx. 2700rpm) in 250 mL wide mouth bottles. Assemble the apparatus as shown in Figure 1 with the separatory funnel in the thermometer hole in the cork. Lower the aeration tube so that the bulb is in contact with the bottom of the flask. Fill the separatory funnel with the centrifuged solution and open the stopcock to fill the flask approximately one-half full of solvent mixture. Apply low heat to the flask and start distillation. Introduce carbon dioxide gas at a low rate (approx. 100mL/minute) to provide agitation and prevent foaming. Adjust the funnel stopcock to introduce fresh solvent at a rate that will keep the flask approximately one half full during distillation, adding additional solvent mixture to the funnel into all solvent has been introduced into the distillation flask. When the temperature reaches 157 to 160°C (315 to 320°F), increase the carbon dioxide gas flow to approximately 900mL/minute. Maintain this gas flow rate for 20 minutes while also maintaining the temperature of the residue in the flask at 160 to 166°C (320 to 330°F).</p>
<p>AASHTO T 195</p>	<p>Section 4.3 only one truck load of mixture is sampled. Samples are taken from opposite sides of the load.</p>
<p>AASHTO T 209</p>	<p>Article 9.5.1 Bowl is suspended 2 minutes prior to reading rather than 10 minutes. This makes no significant difference in results.</p> <p>Section 7.2 The average of two bowls is used proportionally in order to satisfy minimum mass requirements.</p> <p>8.3 Omit Pycnometer method.</p>
<p>AASHTO T 245</p>	<p>Article 3.3.2 A compacting temperature of 140 to 146°C (284 to 295°F) is used</p> <p>Article 3.5.2 Seventy-five (75) blows per side are used on Classes 1 and 12, per ConnDOT design requirements</p> <p>Section 3.1 for production testing: one specimen is molded for each extraction test for production over 275 metric tons/day (300 tons/day). Other mixtures: two specimens per extraction test.</p>

<p>AASHTO T 283</p>	<p>This protocol shall be performed at the HMA plant in accordance with section 7 on HMA S0.5 (all design levels) by the Contractor or their representative at a time designated by the Division Chief. TSR testing is required on all classes and design levels during the design phase and on all HMA S0.5 design levels during the production phase.</p>
<p>AASHTO T 308</p>	<p>In addition to the standard testing procedure, the Department has adopted a procedure that addresses a correction factor that is calculated using the composite aggregate percentages (Composite Aggregate Correction Factor Method (CACF)).</p> <p>The aggregate is burned in compliance with the standard AASHTO procedure Method A exclusively. All modifications are listed for this method only.</p> <p>A2.2 Omit A2.3 Omit A2.4 Omit. Replace with: Determine an aggregate gradation for each aggregate component “blank” in accordance with T30. A2.5 Omit. Replace with: The individual aggregate samples are to be dried in an oven at a maximum temperature of $148 \pm 5^{\circ}\text{C}$ ($300 \pm 9^{\circ}\text{F}$) to a constant weight. RAP samples are to be oven dried at a maximum temperature of $110 \pm 5^{\circ}\text{C}$ ($230 \pm 9^{\circ}\text{F}$) to a constant weight. RAP samples will be burned for total binder content only and not to arrive at a correction factor for a mixture. A2.6 Omit. A2.7 Omit A2.8 Omit A2.8.1 Omit Note 2 A2.9 Omit. Replace with: Perform a gradation analysis on the residual aggregate in accordance with T30 and compare it to the gradation performed prior to burning. A2.9.1 Omit A2.9.2 Omit</p> <p>The correction factors for each size aggregate are provided by the Contractor to the Engineer prior to the Annual Plant Inspection. The Composite Aggregate Correction Factor (CACF) for any mixture may be calculated by summing the result of the correction factor for each individual aggregate multiplied by the percentage of that aggregate in the overall mixture. (Note: All correction factors must be re-calculated every time the percentage of any aggregate changes within the mixture.)</p> <p>In addition to the standard testing procedure, the Department has adopted a procedure that addresses the time involved between sampling the hot mix asphalt specimen and the beginning of the test. 6.3 Omit. Replace with: The test specimen must be ready to be placed in an approved ignition furnace for testing within ten minutes of being obtained from the hauling vehicle and the test shall start immediately after.</p>

AASHTO T 331	6.1 Cores are dried to a constant mass prior to testing using a core-dry machine.
AASHTO Standard Recommended Practices	
Reference	Modification
AASHTO R 35	<p><u>Volumetric Calculations of VMA and Correction Factor</u> VMA_a - Voids in Mineral Aggregate from (V_a + V_be) the mix:</p> <p>A. VMA calculated from the mix shall be determined in accordance with <i>Formula 5.16.1A</i>. It can be correlated that the VMA calculated from AASHTO R-35 is equivalent to VMA_a when the $Pb_a \times (100 - Pb_t) / 100$ is known and substituted for A_{cf}, as shown in <i>Formula 5.16.1A (ii)</i>. Test results from VMA_a shall therefore be required to meet all contract specifications. Values of VMA_a that are out of specifications during production may be cause for the contractor to determine assignable reason, take corrective action, and modify the Job Mix Formula (JMF), as needed. Continued VMA_a data that is out of specifications may be cause for the Engineer to order cessation of supply.</p> <p><i>Formula 5.16.1A</i>. Determining the VMA of HMA by the mix or air voids & effective binder method:</p> $VMA_a = V_a + \left[\frac{(Gmb_d \times (Pb_t - A_{cf}))}{G_b} \right]$ <p>Where: VMA_a = VMA calculated from plant production mix(V_a + V_be) Gmb_d = Bulk specific gravity as determined by AASHTO T 166(M) Pb_t = Total Binder Content (corrected) by AASHTO T 308(M) A_{cf} = Absorption correction factor provided by Contractor (refer to B. i and ii)</p> <p>B. Determining the HMA mix binder correction factor for each class by use of percent absorption of water by AASHTO T 84/85, AASHTO M 323 and D_f method. This value shall be performed by the Contractor during the mix design only and submitted as a JMF value. Two methods for determining the A_{cf} are shown, although method (i) will be the desired method to be used. Both methods are equivalent when the G_{sa}, G_{sb} and P_{wa} are recent and valid for the mix.</p> <p>i. $A_{cf} = Df \times Pwa \times (100 - Pb_t) / 100$ ii. $A_{cf} = (Pb_a \text{ from annual JMF submittal}) \times (100 - Pb_t) / 100$</p> <p>Where: D_f = as determined by Formula 5.16.1B. P_{wa} = as determined by AASHTO T 84/85 Pb_a = as determined by AASHTO M 323 (from annual JMF submittal) D_f (Density Factor): The Contractor shall calculate the HMA mix design D_f</p>

	<p>(derived from formula XI.2 APPENDIX XI of AASHTO R 35) for each class of material, in accordance with Formula 5.16.1B.</p> <p>Formula 5.16.1B. Determining the Density Factor (D_f) of mix design HMA:</p> $D_f = \left(\frac{G_{se} - G_{sb}}{G_{sa} - G_{sb}} \right)$ <p>Where: D_f = Density Factor or multiplier determined by AASHTO R-35(M) G_{se} = Effective Specific Gravity determined by AASHTO M-323 at plant G_{sa} = Apparent Specific Gravity determined by AASHTO T 84/85 of mix design G_{sb} = Bulk Specific Gravity determined by AASHTO T 84/85 of mix design</p>
<p>AASHTO R 26</p>	<p>Quality Control Plans must be formatted in accordance with AASHTO R 26, certifying suppliers of performance-graded asphalt binders, Section 9.0, Suppliers Quality Control Plan, and “NEAUPG Model PGAB QC Plan.”</p> <ol style="list-style-type: none"> 1. The Department requires that all laboratory technician(s) responsible for testing PG-binders be certified or Interim Qualified by the New England Transportation Technician Certification Program (NETTCP) as a PG Asphalt Binder Lab Technician. 2. Sampling of asphalt binders should be done under the supervision of qualified technician. NECTP “Manual of Practice,” Chapter 2 Page 2-4 (Key Issues 1-8). 3. A copy of the Manual of Practice for testing asphalt binders in accordance with the Superpave PG Grading system shall be in the testing laboratory. 4. All laboratories testing binders for the Department are required to be accredited by the AASHTO Materials Reference Laboratory (AMRL). 5. Sources interested in being approved to supply PG-binders to the Department by use of an “in-line blending system,” must record properties of blended material, and additives used. 6. Each source of supply of PG-binder must indicate that the binders contain no additives used to modify or enhance their performance properties. Binders that are manufactured using additives, modifiers, extenders etc., shall disclose the type of additive, percentage and any handling specifications/limitations required. <p>Suppliers shall provide AASHTO M-320 Table 2 testing at a minimum of once per month on one sample of material. Each supplier shall rotate the PG grade each month (including PMA), so that data can be collected for all the grades produced.</p>

ON-THE-JOB TRAINING (OJT) WORKFORCE DEVELOPMENT PILOT:

Description

To provide construction industry related job opportunities to minorities, women and economically disadvantaged individuals; and to increase the likelihood of a diverse and inclusive workforce on Connecticut Department of Transportation (ConnDOT) projects.

All contractors (existing and newcomers) will be automatically placed in the Workforce Development Pilot. Standard OJT requirements typically associated with individual projects will no longer be applied at the project level for new projects. Instead, these requirements will be applicable on an annual basis for each contractor performing work on ConnDOT projects.

The OJT Workforce Development Pilot will allow a contractor to train employees on Federal, State and privately funded projects located in Connecticut. However, contractors should give priority to training employees on ConnDOT Federal-Aid funded projects.

Funding

The Department will establish an OJT fund annually from which contractors may bill the Department directly for eligible trainee hours. The funds for payment of trainee hours on federal-aid projects will be allocated from the ½ of 1% provided for OJT funding, and will be based on hours trained, not to exceed a maximum of \$25,000.00 per year; per contractor.

Minorities and Women

Developing, training and upgrading of minorities, women and economically disadvantaged individuals toward journeyman level status is the primary objective of this special training provision. Accordingly, the Contractor shall make every effort to enroll minority, women and economically disadvantaged individuals as trainees to the extent that such persons are available within a reasonable area of recruitment. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training whether a member of a minority group or not.

Assigning Training Goals

The Department, through the OJT Program Coordinator, will assign training goals for a calendar year based on the contractor's past two year's activities and the contractor's anticipated upcoming year's activity with the Department. At the beginning of each year, all contractors eligible will be contacted by the Department to determine the number of trainees that will be assigned for the upcoming calendar year. At that time, the Contractor shall enter into an agreement with the Department to provide a self-imposed on-the-job training program for the calendar year. This agreement will include a specific number of annual training goals agreed to by both parties. The number of training assignments may range from one (1) to six (6) per

contractor per calendar year. Each January, a summary of the trainees required and the OJT Workforce Development Pilot package will be sent to participating contractors. The number of trainees assigned to each contractor in the summary will increase proportionately not to exceed 6, as shown in the following table. This package will also be provided to contractors as they become newly eligible for the OJT Workforce Development Pilot throughout the remainder of the year. Projects awarded after September 30 will be included in the following year's Program.

The dollar thresholds for training assignments are as follows:

\$4.5 – 8 million=	1 trainee
\$ 9 – 15 million=	2 trainees
\$16 – 23 million=	3 trainees
\$24 – 30 million=	4 trainees
\$31 – 40 million=	5 trainees
\$41 – and above=	6 trainees

Training Classifications

Preference shall be given to providing training in the following skilled work classifications. However, the classifications established are not all-inclusive:

Equipment Operators	Electricians
Laborers	Painters
Carpenters	Iron / Reinforcing Steel Workers
Concrete Finishers	Mechanics
Pipe Layers	Welders

The Department has on file common training classifications and their respective training requirements; that may be used by the contractors. Contractors shall submit new classifications for specific job functions that their employees are performing. The Department will review and recommend for acceptance the new classifications proposed by contractors, if applicable. New classifications shall meet the following requirements:

Proposed training classifications are reasonable and realistic based on the job skill classification needs, and the number of training hours specified in the training classification is consistent with common practices and provides enough time for the trainee to obtain journeyman level status.

Where feasible, 25% percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment.

No employee shall be employed as a trainee in any classification in which they have successfully completed a training course leading to journeyman level status or in which they have been employed as a journeyman.

Records and Reports

The Contractor shall maintain enrollment in the program and submit all required reports documenting company compliance under these contract requirements. These documents and any other information shall be submitted to the OJT Program Coordinator as requested.

Upon the trainee's completion and graduation from the program, the Contractor shall provide each trainee with a certification Certificate showing the type and length of training satisfactorily completed.

Trainee Interviews

In order to determine the continued effectiveness of the OJT Program in Connecticut, the department will periodically conduct personal interviews with current trainees and may survey recent graduates of the program. This enables the OJT Program Coordinator to modify and improve the program as necessary. Trainee interviews are generally conducted at the job site to ensure that the trainees' work and training is consistent with the approved training program.

Trainee Wages

Contractors shall compensate trainees on a graduating pay scale based upon a percentage of the prevailing minimum journeyman wages (Davis-Bacon Act). Minimum pay shall be as follows:

60 percent	of the journeyman wage for the first half of the training period
75 percent	of the journeyman wage for the third quarter of the training period
90 percent	of the journeyman wage for the last quarter of the training period

In no case, will the trainee be paid less than the prevailing rate for general laborer as shown in the contract wage decision (must be approved by the Department of Labor).

Achieving or Failing to Meet Training Goals

The Contractor will be credited for each trainee currently enrolled or who becomes enrolled in the approved training program and providing they receive the required training under the specific training program. Trainees will be allowed to be transferred between projects if required by the Contractor's schedule and workload. The OJT Program Coordinator must be notified of transfers within five (5) days of the transfer or reassignments by e-mail (Phylisha.Coles@ct.gov).

Where a contractor does not or cannot achieve its annual training goal with female or minority trainees, they must produce adequate Good Faith Efforts documentation. Good Faith Efforts are those designed to achieve equal opportunity through positive, aggressive, and continuous result-oriented measures. 23 CFR § 230.409(g) (4). Contractors should request minorities and females from unions when minorities and females are under-represented in the contractor's workforce.

Whenever a contractor requests ConnDOT approval of someone other than a minority or female, the contractor must submit documented evidence of its Good Faith Efforts to fill that position with a minority or female. When a non-minority male is accepted, a contractor must continue to attempt to meet its remaining annual training goals with females and minorities.

Where a contractor has neither attained its goal nor submitted adequate Good Faith Efforts documentation, ConnDOT will issue a letter of non-compliance. Within thirty (30) days of receiving the letter of non-compliance, the contractor must submit a written Corrective Action Plan (CAP) outlining the steps that it will take to remedy the non-compliance. The CAP must be approved by ConnDOT. Failure to comply with the CAP may result in your firm being found non-responsive for future projects.

Measurement and Payment

Optional reimbursement will be made to the contractor for providing the required training under this special provision on ConnDOT Federal-Aid funded projects only.

Contractor will be reimbursed at \$0.80 for each hour of training given to an employee in accordance with an approved training or apprenticeship program. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement.

Reimbursement for training is made annually or upon the trainees completion and not on a monthly basis. No payment shall be made to the Contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the Contractor.

Program reimbursements will be made directly to the prime contractor on an annual basis. To request reimbursement, prime contractors must complete the Voucher for OJT Workforce Development Pilot Hourly Reimbursement for each trainee in the OJT Program. This form is included in the OJT Workforce Development Pilot package and is available on the Department's web site at:

www.ct.gov/dot

The completed form must be submitted to the Office of Contract Compliance for approval. The form is due on the 15th day of January for each trainee currently enrolled and for hours worked on ConnDOT Federal-Aid funded projects only.

D.B.E. SUBCONTRACTORS AND MATERIAL SUPPLIERS OR MANUFACTURERS

Revised – May 2000

NOTE: Certain of the requirements and procedures stated in this special provision are applicable prior to the award and execution of the contract document.

I. ABBREVIATIONS AND DEFINITIONS AS USED IN THIS SPECIAL PROVISION

- A. "CDOT" means the Connecticut Department of Transportation.
- B. "DOT" means the U.S. Department of Transportation, including the Office of the Secretary, the Federal Highway Administration ("FHWA"), the Federal Transit Administration ("FTA"), and the Federal Aviation Administration ("FAA").
- C. "Broker" is acting as an agent for others in negotiating contracts, agreements, purchases, sales, etc., in return for a fee or commission.
- D. "Contract," "agreement" or "subcontract" means a legally binding relationship obligating a seller to furnish supplies or services (including, but not limited to, construction and professional services) and the buyer to pay for them. For the purposes of this provision a lease for equipment or products is also considered to be a contract.
- E. "Contractor," means consultant, second party or any other entity doing business with CDOT or, as the context may require, with another contractor.
- F. "Disadvantaged Business Enterprise" ("DBE") means a small business concern:
 1. That is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock of which is owned by one or more such individuals; and
 2. Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.
- G. "DOT-assisted contract" means any contract between a recipient and a contractor (at any tier) funded in whole or in part with DOT financial assistance, including letters of credit or loan guarantees.

- H. "Good Faith Efforts" means efforts to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement. Refer to Appendix A of 49 CFR Part 26 – "Guidance Concerning Good Faith Efforts," a copy of which is attached to this provision, for guidance as to what constitutes good faith efforts.
- I. "Small Business Concern" means, with respect to firms seeking to participate as DBEs in DOT-assisted contracts, a small business concern as defined pursuant to Section 3 of the Small Business Act and Small Business Administration ("SBA") regulations implementing it (13 CFR Part 121) that also does not exceed the cap on average annual gross receipts specified in 49 CFR Part 26 Section 26.65(b).
- J. "Socially and Economically Disadvantaged Individuals" means any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is—
1. Any individual who CDOT finds on a case-by-case basis to be a socially and economically disadvantaged individual.
 2. Any individuals in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:
 - i. "Black Americans," which includes persons having origins in any of the Black racial groups of Africa;
 - ii. "Hispanic Americans," which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;
 - iii. "Native Americans," which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;
 - iv. "Asian-Pacific Americans," which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kiribati, Juvalu, Nauru, Federated States of Micronesia, or Hong Kong;
 - v. "Subcontinent Asian Americans," which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;
 - vi. Women;

- vii. Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

II. GENERAL REQUIREMENTS

- A. The Contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy, as the DOT deems appropriate.
- B. The Contractor shall cooperate with CDOT and DOT in implementing the requirements concerning DBE utilization on this contract in accordance with Title 49 of the Code of Federal Regulations, Part 26 entitled Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs (“49 CFR Part 26”) as revised. The Contractor shall also cooperate with CDOT and DOT in reviewing the Contractor's activities relating to this provision. This Special Provision is in addition to all other equal opportunity employment requirements of this Contract.
- C. The Contractor shall designate a liaison officer who will administer the Contractor's DBE program. Upon execution of this contract, the name of the liaison officer shall be furnished to the Division of Contract Compliance of CDOT, in writing.
- D. For the purpose of this Special Provision, DBEs to be used to satisfy the DBE goal must be certified by CDOT's Division of Contract Compliance for the type(s) of work they will perform.
- E. If the Contractor allows work designated for DBE participation required under the terms of this Contract and required under Paragraph III-B to be performed by other than the named DBE organization without concurrence from the Office of Construction, CDOT will not pay the Contractor for the value of the work performed by organizations other than the designated DBE.
- F. At the completion of all Contract work, the Contractor shall submit a final report to CDOT's unit administering the Contract indicating the work done by, and the dollars paid to DBEs. If the Contractor does not achieve the specified Contract goals for DBE participation, the Contractor shall also submit written documentation to the CDOT unit administering the Contract detailing its good faith efforts to satisfy the goal that were made during the performance of the Contract. Documentation is to include but not be limited to the following:

1. A detailed statement of the efforts made to select additional subcontracting opportunities to be performed by DBEs in order to increase the likelihood of achieving the stated goal.
 2. A detailed statement, including documentation of the efforts made to contact and solicit bids with CDOT certified DBEs, including the names, addresses, dates and telephone numbers of each DBE contacted, and a description of the information provided to each DBE regarding the scope of services and anticipated time schedule of work items proposed to be subcontracted and nature of response from firms contacted.
 3. Provide a detailed statement for each DBE that submitted a subcontract proposal, which the Contractor considered not to be acceptable stating the reasons for this conclusion.
 4. Provide documents to support contacts made with CDOT requesting assistance in satisfying the Contract specified goal.
 5. Provide documentation of all other efforts undertaken by the Contractor to meet the defined goal.
- G. Failure of the Contractor at the completion of all Contract work to have at least the specified percentage of this Contract performed by DBEs as required in Paragraph III-B will result in the reduction in Contract payments to the Contractor by an amount determined by multiplying the total Contract value by the specified percentage required in Paragraph III-B and subtracting from that result, the dollar payments for the work actually performed by DBEs. However, in instances where the Contractor can adequately document or substantiate its good faith efforts made to meet the specified percentage to the satisfaction of CDOT, no reduction in payments will be imposed.
- H. All records must be retained for a period of three (3) years following acceptance by CDOT of the Contract and shall be available at reasonable times and places for inspection by authorized representatives of CDOT and Federal agencies. If any litigation, claim, or audit is started before the expiration of the three (3) year period, the records shall be retained until all litigation, claims, or audits findings involving the records are resolved.
- I. Nothing contained herein, is intended to relieve any Contractor or subcontractor or material supplier or manufacturer from compliance with all applicable Federal and State legislation or provisions concerning equal employment opportunity, affirmative action, nondiscrimination and related subjects during the term of this Contract.

III. SPECIFIC REQUIREMENTS:

In order to increase the participation of DBEs, CDOT requires the following:

- A. The Contractor shall assure that certified DBEs will have an opportunity to compete for subcontract work on this Contract, particularly by arranging solicitations, time for the preparation of proposals for services to be provided so as to facilitate the participation of DBEs regardless if a Contract goal is specified or not.
- B. Contract goal for DBE participation equaling 11.0 percent of the total Contract value has been established for this Contract. Compliance with this provision may be fulfilled when a DBE or any combination of DBEs perform work under contract in accordance with 49 CFR Part 26 Subpart C Section 26.55, as revised. **Only work actually performed by and/or services provided by DBEs which are certified for such work and/or services can be counted toward the DBE goal. Supplies and equipment a DBE purchases or leases from the prime contractor or its affiliate can not be counted toward the goal.**

If the Contractor does not document commitments, by subcontracting and/or procurement of material and/or services that at least equal the goal, it must document the good faith efforts that outline the steps it took to meet the goal in accordance with VII.

- C. The low bidder shall indicate, in writing on the forms provided by CDOT, to the Manager of Contracts within 7 days after the bid opening, the DBE(s) it will use to achieve the goal indicated in III-B. The submission shall include the name and address of each DBE that will participate in this Contract, a description of the work each will perform, the dollar amount of participation, and the percentage this is of the bid amount. This information shall be signed by the named DBE and the low bidder. The named DBE shall be from a list of certified DBEs available from CDOT. **In addition, the named DBE(s) shall be certified to perform the type of work they will be contracted to do.**
- D. The prime Contractor shall submit to the Manager of Construction Operations all requests for subcontractor approvals on the standard forms provided by CDOT.

If the request for approval is for a DBE subcontractor for the purpose of meeting the Contract DBE goal, a copy of the legal contract between the prime and the DBE subcontractor must be submitted along with the request for subcontractor approval. Any subsequent amendments or modifications of the contract between the prime and the DBE subcontractor must also be submitted to the Manager of Construction Operations with an explanation of the change(s). The contract must show items of work to be performed, unit prices and, if a partial item, the work involved by all parties.

In addition, the following documents are to be attached:

1. An explanation indicating who will purchase material.
 2. A statement explaining any method or arrangement for renting equipment. If rental is from a prime, a copy of the Rental Agreement must be submitted.
 3. A statement addressing any special arrangements for manpower.
- E. The Contractor is required, should there be a change in a DBE they submitted in III-C, to submit documentation to CDOT's Office of Construction which will substantiate and justify the change, (i.e., documentation to provide a basis for the change for review and approval by CDOT's Office of Construction) prior to the implementation of the change. The Contractor must demonstrate that the originally named DBE is unable to perform in conformity to the scope of service or is unwilling to perform, or is in default of its contract, or is overextended on other jobs. **The Contractor's ability to negotiate a more advantageous agreement with another subcontractor is not a valid basis for change.** Documentation shall include a letter of release from the originally named DBE indicating the reason(s) for the release.
- F. Contractors subcontracting with DBEs to perform work or services as required by this Special Provision shall not terminate such firms without advising CDOT's Office of Construction in writing, and providing adequate documentation to substantiate the reasons for termination if the DBE has not started or completed the work or the services for which it has been contracted to perform.
- G. When a DBE is unable or unwilling to perform or is terminated for just cause the contractor shall make good faith efforts to find other DBE opportunities to increase DBE participation to the extent necessary to at least satisfy the goal required by III-B.
- H. In instances where an alternate DBE is proposed, a revised submission to CDOT's Office of Construction together with the documentation required in III-C, III-D, and III-E, must be made for its review and approval.
- I. Each quarter after execution of the Contract, the Contractor shall submit a report to CDOT's unit administering the Contract indicating the work done by, and the dollars paid to the DBE for the current quarter and to date.

IV. MATERIAL SUPPLIERS OR MANUFACTURERS

- A. If the Contractor elects to utilize a DBE supplier or manufacturer to satisfy a portion or all of the specified DBE goal, the Contractor must provide the CDOT with:
1. An executed Affidavit "Connecticut Department of Transportation (Office of Construction) Bureau of Highway" (sample attached), and

2. Substantiation of payments made to the supplier or manufacturer for materials used on the project.

B. Credit for DBE suppliers is limited to 60% of the value of the material to be supplied, provided such material is obtained from a regular DBE dealer. A regular dealer is a firm that owns, operates, or maintains a store, warehouse or other establishment in which the materials or supplies required for the performance of the contract are bought, kept in stock and regularly sold or leased to the public in the usual course of business. To be a regular dealer, the firm must engage in, as its principal business, and in its own name, the purchase and sale of the products in question. A regular dealer in such bulk items as steel, cement, gravel, stone and petroleum products, need not keep such products in stock if it owns or operates distribution equipment. Brokers and packagers shall not be regarded as material suppliers or manufacturers.

C. Credit for DBE manufacturers is 100% of the value of the manufactured product. A manufacturer is a firm that operates or maintains a factory or establishment that produces on the premises the materials or supplies obtained by the Department of Transportation or contractor.

V. NON-MANUFACTURING OR NON-SUPPLIER DBE CREDIT:

Contractors may count towards its DBE goals the following expenditures with DBEs that are not manufacturers or suppliers:

1. Reasonable fees or commissions charged for providing a bona fide service such as professional, technical, consultant or managerial services and assistance in the procurement of essential personnel, facilities, equipment materials or supplies necessary for the performance of the contract provided that the fee or commission is determined by the CDOT to be reasonable and consistent with fees customarily allowed for similar services.
2. The fees charged for delivery of materials and supplies required on a job site (but not the cost of the materials and supplies themselves) when the hauler, trucker, or delivery service is a DBE but is not also the manufacturer of or a regular dealer in the materials and supplies, provided that the fee is determined by the CDOT to be reasonable and not excessive as compared with fees customarily allowed for similar services.
3. The fees or commissions charged for providing bonds or insurance specifically required for the performance of the contract, provided that the fee or commission is determined by the CDOT to be reasonable and not excessive as compared with fees customarily allowed for similar services.

VI. BROKERING

- A. Brokering of work by DBEs who have been approved to perform subcontract work with their own workforce and equipment is not allowed, and is a contract violation.
- B. DBEs involved in the brokering of subcontract work that they were approved to perform may be decertified.
- C. Firms involved in the brokering of work, whether they are DBEs and/or majority firms who engage in willful falsification, distortion or misrepresentation with respect to any facts related to the project shall be referred to the U.S. Department of Transportation's Office of the Inspector General for prosecution under Title 18, U.S. Code, Section 10.20.

VII. REVIEW OF PRE-AWARD GOOD FAITH EFFORTS

- A. If the Contractor does not document pre-award commitments, by subcontracting and/or procurement of material and/or services that at least equal the goal stipulated in III-B, the Contractor must document the good faith efforts that outline the specific steps it took to meet the goal. The Contract will be awarded to the Contractor if its good faith efforts are deemed satisfactory and approved by CDOT. To obtain such an exception, the Contractor must submit an application to CDOT's Manager of Contracts, which documents the specific good faith efforts that were made to meet the DBE goal. Application forms for Review of Pre-Award Good Faith Efforts are available from CDOT's Division of Contract Administration.

The application must include the following documentation:

1. a statement setting forth in detail which parts, if any, of the contract were reserved by the contractor and not available for bid from subcontractors;
2. a statement setting forth all parts of the contract that are likely to be sublet.
3. a statement setting forth in detail the efforts made to select subcontracting work in order to likely achieve the stated goal.
4. copies of all letters sent to DBEs;
5. a statement listing the dates and DBEs that were contacted by telephone and the result of each contact;

6. a statement listing the dates and DBEs that were contacted by other means other than telephone and the result of each contact;
7. copies of letters received from DBEs in which they decline to bid;
8. a statement setting forth the facts with respect to each DBE bid received and the reason(s) any such bid was declined;
9. a statement setting forth the dates that calls were made to CDOT's Division of Contract Compliance seeking DBE referrals and the result of each such call; and
10. any information of a similar nature relevant to the application.

The review of the Contractor's good faith efforts may require an extension of time for award of the Contract. In such a circumstance and in the absence of other reasons not to grant the extension or make the award CDOT will agree to the needed extension(s) of time for the award of the Contract, provided the Contractor and the surety also agree to such extension(s).

- B. Upon receipt of the submission of an application for review of pre-award good faith efforts, CDOT's Manager of Contracts shall submit the documentation to the Division of Contract Compliance who will review the documents and determine if the package is complete and accurate and adequately documents the Contractor's good faith efforts. Within 14 days of receipt of the documentation the Division of Contract Compliance shall notify the Contractor by certified mail of the approval or denial of its good faith efforts.
- C. If the Contractor's application is denied, the Contractor shall have seven (7) days upon receipt of written notification of denial to request administrative reconsideration. The Contractor's request for administrative reconsideration should be sent in writing to: Manager of Contracts, P.O. Box 317546, Newington, CT 06131-7546. The Manager of Contracts will forward the Contractor's reconsideration request to the DBE Screening Committee. The DBE Screening Committee will schedule a meeting within 14 days from receipt of the Contractor's request for administrative reconsideration and advise the Contractor of the date, time and location of the meeting. At this meeting the Contractor will be provided with the opportunity to present written documentation and/or argument concerning the issue of whether it made adequate good faith efforts to meet the goal. Within seven (7) days following the reconsideration meeting, the chairperson of the DBE Screening Committee will send the contractor via certified mail a written decision on its reconsideration request, explaining the basis of finding either for or against the request. **If the reconsideration is denied the Contractor shall indicate in writing to the Manager of Contracts within 14 days of receipt of written notification of denial, the DBEs it will use to achieve the goal indicated in III-B.**

- D. Approval of pre-award good faith efforts does not relieve the Contractor from its obligation to make additional good faith efforts to achieve the DBE goal should contracting opportunities arise during actual performance of the Contract work.

APPENDIX A TO 49 CFR PART 26 -- GUIDANCE CONCERNING GOOD FAITH EFFORTS

- I. When, as a recipient, you establish a contract goal on a DOT-assisted contract, a bidder must, in order to be responsible and/or responsive, make good faith efforts to meet the goal. The bidder can meet this requirement in either of two ways. First, the bidder can meet the goal, documenting commitments for participation by DBE firms sufficient for this purpose. Second, even if it doesn't meet the goal, the bidder can document adequate good faith efforts. This means that the bidder must show that it took all necessary and reasonable steps to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful.
- II. In any situation in which you have established a contract goal, part 26 requires you to use the good faith efforts mechanism of this part. As a recipient, it is up to you to make a fair and reasonable judgment whether a bidder that did not meet the goal made adequate good faith efforts. It is important for you to consider the quality, quantity, and intensity of the different kinds of efforts that the bidder has made. The efforts employed by the bidder should be those that one could reasonably expect a bidder to take if the bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract goal. Mere pro forma efforts are not good faith efforts to meet the DBE contract requirements. We emphasize, however, that your determination concerning the sufficiency of the firm's good faith efforts is a judgment call: meeting quantitative formulas is not required.
- III. The Department also strongly cautions you against requiring that a bidder meet a contract goal (i.e., obtain a specified amount of DBE participation) in order to be awarded a contract, even though the bidder makes an adequate good faith efforts showing. This rule specifically prohibits you from ignoring bona fide good faith efforts.
- IV. The following is a list of types of actions which you should consider as part of the bidder's good faith efforts to obtain DBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.
 - A. Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.
 - B. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE

- participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.
- C. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
 - D. (1) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.
 - (2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.
 - E. Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the project goal.
 - F. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.
 - G. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.
 - H. Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

- V. In determining whether a bidder has made good faith efforts, you may take into account the performance of other bidders in meeting the contract. For example, when the apparent successful bidder fails to meet the contract goal, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts, the apparent successful bidder could have met the goal. If the apparent successful bidder fails to meet the goal, but meets or exceeds the average DBE participation obtained by other bidders, you may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made good faith efforts.

**CONNECTICUT DEPARTMENT OF TRANSPORTATION
(OFFICE OF CONSTRUCTION)
BUREAU OF ENGINEERING AND HIGHWAY OPERATIONS**

This affidavit must be completed by the State Contractor's DBE notarized and attached to the contractor's request to utilize a DBE supplier or manufacturer as a credit towards its DBE contract requirements; failure to do so will result in not receiving credit towards the contract DBE requirement.

State Project No.

Federal Aid Project No.

Description of Project

I, _____, acting in behalf of _____
(Name of person signing Affidavit) (DBE person, firm, association or corporation)
of which I am the _____ certify and affirm that _____
(Title of Person) (DBE person, firm, association or corporation)

is a certified Connecticut Department of Transportation DBE. I further certify and affirm that I have read and understand 49 CFR, Sec. 26.55(e)(2), as the same may be revised.

I further certify and affirm that _____ will assume the actual and
(DBE person, firm, association or Corporation)

for the provision of the materials and/or supplies sought by _____
(State Contractor)

If a manufacturer, I produce goods from raw materials or substantially alter them before resale, or if a supplier, I perform a commercially useful function in the supply process.

I understand that false statements made herein are punishable by Law (Sec. 53a-157), CGS, as revised).

(Name of Corporation or Firm)

(Signature & Title of Official making the Affidavit)

Subscribed and sworn to before me, this _____ day of _____ 20 _____.

Notary Public (Commissioner of the Superior Court)

My Commission Expires

CERTIFICATE OF CORPORATION

I, _____, certify that I am the
(Official)

of the Corporation named in the foregoing instrument; that I have been duly authorized to affix the seal of the Corporation to such papers as require the seal; that _____, who signed said instrument on behalf of the Corporation, was then of said corporation; that said instrument was duly signed for and in behalf of said Corporation by authority of its governing body and is within the scope of its corporation powers.

(Signature of Person Certifying)

(Date)

ITEM #0101000A - ENVIRONMENTAL HEALTH AND SAFETY

Description:

Under this item, the Contractor shall establish protocols and provide procedures to protect the health and safety of its employees and subcontractors as related to the proposed construction activities performed within the Project Area of Environmental Concern (AOEC). Work under this Item consists of the development and implementation of a written Health and Safety Plan (HASP) that addresses the relative risk of exposure to documented hazards present within Project limits. The HASP shall establish health and safety protocols that address the relative risk of exposure to regulated substances in accordance with 29 CFR 1910.120 and 29 CFR 1926.65. Such protocols shall only address those concerns directly related to site conditions.

Note: The Engineer will prepare a site-specific HASP, which is compatible with the Contractor's HASP and will be responsible for the health and safety of all Project Inspectors, Department employees and consulting engineers.

Materials:

The Contractor must provide chemical protective clothing (CPC) and personal protective equipment (PPE) as stipulated in the Contractor's HASP during the performance of work in areas identified as potentially posing a risk to worker health and safety for workers employed by the Contractor and all subcontractors.

Construction Methods:

A. Existing Information

The Contractor shall utilize all available information and existing records and data pertaining to chemical and physical hazards associated with any of the regulated substances identified in the environmental site investigation to develop the HASP. The documents containing this data are referenced in "Notice to Contractor – Environmental Investigations."

B. General

The requirements set forth herein pertain to the provision of workers' health and safety as it relates to proposed Project activities when performed in the presence of hazardous or regulated materials or otherwise environmentally sensitive conditions. THE PROVISION OF WORKER HEALTH AND SAFETY PROTOCOLS WHICH ADDRESS POTENTIAL AND/OR ACTUAL RISK OF EXPOSURE TO SITE SPECIFIC HAZARDS POSED TO CONTRACTOR EMPLOYEES IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

The Contractor shall be responsible for the development, implementation and oversight of the HASP throughout the performance of work within the limits of the AOEC, as identified in the Contract Documents, and in other areas identified by the Engineer or by the HASP where site conditions may pose a risk to worker health and safety and/or the environment. **No physical aspects of the work within the AOEC shall begin until the HASP is reviewed by the Engineer and is determined to meet the requirements of the specifications. However, the Contract time, in accordance with Article 1.03.08, will begin on the date stipulated in the Notice to Proceed.**

C. Regulatory Requirements

All construction related activities performed by the Contractor within the limits of the AOEC or in other areas where site conditions may pose a risk to worker health and safety and/or the environment shall be performed in conformance with 29 CFR 1926, Safety and Health Regulations for Construction and 29 CFR 1910, Safety and Health Regulations for General Industry. Conformance to 29 CFR 1910.120, Hazardous Waste Site Operations and Emergency Response (HAZWOPER) may also be required, where appropriate.

D. Submittals

Three copies of the HASP shall be submitted to the Engineer within four (4) weeks after the Award of Contract or four (4) weeks prior to the start of any work in the AOEC, whichever is first, but not before the Award of the Contract.

The HASP shall be developed by a qualified person designated by the Contractor. This qualified person shall be a Certified Industrial Hygienist (CIH), Certified Hazardous Material Manager (CHMM), or a Certified Safety Professional (CSP). He/she shall have review and approval authority over the HASP and be identified as the Health and Safety Manager (HSM). The HASP shall bear the signature of said HSM indicating that the HASP meets the minimum requirements of 29 CFR 1910.120 and 29 CFR 1926.65.

The Engineer will review the HASP within four (4) weeks of submittal and provide written comments as to deficiencies in and/or exceptions to the plan, if any, to assure consistency with the specifications, applicable standards, policies and practices and appropriateness given potential or known site conditions. Items identified in the HASP which do not conform to the specifications will be brought to the attention of the Contractor, and the Contractor shall revise the HASP to correct the deficiencies and resubmit it to the Engineer for determination of compliance with this item. The Contractor shall not be allowed to commence work activities in the AOEC, as shown on the Plans, or where site conditions exist which may pose a risk to worker health and safety and/or the environment, until the HASP has been reviewed and accepted by the Engineer. **No claim for delay in the progress of work will be considered for the Contractor's failure to submit a HASP that conforms to the requirements of the Contract.**

E. HASP Provisions

1. General Requirements

The Contractor shall prepare a HASP covering all Project site work regulated by 29 CFR 1910.120(b)/1926.65(b) to be performed by the Contractor and all subcontractors under this Contract. The HASP shall establish in detail, the protocols necessary for the recognition, evaluation, and control of all hazards associated with each task performed under this Contract. The HASP shall address site-specific safety and health hazards of each phase of site operation and include the requirements and procedures for employee protection. The level of detail provided in the HASP shall be tailored to the type of work, complexity of operations to be performed, and hazards anticipated. Details about some activities may not be available when the initial HASP is prepared and submitted. Therefore, the HASP shall address, in as much detail as possible, all anticipated tasks, their related hazards and anticipated control measures.

The HASP shall interface with the Contractor's Safety and Health Program. Any portions of the Safety and Health Program that are referenced in the HASP shall be included as appendices to the HASP. All topics regulated by the 29 CFR 1910.120(b)(4) and those listed below shall be addressed in the HASP. Where the use of a specific topic is not applicable to the Project, the HASP shall include a statement to justify its omission or reduced level of detail and establish that adequate consideration was given the topic.

2. Elements

a. Site Description and Contamination Characterization

The Contractor shall provide a site description and contaminant characterization in the HASP that meets the requirements of 29 CFR 1910.120/1926.65.

b. Safety and Health Risk Analysis/Activity Hazard Analysis

The HASP shall address the safety and health hazards on this site for every operation to be performed. The Contractor shall review existing records and data to identify potential chemical and physical hazards associated with the site and shall evaluate their impact on field operations. Sources, concentrations (if known), potential exposure pathways, and other factors as noted in CFR 1910.120/126.65, paragraph (c)(7) employed to assess risk shall be described. The Contractor shall develop and justify action levels for implementation of engineering controls and PPE upgrades and downgrades for controlling worker exposure to the identified hazards. If there is no permissible exposure limit (PEL) or published exposure level for an identified hazard, available information from other published studies may be used as guidance. Any modification of an established PEL must be fully documented.

The HASP shall include a comprehensive section that discusses the tasks and objectives of the site operations and logistics and resources required to complete each task. The hazards associated with each task shall be identified. Hazard prevention techniques, procedures and/or equipment shall be identified to mitigate each of the hazards identified.

c. Staff Organization, Qualifications and Responsibilities

The HASP shall include a list of personnel expected to be engaged in site activities and certify that said personnel have completed the educational requirements stipulated in 29 CFR 1910.120 and 29 CFR 1926.65, are currently monitored under a medical surveillance program in compliance with those regulations, and that they are fit for work under “Level C” conditions.

The Contractor shall assign responsibilities for safety activities and procedures. An outline or flow chart of the safety chain of command shall be provided in the HASP. Qualifications, including education, experience, certifications, and training in safety and health for all personnel engaged in safety and health functions shall be documented in the HASP. Specific duties of each on-site team member should be identified. Typical team members include but are not limited to Team Leader, Scientific Advisor, Site Safety Officer, Public Information Officer, Security Officer, Record Keeper, Financial Officer, Field Team Leader, and Field Team members.

The HASP shall also include the name and qualifications of the individual proposed to serve as Health and Safety Officer (HSO). The HSO shall have full authority to carry out and ensure compliance with the HASP. The Contractor shall provide a competent HSO onsite who is capable of identifying existing and potential hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees and who has authorization to take prompt corrective measures to eliminate or control them. The qualifications of the HSO shall include completion of OSHA 40-hour HAZWOPER training, including current 8-hour refresher training, and 8-hour HAZWOPER supervisory training; a minimum of one year of working experience with the regulated compounds that have been documented to exist within Project limits; a working knowledge of federal and state safety regulations; specialized training or documented experience (one year minimum) in personal and respiratory protective equipment program implementation; the proper use of air monitoring instruments, air sampling methods and procedures; and certification training in first aid and CPR by a recognized, approved organization such as the American Red Cross.

The primary duties of the HSO shall be those associated with worker health and safety. The Contractor’s HSO responsibilities shall be detailed in the written HASP and shall include, but not be limited to the following:

i. Directing and implementing the HASP.

- ii. Ensuring that all Project personnel have been adequately trained in the recognition and avoidance of unsafe conditions and the regulations applicable to the work environment to control or eliminate any hazards or other exposure to illness or injury (29 CFR 1926.21). All personnel shall be adequately trained in procedures outlined in the Contractor's written HASP.
 - iii. Authorizing Stop Work Orders, which shall be executed upon the determination of an imminent health and safety concern.
 - iv. Contacting the Contractor's HSM and the Engineer immediately upon the issuance of a Stop Work order when the HSO has made the determination of an imminent health and safety concern.
 - v. Authorizing work to resume, upon approval from the Contractor's HSM.
 - vi. Directing activities, as defined in the Contractor's written HASP, during emergency situations; and
 - vii. Providing personal monitoring where applicable, and as identified in the HASP.
- d. Employee Training Assignments

The Contractor shall develop a training program to inform employees, supplier's representatives, and official visitors of the special hazards and procedures (including PPE, its uses and inspections) to control these hazards during field operations. Official visitors include but are not limited to Federal Agency Representatives, State Agency Representatives, Municipal Agency Representatives, Contractors, subcontractors, etc. This program shall be consistent with the requirements of 29 CFR 1910.120 and 29 CFR 1926.65.

- e. Personal Protective Equipment

The plan shall include the requirements and procedures for employee protection and should include a detailed section on respiratory protection. The Contractor shall describe in detail and provide appropriate PPE to insure that workers are not exposed to levels greater than the action level for identified hazards for each operation stated for each work zone. The level of protection shall be specific for each operation and shall be in compliance with all requirements of 29 CFR 1910 and 29 CFR 1926. The Contractor shall provide, maintain, and properly dispose of all PPE.

f. Medical Surveillance Program

All on-site Contractor personnel engaged in 29 CFR 1910.120/1926.65 operations shall have medical examinations meeting the requirements of 29 CFR 1910.120(f) prior to commencement of work.

The HASP shall include certification of medical evaluation and clearance by the physician for each employee engaged in 29 CFR 1910.120/1926.65 operations at the site.

g. Exposure Monitoring / Air Sampling Program

The Contractor shall submit an Air Monitoring Plan as part of the HASP, which is consistent with 29 CFR 1910.120, paragraphs (b)(4)(ii)(E), (c)(6), and (h). The Contractor shall identify specific air sampling equipment, locations, and frequencies in the air-monitoring plan. Air and exposure monitoring requirements shall be specified in the Contractor's HASP. The Contractor's CIH shall specify exposure monitoring/air sampling requirements after a careful review of the contaminants of concern and planned site activities.

h. Site Layout and Control

The HASP shall include a map, work zone delineation (support, contamination, reduction and exclusion), on/off-site communications, site access controls, and security (physical and procedural).

i. Communications

Written procedures for routine and emergency communications procedures shall be included in the Contractor's HASP.

j. Personal Hygiene, Personal Decontamination and Equipment Decontamination

Decontamination facilities and procedures for PPE, sampling equipment, and heavy equipment shall be discussed in detail in the HASP.

k. Emergency Equipment and First Aid Requirements

The Contractor shall provide appropriate emergency first aid kits and equipment suitable to treat exposure to the hazards identified, including chemical agents. The Contractor will provide personnel that have certified first aid/CPR training onsite at all times during site operations.

l. Emergency Response Plan and Spill Containment Program

The Contractor shall establish procedures in order to take emergency action in the event of immediate hazards (i.e., a chemical agent leak or spill, fire or personal injury). Personnel and facilities supplying support in emergency procedures will be identified. The emergency equipment to be present on-site and the Emergency Response Plan procedures, as required 29 CFR 1910.120, paragraph (1)(1)(ii) shall be specified in the Emergency Response Plan. The Emergency Response Plan shall be included as part of the HASP. This Emergency Response Plan shall include written directions to the closest hospital as well as a map showing the route to the hospital.

m. Logs, Reports and Record Keeping

The Contractor shall maintain safety inspections, logs, and reports, accident/incident reports, medical certifications, training logs, monitoring results, etc. All exposure and medical monitoring records are to be maintained according to 29 CFR 1910 and 29 CFR 1926. The format of these logs and reports shall be developed by the Contractor to include training logs, daily logs, weekly reports, safety meetings, medical surveillance records, and a phase-out report. These logs, records, and reports shall be maintained by the Contractor and be made available to the Engineer.

The Contractor shall immediately notify the Engineer of any accident/incident. Within two working days of any reportable accident, the Contractor shall complete and submit to the Engineer an accident report.

n. Confined Space Entry Procedures

Confined space entry procedures, both permit required and non permit required, shall be discussed in detail.

o. Pre-Entry Briefings

The HASP shall provide for pre-entry briefings to be held prior to initiating any site activity and at such other times as necessary to ensure that employees are apprised of the HASP and that this plan is being followed.

p. Inspections/Audits

The HSM or HSO shall conduct Inspections or audits to determine the effectiveness of the HASP. The Contractor shall correct any deficiencies in the effectiveness of the HASP.

F. HASP Implementation

The Contractor shall implement and maintain the HASP throughout the performance of work. In areas identified as having a potential risk to worker health and safety, and in any other areas deemed appropriate by the HSO, the Contractor shall be prepared to immediately implement the appropriate health and safety measures, including but not limited to the use of PPE, and engineering and administrative controls.

If the Engineer observes deficiencies in the Contractor's operations with respect to the HASP, they shall be assembled in a written field directive and given to the Contractor. The Contractor shall immediately correct the deficiencies and respond, in writing, as to how each was corrected. Failure to bring the work area(s) and implementation procedures into compliance will result in a Stop Work Order and a written directive to discuss an appropriate resolution(s) to the matter. When the Contractor demonstrates compliance, the Engineer shall remove the Stop Work Order. If a Stop Work Order has been issued for cause, no delay claims on the part of the Contractor will be honored.

Disposable CPC/PPE (i.e. disposable coveralls, gloves, etc.) which come in direct contact with hazardous or potentially hazardous material shall be placed into 55 gallon USDOT 17-H drums and disposed of in accordance with federal, state, and local regulations. The drums shall be temporarily staged and secured within the temporary waste stockpile area (WSA) until the material is appropriately disposed.

G. HASP Revisions

The HASP shall be maintained onsite by the Contractor and shall be kept current with construction activities and site conditions under this Contract. The HASP shall be recognized as a flexible document which shall be subject to revisions and amendments, as required, in response to actual site conditions, changes in work methods and/or alterations in the relative risk present. All changes and modifications shall be signed by the Contractor's HSM and shall require the review and acceptance by the Engineer prior to the implementation of such changes.

Should any unforeseen hazard become evident during the performance of the work, the HSO shall bring such hazard to the attention of the Contractor and the Engineer as soon as possible. In the interim, the Contractor shall take action, including Stop Work Orders and/or upgrading PPE as necessary to re-establish and maintain safe working conditions and to safeguard on-site personnel, visitors, the public and the environment. The HASP shall then be revised/amended to reflect the changed condition.

Method of Measurement:

- A. Within thirty (30) calendar days of the award of the Contract, the Contractor shall submit to the Engineer for acceptance a breakdown of its lump sum bid price for this item detailing:

1. The development costs associated with preparing the HASP in accordance with these Specifications.
 2. The cost per month for the duration of the Project to implement the HASP and provide the services of the HSM and the HSO.
- B. If the lump sum bid price breakdown is unacceptable to the Engineer, substantiation showing that the submitted costs are reasonable shall be required.
- C. Upon acceptance of the payment schedule by the Engineer, payments for work performed will be made as follows:
1. The lump sum development cost will be certified for payment.
 2. The Contractor shall demonstrate to the Engineer monthly that the HASP has been kept current and is being implemented and the monthly cost will be certified for payment.
 3. Any month where the HASP is found not to be current or is not being implemented, the monthly payment for the Environmental Health and Safety Item shall be deferred to the next monthly payment estimate. If the HASP is not current or being implemented for more than thirty calendar days, there will be no monthly payment.
 4. Failure of the Contractor to implement the HASP in accordance with this Specification shall result in the withholding of all Contract payments.

Basis of Payment:

This work will be paid for at the Contract lump sum price for “ENVIRONMENTAL HEALTH AND SAFETY” which shall include all materials, tools, equipment and labor incidental to the completion of this item for the duration of the Project to maintain, revise, monitor and implement the HASP. Such costs include providing the services of the HSM and HSO, Contractor employee training, CPC, PPE, disposal of PPE and CPC, medical surveillance, decontamination facilities, engineering controls, monitoring and all other HASP protocols and procedures established to protect the Health and Safety for all on-site workers.

<u>Pay Item</u>	<u>Pay Unit</u>
Environmental Health and Safety	Lump Sum

ITEM #0101117A - CONTROLLED MATERIALS HANDLING

Description:

Work under this Item is intended to provide specific procedural requirements to be followed by the Contractor during the excavation of Controlled Materials from the Area of Environmental Concern (AOEC) for soils within the Project limits. This supplements Specifications Sections 2.02, 2.03, 2.05, and 2.06 and Contract Special Provisions for excavation wherever contaminated materials are encountered. Work under this item shall include transporting and stockpiling materials at the temporary waste stockpile area (WSA); and covering, securing, and maintaining the stockpiled materials throughout the duration of the Project. All materials, excluding the existing pavement structure (asphalt and subbase), rock, ledge, and concrete excavated within the AOEC are to be considered Controlled Materials. If the vertical limits of the existing subbase cannot be determined visually, subbase will be presumed to extend 12 inches below the bottom of the existing pavement. In addition, materials excavated from within the LLAOECs that cannot be reused within the Project limits and require disposal at an approved treatment/disposal facility are also considered Controlled Materials.

Controlled Materials consisting of non-hazardous levels of regulated substances have been documented to exist within the Project. Such contamination is documented in the reports listed in the "Notice to Contractor – Environmental Investigations." Where contaminated soils are excavated, such soil will not be reusable as backfill, unless authorized by the Engineer in writing, and will require special handling, disposal and documentation procedures as specified in Item 0202315A, "Disposal of Controlled Materials."

Materials:

The required materials are detailed on the Project Plans. All materials shall conform to the requirements of the Contract.

Polyethylene plastic sheeting for underlayment shall be at least 30 mils thick. Polyethylene plastic sheeting for covering excavated material shall be a thickness of 10 mils. Both sheeting shall be at least 10 feet wide.

Roll-off/storage containers shall be of watertight, steel-body construction, of the size specified and able to handle the storage and subsequent transportation of material to the disposal facility.

Covers for roll-off/storage containers shall be made of polyethylene plastic, or similar watertight material that is of sufficient size to completely cover the top opening and can be securely fastened to the container.

Sandbags used to secure polyethylene covers shall be at least 30 pounds.

Safety fencing for securing the WSA bin openings from unauthorized entry shall be orange polyethylene at least 4 feet in height. The fencing shall be secured as necessary to provide a barrier to the bins, when not being accessed for load-in or load-out activities.

Sorbent booms shall be 8 inches in diameter and 10 feet long and possess petrophilic and hydrophobic properties. Sorbent booms shall also have devices (i.e. clips, clasps, etc.) for connection to additional lengths of boom.

Construction Methods:

A. General

When Controlled Materials are encountered during the course of the work, health and safety provisions shall conform to the appropriate sections of the Contract. Provisions may include implementation of engineering controls, air and personal monitoring, the use of chemical protective clothing (CPC), personal protective equipment (PPE), and decontamination procedures.

Unless otherwise directed by the Engineer, materials removed from the excavation within the AOEC shall be transported directly from their point of origin on the Project to the WSA. The stockpiles of excavated Controlled Materials shall be maintained as shown on the Project Plans. The Contractor shall plan excavation activities within the AOEC in consideration of the capacity of the WSA and the material testing and disposal requirements of the applicable Contract item. **No claims for delay shall be considered based on the Contractor's failure to coordinate excavation activities as specified herein.**

The Engineer will sample the stockpiled Controlled Materials at a frequency and for the constituents to meet the acceptance criteria of the treatment/recycling/disposal facilities submitted by the Contractor. The Contractor is hereby notified that laboratory turnaround time is expected to be fifteen (15) working days. Turnaround time is the period of time beginning when the Contractor notifies the Engineer which facility it intends to use and that the bin is full and the stockpile is ready for sampling, and ending with the Contractor's receipt of the laboratory analytical results. Any change of intended treatment/recycling/disposal facility may prompt the need to resample and will therefore restart the time required for laboratory turnaround. The laboratory will furnish such results to the Engineer. Upon receipt, the Engineer will make available to the Contractor the results of the final waste characterization determinations. **No delay claim will be considered based upon the Contractor's failure to accommodate the laboratory turnaround time as identified above.**

B. Transportation and Stockpiling

In addition to following all pertinent federal, state and local laws or regulatory agency policies, the Contractor shall adhere to the following precautions during transport of non-hazardous Controlled Materials:

1. Transported Controlled Materials are to be covered prior to leaving the point of generation and are to remain covered until the arrival at the WSA;
2. All vehicles departing the site are properly logged to show the vehicle identification, driver's name, time of departure, destination, and approximate volume and content of materials carried;
3. All vehicles to have secure, watertight containers free of defects for material transportation;
4. No material shall leave the site until there is adequate lay down area prepared in the WSA; and
5. Documentation must be maintained indicating that applicable laws have been satisfied and that the materials have been successfully transported and received at the WSA.

Construction of the WSA shall be completed prior to the initiation of construction activities generating Controlled Materials. Plastic polyethylene sheeting shall underlay all excavated Controlled Materials. Measures shall be implemented to divert rainfall away from the WSA.

No Controlled Materials shall be excavated or transported to the WSA until registration under the General Permit for Contaminated Soil and/or Sediment Management (Staging and Transfer) has been obtained by ConnDOT.

Placement of sorbent boom along the perimeter of the WSA shall be conducted when soil is saturated with petroleum product.

Excavated materials shall be staged as shown on the Project Plans or as directed by the Engineer.

C. WSA Maintenance

The Contractor shall provide all necessary materials, equipment, tools and labor for anticipated activities within the WSA. Such activities include, but are not limited to, handling and management of stockpiled soil and drummed CPC/PPE; uncovering and recovering stockpiles; maintenance of the WSA; replacement of damaged components (e.g., sand bags, plastic polyethylene sheeting, etc.); and waste inventory record management. The Contractor shall manage all materials in the WSA in such a way as to minimize tracking of potential contaminated materials across the site and off-site, and minimize dust generation.

Each stockpile shall be securely covered when not in active use with a cover of sufficient size to prevent generation of dust and infiltration of precipitation. The cover shall be maintained, as necessary, to prevent wind erosion.

The staged stockpiles shall be inspected at least daily by the Contractor to ensure that the cover and containment have not been damaged and that there is no apparent leakage from the piles. If the cover has been damaged, or there is evidence of leakage from the stockpiles, the Contractor shall immediately replace the cover or containment as needed to prevent the release of materials to the environment from the piles.

An inventory of stockpiled materials and drummed CPC/PPE shall be conducted on a daily basis. Inventory records shall indicate the approximate volume of material/drums stockpiled per day; the approximate volume of material/drums stockpiled to date; material/drums loaded and transported off-site for disposal; any materials loaded and transported for on-site reuse; and the identification of stockpiled materials relative to their points of generation.

Following the removal of all stockpiled Controlled Materials, residuals shall be removed from surfaces of the WSA as directed by the Engineer. This operation shall be accomplished using dry methods such as shovels, brooms, mechanical sweepers or a combination thereof. Residuals shall be disposed of as Controlled Materials.

D. Dewatering

Dewatering activities shall conform to Items in pertinent articles of the Contract.

E. Decontamination

All equipment shall be provided to the work site free of contamination. The Engineer may prohibit from the site any equipment that in his opinion has not been thoroughly decontaminated prior to arrival. Any decontamination of the Contractor's equipment prior to arrival at the site shall be at the expense of the Contractor. The Contractor is prohibited from decontaminating equipment on the Project that has not been thoroughly decontaminated prior to arrival.

The Contractor shall furnish labor, materials, tools and equipment for decontamination of all equipment and supplies that are used to handle Controlled Materials. Decontamination shall be conducted at an area designated by the Engineer and may be required prior to equipment and supplies leaving the Project or between stages of the work, or between work in different AOECs.

Dry decontamination procedures are recommended. Residuals from dry decontamination activities shall be collected and managed as Controlled Materials. If dry methods are unsatisfactory as determined by the Engineer, the Contractor shall modify decontamination procedures as required, subject to the Engineer's approval.

F. Dust Control

The Contractor shall implement a fugitive dust suppression program in accordance with the Contract to prevent the off-site migration of particulate matter and/or dust resulting from excavation, loading and operations associated with Controlled Materials. It shall be the Contractor's responsibility to supervise fugitive dust control measures and to monitor airborne particulate matter. The Contractor shall:

1. Employ reasonable fugitive dust suppression techniques.
2. Visually observe the amounts of particulate and/or fugitive dust generated during the handling of Controlled Materials. If the apparent amount of fugitive dust and/or particulate matter is not acceptable to the Engineer, the Engineer may direct the Contractor to implement corrective measures at his discretion, including, but not limited to, the following:
 - a. Apply water to pavement surfaces;
 - b. Apply water to equipment and excavation faces; and
 - c. Apply water during soil excavation, loading and dumping.

G. Permit Compliance

The Contractor shall comply with the terms and conditions of the CTDEP "General Permit for Contaminated Soil and/or Sediment Management (Staging and Transfer)," including the General Operating Conditions and the Specific Operating Conditions, except that the Engineer will conduct all soil/sediment characterization and perform all record keeping. In particular, the Contractor shall:

1. Operate, maintain and repair the WSA in conformance with the requirements of the General Permit.
2. Maintain a communications system capable of summoning fire, police, and/or other emergency service personnel.
3. Prevent unauthorized entry onto the stockpiles by the use of fences, gates, or other natural or artificial barriers.
4. Separate incidental excavation waste to the satisfaction of the receiving facility or to an extent that renders the contaminated soil and/or sediment suitable for its intended reuse.
5. Isolate and temporarily store incidental waste in a safe manner prior to off-site transport to a facility lawfully authorized to accept such waste.
6. Not store more than 100 cubic yards of incidental waste at any one time.
7. Sort, separate and isolate all hazardous waste from contaminated soil and/or sediment.
8. Prevent or minimize the transfer or infiltration of contaminants from the stockpiles to the ground as detailed in "B. Transportation and Stockpiling," above.
9. Securely cover each stockpile of soil as detailed in "C. WSA Maintenance," above.

10. Minimize wind erosion and dust transport as detailed in “F. Dust Control,” above.
11. Use anti-tracking measures at the WSA to ensure the vehicles do not track soil from the WSA onto a public roadway at any time.
12. Instruct the transporters of contaminated soil and/or sediment of best management practices for the transportation of such soil (properly covered loads, removing loose material from dump body, etc.).
13. Control all traffic related to the operation of the facility in such a way as to mitigate the queuing of vehicles off site and excessive or unsafe traffic impact in the area where the facility is located.
14. Ensure that except as allowed in Section 22A-174-18(b)(3)(C) of the Regulations of Connecticut State Agencies, trucks are not left idling for more than three (3) consecutive minutes.

H. Material Tracking

The Contractor shall employ all methods necessary to prevent material from being tracked beyond the excavation area. This includes but is not limited to the use of anti-tracking pads and frequently sweeping the area as necessary to prevent the material from being tracked offsite. The route from the excavation to the WSA shall be cleaned daily, or as directed by the Engineer to remove any Controlled Material debris lost in transit. The Contractor shall also use all means necessary to prevent material and water generated from the excavation from entering the on-site drainage system.

Method of Measurement:

The work of “CONTROLLED MATERIALS HANDLING” will be measured for payment by the number of cubic yards of Controlled Material excavated within the AOEC and LLAOECs and taken to the WSA. This measurement shall be in accordance with and in addition to the quantity measured for payment of the applicable excavation item in Specification Sections 2.02, 2.03, 2.05, 2.06, or the Contract Special Provisions, as applicable. Excess excavations made by the Contractor beyond the payment limits specified in the Contract will not be measured for payment and the Contractor assumes all costs associated with the appropriate handling, management and disposal of this material.

Equipment decontamination, the collection of residuals, and the collection and disposal of liquids generated during equipment decontamination activities will not be measured separately for payment.

Basis of Payment:

This work will be paid for at the Contract unit price, which shall include transportation from the excavation site to the WSA, including any intermediate handling steps; stockpiling Controlled Materials at the WSA; covering, securing, and maintaining the individual stockpiles within the WSA throughout the duration of the Project; and all tools, equipment, material and labor incidental to this work.

This price shall also include equipment decontamination; the collection of residuals generated during decontamination and placement of such material in the WSA; and the collection and disposal of liquids generated during equipment decontamination activities.

All materials, tools, labor and equipment associated with compliance with the “General Permit for Contaminated Soil and/or Sediment Management (Staging and Transfer)” will not be measured separately, but will be considered incidental to the item “Controlled Materials Handling.”

Securing, construction, and dismantling of the WSA will be paid for under Item #0101128A. Handling and disposal of Contaminated Groundwater will be paid for under Item #0204213A.

<u>Pay Item</u>	<u>Pay Unit</u>
Controlled Materials Handling	C.Y.

ITEM #0101128A - SECURING, CONSTRUCTION AND DISMANTLING OF A WASTE STOCKPILE AND TREATMENT AREA

Description:

Work under this Item shall consist of the securing, construction and dismantling of the temporary Waste Stockpile Area (WSA) located at the infield between the Route 82 on/off ramps on Route 11, in Salem, Connecticut, as designated on the Project Plans and in accordance with the Contract Documents. All Controlled Materials excavated during construction activities shall be stockpiled in the WSA. The WSA shown on the Project Plans is to be used exclusively for temporary stockpiling of excavated materials from within the Project Area of Environmental Concern (AOEC) and for excavated materials from the "Low Level" AOECs (LLAOECs) that cannot be reused within Project limits, for determination of disposal classification.

Materials:

The required materials are detailed on the Project Plans. All materials shall conform to the requirements of the Contract.

Construction blocks shall be solid precast rectangular concrete six feet in length, two feet in height, and three feet in depth.

Polyethylene plastic sheeting for underlayment shall be a thickness of 30 mils and minimum width of 10 feet. Polyethylene plastic sheeting covering excavated material shall be a thickness of 10 mils and minimum width of 10 feet.

Sand bags used to secure polyethylene sheeting soil covers shall have a minimum weight of 30 pounds.

Bedding sand shall conform to Section 6.51.02 of the Specifications.

Processed aggregate base shall conform to Section 3.04 of the Specifications.

Hay bales shall conform to the requirements of Section 2.18 of the Specifications.

Bituminous concrete shall conform to Section 4.06 of the Specifications.

Safety fencing for securing the WSA bin openings from unauthorized entry shall be orange polyethylene at least 4 feet in height. The fencing shall be secured as necessary to provide a barrier to the bins, when not being accessed for load-in or load-out activities.

Anti-tracking pad shall be installed as shown on the Project Plans and in compliance with "Connecticut Guidelines for Soil Erosion and Sediment Control, 2002-Section 5-12."

Roll-off/storage containers shall be of watertight, steel-body construction, of the size specified and able to handle the storage and subsequent transportation of material to the disposal facility.

Construction Methods:

The WSA shall be constructed in accordance with the Contract Documents at the location shown on the Project Plans, or as directed by the Engineer. Construction of the WSA shall be completed prior to the initiation of construction activities generating Controlled Materials. The Contractor is responsible for the maintenance and protection of all utilities potentially affected during WSA construction. The Contractor shall locate and mark all existing utilities potentially affected prior to initiating WSA construction.

The proposed location of the WSA shall be cleared of any debris and vegetation as directed by the Engineer. Any objectionable materials, which may result in damage to the polyethylene sheeting underlayment, shall be removed prior to the construction of the WSA and stockpiling of the excavated Controlled Materials.

The Contractor shall comply with the terms and conditions of the Connecticut Department of Environmental Protection (CTDEP) "General Permit for Contaminated Soil and/or Sediment Management (Staging and Transfer)," including the General Operating Conditions, except that the Engineer will conduct all soil characterization and perform all record keeping. In particular, the Contractor shall:

1. Construct and repair the WSA in conformance with the requirements of the General Permit.
2. Prevent unauthorized entry onto the stockpiles by the use of fences, gates, or other natural or artificial barriers.
3. Install anti-tracking measures at the WSA to ensure the vehicles do not track soil from the WSA onto a public roadway at any time.
4. Post and maintain a sign that is visible from a distance of at least 25 feet at the WSA identifying the name of the permittee (State of Connecticut, Department of Transportation (DOT)), the DOT field office phone number, the hours of operation for the WSA, and the phrase, "Temporary Soil Staging Area." Lettering shall be at least 1 inch high with a minimum overall sign dimension of 4 feet wide by 2 feet high. Such sign is only required if the capacity of the WSA is equal to or greater than 1,000 cubic yards. If initially the WSA capacity is less than 1,000 cubic yards and the WSA capacity is subsequently increased, the Contractor shall post and maintain the required sign at no additional cost to the State, prior to stockpiling the additional material.

Following the removal of all stockpiled material, the Contractor shall use dry decontamination procedures, as specified in Item 0101117A, "Controlled Materials Handling," for all surfaces of the WSA as directed by the Engineer. Residual materials shall be disposed of as Controlled Materials, as applicable. If the results from dry methods are unsatisfactory to the Engineer, the Contractor shall modify decontamination procedures as required.

The Contractor shall be responsible for the collection and treatment/recycling/disposal of any liquid wastes that may be generated by its decontamination activities in accordance with applicable regulations.

Upon completion of the Project and following removal of all residual Controlled Materials, the Contractor shall dismantle the WSA, including the anti-tracking pad, and return the area to original condition, as approved by the Engineer. During dismantling, the Contractor shall remove all materials such as polyethylene sheeting, sand, and sand bags. Materials shall be disposed of by the Contractor as solid waste in accordance with the Contract and all federal, state and local regulations.

Operation and maintenance of the WSA shall be included under Item 0101117A "Controlled Material Handling."

Method of Measurement

"SECURING, CONSTRUCTION AND DISMANTLING OF A WASTE STOCKPILE AND TREATMENT AREA" will be measured for payment at the Lump Sum cost for securing, construction, and dismantling of a WSA.

Basis of Payment

This work will be paid for at the Contract Lump Sum, which shall include all materials, tools, labor, equipment, permits, and work needed to secure, construct, decontaminate and dismantle the WSA, including all clearing, grubbing, and grading (if necessary), clean up, site restoration and seeding.

All materials, tools, labor, and equipment associated with compliance with the "General Permit for Contaminated Soil and/or Sediment Management (Staging and Transfer)" will not be measured separately, but will be considered incidental to the Item 0101128A, "Securing, Construction and Dismantling of a Waste Stockpile and Treatment Area."

Pay Item

Securing, Construction and Dismantling
of a Waste Stockpile and Treatment Area

Pay Unit

Lump Sum

ITEM #0101130A - ENVIRONMENTAL WORK - SOLIDIFICATION

Description:

Under this item, the Contractor shall be responsible for the solidification of Controlled Materials containing free-draining liquids, as may be necessary during the performance of work operations prior to off-site disposal. Materials shall be dewatered prior to the addition of solidification material.

The Contractor shall submit within seven (7) days of the Notice to Proceed, for the Engineer's review, a detailed methodology and plan of operation for the solidification of materials.

Materials:

The materials used for solidification shall be a naturally occurring material such as diatomaceous earth or other material as approved by the Engineer. Said material shall be in a dry state prior to use in solidification operations. No polymers or other synthetic materials shall be allowed.

Construction Methods:

A. Submittals

The Contractor shall submit for the Engineer's review, a plan showing the location of solidification material storage and proposed mixing location as well as a detailed narrative describing the equipment, materials and methodology to be used. The Contractor shall also include his planned methods to remove or drain away free water prior to the addition of any solidification materials to Controlled Materials. The methodology shall completely describe the Contractor's proposed plan for removal of free liquids (as determined by ASTM) from the excavated materials. **Should solidification fail to eliminate free liquids as proposed, the Contractor will be required to revise the solidification plan at no additional cost to the State.**

The Contractor shall dewater Controlled Materials prior to the addition of solidification materials to the satisfaction of the Engineer. All dewatering fluids shall be handled in accordance with the Contract. Following dewatering, if the Controlled Materials have free liquids present, the Contractor may, with concurrence of the Engineer, add dry materials to absorb free-standing liquids, utilizing a methodology accepted by the Engineer. Solidification procedures shall be subject to monitoring by the Engineer.

The maximum quantity of solidification material that may be used by the Contractor shall be limited to twenty (20) percent, by volume, of the material being solidified. Should this procedure be demonstrated as not effective in the elimination of the presence of free-standing liquids, the Contractor shall submit methods for the removal of free-standing water. The Contractor shall also submit the additional costs of the proposed alternative to the Engineer

for review. No alternative methods of solidification shall be initiated until reviewed and accepted by the Engineer.

Method of Measurement:

The work of “ENVIRONMENTAL WORK – SOLIDIFICATION” will be measured for payment as the actual weight of solidification material used by the Contractor. The Contractor shall demonstrate the amount of solidification material used by the original weight tickets from a certified scale. The weight tickets shall show the weight of the material brought to the site and subsequently used in solidification operations.

If no certified scale is available, the Engineer may allow for the calculation of the weight by a summation of sealed, pre-measured bags.

Basis of Payment:

This work will be paid for at the Contract unit price for solidification material used and accepted by the Engineer. Such price shall include all labor, materials, tools, and equipment incidental to the work including transportation of the materials to the Project and the addition of solidification material to excavated materials.

<u>Pay Item</u>	<u>Pay Unit</u>
Environmental Work - Solidification	Ton

ITEM #0202315A - DISPOSAL OF CONTROLLED MATERIALS

Description:

Work under this item shall consist of the transportation and final offsite treatment/recycling/disposal of Controlled Materials (excluding dewatering fluids) that have been generated from excavations within the Area of Environmental Concern (AOEC), brought to the temporary waste stockpile area (WSA), and determined to be contaminated with regulated substances at non-hazardous levels. This contamination is documented in the reports listed in the “Notice to Contractor – Environmental Investigations.” The Controlled Materials at the WSA may also include the excavated material from the “Low Level” AOECs (LLAOECs) that cannot be reused within the Project limits. The Controlled Materials, after proper characterization by the Engineer, shall be taken from the WSA, loaded, transported to and treated/recycled/disposed of at a permitted treatment/recycle/disposal facility listed herein.

The Contractor must use one or more of the following Department-approved treatment/recycle/disposal facilities for the disposal of non-hazardous materials:

Waste Management – Chicopee Landfill Attn: Tom Heaton 161 New Lombard Road Chicopee, MA 01020 Phone: (413) 534-8741 Fax: (413) 493-1547	ESMI of New York Attn: Peter Hansen 304 Towpath Road Fort Edward, New York 12828 Phone: (518) 747-5500 Fax: (518) 747-1181
ESMI of New Hampshire Attn: Stephen Raper 67 International Drive Loudon, NH 03307 Phone: (603) 783-0228 Fax: (603)783-0104	Phoenix Soil Inc. Attn: Ken Quirke 130 Freight Street Waterbury, CT 06721 Phone: (203) 759-0053 Fax: (203) 757-4933
Greenwood Street Landfill Attn: Scott Sampson 30 Nipp Napp Trail Worcester, MA 01607 Phone: (603) 235-3597 Fax: (508) 755-8587	Soil Safe, Inc. Attn: George Dohn 378 Route 130, Logan Township Bridgeport, NJ 08085 Phone: (410) 872-3990 ext. 1120 Fax: (410) 872-9082
South Hadley Landfill, Inc. Attn: Tom Badowski 12 Industrial Drive South Hadley, MA 01075 Phone: (413) 535-3095 Fax: (413) 535-2147	Ted Ondrick Company, LLC Attn: Alan Desrosiers 58 Industrial Drive Chicopee, MA 01020 Phone: (413) 592-2566 Fax: (413) 592-7451

Tunnel Hill Reclamation Attn: Rod Deeds 2500 Township Road 205 Route 2 New Lexington, OH 43764 Phone: (740) 342-1180 Fax: (740) 342-1180	Waste Management – Granby Sanitary Landfill Attn: Tom Heaton 11 New Ludlow Road Granby, MA 01033 Phone: (413) 534-8741 ext. 137 Fax: (413) 467-3400
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Construction Methods:

A. Submittals

The apparent low bidder shall submit in writing, within fourteen days after Bid opening:

1. A letter listing the names of the treatment/recycle/disposal facilities (from the list above) which the bidder, if it is awarded the Contract, will use to receive Controlled Material from this Project;
2. A copy of the attached “Disposal Facility Material Acceptance Certification” form from each facility, which shall be signed by an authorized representative of each treatment/recycle/disposal facility; and
3. A copy of the facility acceptance criteria and facility sampling frequency requirements from each facility.

Any other Contractor that the Department may subsequently designate as the apparent low bidder shall make the aforementioned submissions within fourteen (14) days from the date on which the Department notifies the Contractor that it has become the apparent low bidder. If, however, the Department deems it is necessary for such a subsequent-designated Contractor to make said submissions within a shorter period of time, the Contractor shall make those submissions within the time designated by the Department.

Failure to comply with all of the above requirements may result in the rejection of the bid.

No facility may be substituted for the one(s) designated in the Contractor’s submittal without the Engineer’s prior approval. If the material cannot be accepted by any of the Contractor’s designated facilities, the Department will supply the Contractor with the name(s) of other acceptable facilities.

B. Material Disposal

The Engineer will sample materials stored at the WSA at a frequency established by the selected treatment/recycling/disposal facilities. The Contractor shall designate to the Engineer which facility it intends to use prior to samples being collected. The Contractor is hereby notified that laboratory turnaround time is expected to be fifteen (15) working days. Turnaround time is the period of time beginning when the Contractor notifies the Engineer which facility it intends to use and that the bin within the WSA is full and ready for sampling and ending with the Contractor's receipt of the laboratory analytical results. Any change of intended treatment/recycling/disposal facility may prompt the need to resample and will therefore restart the time required for laboratory turnaround. The laboratory will furnish such results to the Engineer. Upon receipt, the Engineer will make available to the Contractor the results of the final waste characterization determinations. **No delay claim will be considered based upon the Contractor's failure to accommodate the laboratory turnaround time as identified above.**

The Contractor shall obtain and complete all paperwork necessary to arrange for material disposal (such as disposal facility waste profile sheets). It is solely the Contractor's responsibility to coordinate the disposal of Controlled Materials with his selected treatment/recycling/disposal facility(s). Upon receipt of the final approval from the facility, the Contractor shall arrange for the loading, transport and treatment/recycling/disposal of the materials in accordance with all federal, state, and local regulations. **No claim will be considered based on the failure of the Contractor's selected disposal facility(s) to meet the Contractor's production rate or for the Contractor's failure to select sufficient facilities to meet its production rate.**

All manifests or bills of lading utilized to accompany the transportation of the material shall be prepared by the Contractor and signed by an authorized Department representative, as Generator, for each truck load of material that leaves the site. The Contractor shall forward the appropriate original copies of all manifests or bills of lading to the Engineer the same day the material leaves the Project.

A load-specific certificate of treatment/recycling/disposal, signed by the authorized agent representing the disposal facility, shall be obtained by the Contractor and promptly delivered to the Engineer for each load.

C. Material Transportation

In addition to all pertinent federal, state and local laws or regulatory agency polices, the Contractor shall adhere to the following precautions during the transport of Controlled Materials off site:

1. Transported Controlled Materials are to be covered sufficiently to preclude the loss of material during transport prior to leaving the site and are to remain covered until the arrival at the selected treatment/recycling/disposal facility.
2. All vehicles departing the site are to be properly logged to show the vehicle identification, driver's name, time of departure, destination, and approximate volume, and contents of materials carried.
3. No materials shall leave the site unless a treatment/recycling/disposal facility willing to accept all of the material being transported has agreed to accept the type and quantity of waste.

D. Equipment Decontamination

All equipment shall be provided to the work site free of gross contamination. The Engineer may prohibit from the site any equipment that in his opinion has not been thoroughly decontaminated prior to arrival. Any decontamination of the Contractor's equipment prior to arrival at the site shall be at the expense of the Contractor. The Contractor is prohibited from decontaminating equipment on the Project that has not been thoroughly decontaminated prior to arrival.

The Contractor shall furnish labor, materials, tools and equipment for decontamination of all equipment and supplies that are used to handle Controlled Materials. Decontamination shall be conducted at an area designated by the Engineer and shall be required prior to equipment and supplies leaving the Project, between stages of the work, and between work in different AOECs.

The Contractor shall use dry decontamination procedures. Residuals from dry decontamination activities shall be collected and managed as Controlled Materials. If the results from dry methods are unsatisfactory to the Engineer, the Contractor shall modify decontamination procedures as required.

The Contractor shall be responsible for the collection and treatment/recycling/disposal of any liquid wastes that may be generated by its decontamination activities in accordance with applicable regulations.

Method of Measurement:

The work of "DISPOSAL OF CONTROLLED MATERIALS" will be measured for payment as the actual net weight in tons of material delivered to the treatment/recycling/disposal facility. Such determinations shall be made by measuring each hauling vehicle on the certified permanent scales at the treatment/recycling/disposal facility. Total weight will be the summation of weight bills issued by the facility specific to this Project. Excess excavations made by the Contractor beyond the payment limits specified in Specification Sections 2.02, 2.03, 2.05, 2.06, or the

Contract Special Provisions (as appropriate) will not be measured for payment and the Contractor assumes responsibility for all costs associated with the appropriate handling, management and disposal of this material.

The disposal of excavated materials, originally anticipated to be Controlled Materials, but determined by characterization sampling not to contain concentrations of regulated chemicals (non-polluted or “clean” materials) will not be measured for payment under this item but will be considered as surplus excavated materials and will be paid in accordance with Article 1.04.05.

Any materials, which are determined through characterization sampling to be contaminated but reusable in accordance with the Remediation Standard Regulations, and which are reused within Project limits, will not be measured for payment under this item. This material will be paid for under Item # 0202318A, “Management of Reusable Controlled Materials,” or in accordance with Article 1.04.05, in the item’s absence.

Equipment decontamination, the collection of residuals, and the collection and disposal of liquids generated during equipment decontamination activities will not be measured separately for payment.

Basis of Payment:

This work will be paid for at the Contract unit price, which shall include the loading and transportation of Controlled Materials from the WSA to the treatment/recycling/disposal facility; the fees paid to the facility for treatment/recycling/disposal; the preparation of all related paperwork; and all equipment, materials, tools, and labor incidental to this work. **This unit price will be applicable to all of the Contractor-selected disposal facilities and will not change for the duration of the Project.**

This price shall also include equipment decontamination; the collection of residuals generated during decontamination and placement of such material in the WSA; and the collection and disposal of liquids generated during equipment decontamination activities.

<u>Pay Item</u>	<u>Pay Unit</u>
Disposal of Controlled Materials	Ton

ITEM #0202318A - MANAGEMENT OF REUSABLE CONTROLLED MATERIAL

Description:

Work under this item shall include all materials, equipment, tools and labor required to load, transport from the temporary waste stockpile area (WSA), place, and compact Reusable Controlled Materials in fill areas located within the Project limits. "Reusable Controlled Material" is soil that contains contaminant concentrations above analytical detection limits, but below the applicable Connecticut Remediation Standard Regulations (CT RSRs) criteria.

Construction Methods:

Controlled Material stored within the WSA which is determined to be reusable following analytical testing shall be loaded, transported, placed and compacted at fill areas located within the Project limits in accordance with the following conditions: (1) Such soil is deemed to be structurally suitable for use as fill by the Engineer; (2) Such soil is not placed below the water table; (3) The Connecticut Department of Environmental Protection (CTDEP) groundwater classification of the area where the soil is to be reused as fill does not preclude said reuse; and (4) Such soil is not placed in an area subject to erosion.

Method of Measurement:

"MANAGEMENT OF REUSABLE CONTROLLED MATERIAL" will be measured for payment by the number of cubic yards of material loaded and transported from the WSA and placed at fill areas located within the Project limits in accordance with the Contract.

Basis of Payment

This work will be paid for at the Contract unit price, which shall include all materials, equipment, tools and labor necessary to load and transport Reusable Controlled Materials from the WSA to fill areas located within the Project limits and to place and compact the reusable material. This price shall include any decontamination of soil handling equipment, and the treatment/recycling/disposal of wastes generated in conjunction with such decontamination.

No separate payment will be made for consolidating previously tested individual stockpiles that have been deemed reusable, but shall be considered incidental to the work.

The disposal of any Reusable Controlled Material that fails to meet material testing requirements for the intended use in accordance with the Contract requirements, as well as any excess reusable material, will be paid under Item 0202315A, "Disposal of Controlled Materials."

Pay Item

Management of Reusable Controlled Material

Pay Unit

C.Y.

ITEM #0204213A - HANDLING CONTAMINATED GROUNDWATER

Description:

Under this Item, the Contractor shall collect, manage, treat, and dispose of contaminated groundwater generated during dewatering operations within the designated Groundwater Areas of Environmental Concern (GW AOECs) within the project limits.

Contaminated groundwater is defined as “groundwater which has been generated from excavations within the designated GW AOECs containing substances at concentrations that exceed the effluent limits for the DEP *General Permit for the Discharge of Groundwater Remediation Wastewater Directly to Surface Water*.” The presence of contaminants removable through control of settleable solids does not constitute contaminated groundwater. Groundwater contamination caused by the Contractor’s activities or work practices is also not considered contaminated groundwater.

The contamination and groundwater depth at the time of the investigation is documented in the reports listed in the “Notice to Contractor – Environmental Investigations”. Contaminants and depth to groundwater is provided for the Contractor’s information and may be influenced by factors such as seasonal groundwater table changes, tidal changes, drought or flooding conditions, local withdrawals from the aquifer, local construction, etc. Additional information with regard to soil descriptions and groundwater observations may also be available if geotechnical investigations were conducted for the project. The Contractor shall contain contaminated groundwater and transport water to an off-site treatment/disposal facility.

This Item does not apply to the possible diversion of existing storm water flow around the construction site during Project activities. Diversion of existing storm water or surface flows shall be completed in accordance with the Contract and all applicable permits. This item also does not include process water or wastewater generated by the Contractor’s work activities.

Construction Methods:

A. General

It is the Contractor’s responsibility to determine the expected groundwater generation rate from construction activities, select the appropriate groundwater management method, and size its system capacity to meet those dewatering needs.

All equipment required as a part of this Item shall be installed in a location and manner acceptable to the Engineer and in accordance with the manufacturer’s recommendations. Equipment shall be decontaminated prior to arrival at the Project, decontaminated prior to being moved to another area of the project, and then decontaminated before it leaves the Project, at no additional cost to the State. Solids (soil or sediment) generated by on-site

dewatering activities shall be brought to the Waste Stockpile Area (WSA) for testing and characterization by the Engineer.

The Contractor is responsible for operating and maintaining the equipment at all times when dewatering in the GW AOEC(s) occurs. This includes providing appropriate supervision during evenings, weekends, and holidays. If the system is intended to operate unattended, a remote alarm system acceptable to the Engineer shall be installed to monitor critical system operating parameters and the Contractor shall be responsible for providing rapid emergency response during non-working hours in the event a system malfunction occurs. A list of names and phone numbers shall be displayed in the immediate vicinity of the system for emergency contacts.

The Contractor shall report releases from the groundwater treatment system due to overflowing or equipment/piping failure to the DEP Spill Response Unit in accordance with RCSA 22a-450 and provide the Engineer with all information, including the DEP case number. All costs related to spill response associated with the Contractor's on-site containment or treatment system will be the responsibility of the Contractor.

The Contractor shall collect all samples related to permit compliance in the presence of the Engineer. The Contractor shall provide informational copies of all groundwater analytical results and discharge monitoring reports to the Engineer as they are generated.

The Contractor shall operate the dewatering equipment at a rate that removes the groundwater that naturally infiltrates the excavation. The Contractor shall not cause a hydraulic gradient that draws groundwater into the excavation at an excessive rate. Additional treatment required due to the mobilization of off-site contaminants caused by the Contractor dewatering at an excessive rate will be the responsibility of the Contractor.

Additional treatment related to the Contractor's work activities (i.e. treatment or increased charges due to changes in pH or introduction of different contaminants into the groundwater) and management and disposal of excess water related to the Contractor's process water or waste water will not be included under this item but will be considered a part of the Contractor's cost for the item under which the work is being performed.

B. Groundwater Management Methods

The Contractor shall use the following method for the management and disposal of contaminated groundwater.

1. Off-Site Treatment and Disposal

At least 14 days prior to any work involving the dewatering of contaminated groundwater, the Contractor shall submit for the Engineer's review and comment its proposed system to collect and contain the contaminated groundwater. This submittal shall include schematics of proposed pump set-ups in excavations; sedimentation control measures; probable location of temporary containment tanks; schematics of proposed method to transfer liquids from temporary containment tanks to transport vehicles; schematic of proposed method to off-load liquids at the off-site permitted treatment/disposal facility; documentation that transport vehicles hold a "Waste Transportation Permit" for contaminated liquids per CGS 22a-454; and the name of the disposal facility from the following list of Department-approved and DEP-permitted treatment facilities for State-regulated liquid disposal:

Clean Harbors of CT
51 Broderick Rd.
Bristol, CT 06010
(860)224-7600

United Oil Recycling
Gracey Ave.
Meriden, CT 06450
(203)238-6754

Bridgeport United Recycling
50 Cross St.
Bridgeport, CT 06610
(203)238-6754

All testing required to meet facility acceptance parameters shall be conducted by the Contractor in the presence of the Engineer. The Contractor is hereby notified that laboratory turnaround time is expected to be fifteen (15) working days. The Contractor shall provide informational copies of the laboratory results to the Engineer. **No delay claim will be considered based upon the Contractor's failure to accommodate the laboratory turnaround time as identified above or to design its system with sufficient holding capacity to accommodate this requirement.**

The Contractor shall obtain and complete all paperwork necessary to arrange for disposal of the contaminated groundwater (such as disposal facility waste profile sheets). It is solely the Contractor's responsibility to coordinate the disposal with its selected facility. Upon receipt of the final approval from the facility, the Contractor shall arrange for the loading, transport and disposal in accordance with all federal and state regulations. **No claim will be considered based on the failure of the Contractor's selected disposal facility(s) to meet the Contractor's production rate or for the Contractor's failure to select sufficient facilities to meet its production rate.**

The Contractor will be responsible for disposal of the entire shipment as the Hazardous Waste Generator for water that undergoes a change in waste classification due to the Contractor's work activities or processes (i.e. contaminated groundwater being classified characteristically hazardous for pH due to grouting operations).

Method of Measurement:

Within fourteen (14) calendar days after addressing the Engineer's comments on the proposed system(s) for Handling Contaminated Groundwater, the Contractor shall submit to the Engineer for approval a cost breakdown of its lump sum bid price. The submission must include substantiation showing that the cost breakdown submitted is reasonable based on the Contractor's lump sum bid. The cost breakdown shall be in accordance with the following payment schedule:

- a. The cost to prepare the design for proposed system(s) for Handling Contaminated Groundwater, including preparation and submittal of all permit registration applications, in accordance with these specifications. Design costs shall not exceed 10% of the total cost of the item.
- b. The procurement and installation cost for the proposed system(s) for Handling Contaminated Groundwater in accordance with these specifications. Procurement and installation costs shall not exceed 20% of the total cost of the item.
- c. Equipment decontamination and demobilization and restoration of site. Decontamination and demobilization costs shall not exceed 10% of the total cost of the item.
- d. The remaining costs for operation, monitoring, sampling and analysis, disposal costs, and maintenance of the proposed system(s), including cleaning of the temporary containment tanks of settled solids, transporting of solids to the WSA, and transportation of the contaminated dewatering wastewater to an off-site permitted treatment/disposal facility in accordance with these specifications shall be divided evenly throughout the duration of the project work involving contaminated groundwater at the discretion of the Engineer.

Increased costs directly related to the Contractor's operation (i.e. treatment or increased charges due to changes in pH or additional contaminants, treatment and disposal of excess water related to process or waste water, etc.) will not be paid under this item but will be considered a part of the Contractor's cost for the item under which the work is being performed.

Basis of Payment:

This work will be paid for at the Contract lump sum price for "Handling Contaminated Groundwater" which price shall include: all work and materials involved with handling contaminated groundwater from within GW AOECs and shall include all equipment, materials, tools and labor incidental to removal of the contaminated groundwater from the excavation; conveying contaminated groundwater from the dewatering point to the temporary containment tanks; treatment; off-site disposal at a permitted treatment/disposal facility (including transportation); disposal or recycling of used treatment media (i.e. bag filters); disposal fees; electrical costs; sampling and documentation costs; laboratory costs; design and monitoring; mobilization, operation, and maintenance of the system; site work; all required equipment decontamination; transportation of solids to the WSA; and equipment demobilization.

Sedimentation control associated with work under this Item will be paid under the appropriate items of the Contract.

Pay Item

Pay Unit

Handling Contaminated Groundwater

Lump Sum

ITEM #0219050A – CATCH BASIN SEDIMENT FILTER

Description: This work shall consist of furnishing, installing, periodic inspection, maintenance, cleaning, removing and reinstalling a catch basin sediment filter as directed by the Engineer, manufacturer, and/or as shown on the plans. The purpose is to keep silt, sediment, and construction debris out of the storm water drainage system, while allowing storm water to flow continuously through the filter and into the drainage system in conformance to Section 1.10.03, Best Management Practices.

Materials: The Contractor is responsible for supplying all necessary material including; grate hooks, rebar, chains, and restraint cords to properly lift and lower a filter into and out of the inlet or the catch basin, including all materials, equipment, and labor incidental thereto. The catch basin sediment filters shall be commercially manufactured and distributed for the purpose of catching silt and sediment inside of a catch basin or inlet and separating silt, sediment, and debris from storm water. A fabric type filter shall be manufactured from a woven geotextile fabric and sewn using a high strength nylon thread. Each filter shall be manufactured to precisely fit the opening of an existing or new catch basin, drop inlet, and curb open inlet. The geotextile type filter shall have the following features: lifting loops or straps sewn as an integral part of the system to be used to lift the filter from the basin with another loop sewn along the bottom to facilitate the emptying of the filter. This type of filter shall also have restraint cords about halfway up the filter to keep the sides away from the catch basin walls. Metal basket type inserts shall have a geotextile type filter bag and the entire unit shall be able to fit inside new or existing catch basins, and shall be easily removable for ease of maintenance and cleaning.

Construction Methods: The catch basin sediment filter shall be placed by the Contractor in locations as shown on the plan and/or as directed by the Engineer.

Each filter shall be installed to enclose all openings of the inlet including curb open inlets, to manufacturers' recommendation and/or as directed by the engineer.

Each filter shall be inspected within 24 hours after every major rain event with a rainfall amount of 0.1 inch or greater for fullness of sediment and debris. If there are no major rain events, the filter should be checked every two weeks or per manufacturers' recommendations or as directed by the Engineer. Filter shall be emptied when greater than one-half of the capacity is reached or in anticipation of a major rain event.

When the filter needs to be emptied, care shall be taken not to damage the inlet or filter by removal and reinstallation.

Silt, sediment, and construction debris collected by the filter shall be removed from the construction site and disposed of by the contractor.

No filter shall be reused if damaged. The filter shall be permanently removed after the entire construction is completed or as directed by the Engineer.

Method of Measurement: Catch Basin Sediment Filter will be measured for payment by the number of inlet sediment filters installed, including all specified components, for each inlet structure, including respective catch basin curb open inlets. No separate measurement will be taken for maintenance, cleaning or removal of silt, sediment, and construction debris.

Basis of Payment: “Catch Basin Sediment Filter” will be paid for at the Contract Unit Price each, which shall include all materials, labor, periodic inspection, maintenance, removing and reinstalling, cleaning, and removal of debris incidental thereto. Payment shall not include reimbursement for replacement filter due to improper installation, handling, cleaning, storage, or negligence. No direct payment shall be made for disposal of any materials removed from the sediment filter.

Pay Item
CATCH BASIN SEDIMENT FILTER

Pay Unit
EA.

ITEM #0406267A - MILLING OF HOT MIX ASPHALT (HMA) – (0- 4 INCHES)

Description: This work shall consist of the milling, removal, and disposal of existing HMA pavement.

Materials: The existing HMA surface shall be disposed of offsite by the Contractor unless otherwise stated in the contract documents.

Construction Methods: The Contractor shall remove the HMA material using means acceptable to the Engineer. The pavement surface shall be removed to the line, grade, and existing or typical cross-section shown on the plans or directed by the Engineer.

The equipment for milling the pavement surface shall be designed and built for milling flexible pavements. It shall be self propelled with sufficient power, traction, and stability to maintain depth and slope and shall be capable of removing the existing HMA pavement.

The milling machine shall be equipped with a built-in automatic grade averaging control system that can control the longitudinal profile and the transverse cross-slope to produce the specified results. The longitudinal controls shall be capable of operating from any longitudinal grade reference, including string line, contact ski (30 feet minimum), non-contact ski (20 feet minimum), or mobile string line (30 feet minimum). The transverse controls shall have an automatic system for controlling cross-slope at a given rate. The Engineer may waive the requirement for automatic grade or slope controls where the situation warrants such action.

The rotary drum of the machine shall utilize carbide tip tools spaced not more than $\frac{5}{8}$ inches apart. The forward speed of the milling machine shall be limited to no more than 45 feet/minute. The tools on the revolving cutting drum must be continually maintained and shall be replaced as warranted to provide a uniform pavement texture. The Contractor may request to perform a test strip to demonstrate that the same surface tolerance can be attained at an increased forward speed. The test strip shall be a maximum length of 500 feet and shall have the same criteria for surface tolerance as noted in this specification. The final decision for implementing the increased forward speed will be at the discretion of the Engineer.

The machine shall be equipped with an integral pickup and conveying device to immediately remove material being milled from the surface of the roadway and discharge the millings into a truck, all in one operation. The machine shall also be equipped with a means of effectively limiting the amount of dust escaping from the milling and removal operation.

When milling smaller areas or areas where it is impractical to use the above described equipment, the use of a lesser equipped milling machine may be permitted when approved by the Engineer.

Protection shall be provided around existing catch basin inlets, manholes, utility valve boxes, and any similar structures. Any damage to such structures as a result of the milling operation is the Contractor's responsibility and shall be repaired at the Contractor's expense.

To prevent the infiltration of milled material into the storm drainage system, the Contractor shall take special care to prevent the milled material from falling into the inlet openings or inlet grates. Any milled material that has fallen into inlet openings or inlet grates shall be removed at the Contractor's expense.

Surface Tolerance: The milled surface shall provide a riding surface with a uniform textured appearance. The milled surface shall be free from gouges, longitudinal grooves and ridges, oil film, and other imperfections that are a result of defective equipment, improper use of equipment, or poor workmanship. The Contractor, under the direction of the inspector, shall perform random spot-checks with a Contractor supplied ten-foot straightedge to verify surface tolerances at a minimum of five locations per day. The variation of the top of two ridges from the testing edge of the straightedge, between any two ridge contact points, shall not exceed $\frac{3}{8}$ inch. The variation of the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed $\frac{3}{8}$ inch. Any unsatisfactory surfaces produced are the responsibility of the Contractor and shall be corrected at the Contractor's expense and to the satisfaction of the Engineer.

The depth of removal will be verified by taking a measurement every 250 feet per each pass of the milling machine, or as directed by the Engineer. These depth measurements shall be used to monitor the average depth of removal.

Where a surface delamination between HMA layers or a surface delamination of HMA on Portland cement concrete causes a non-uniform texture to occur, the depth of milling shall be adjusted +/- $\frac{1}{2}$ inch or until delamination is eliminated.

When removing a HMA pavement entirely from an underlying Portland cement concrete pavement, all of the HMA pavement shall be removed leaving a uniform surface of Portland cement concrete, unless otherwise directed by the Engineer.

Any unsatisfactory surfaces produced by the milling operation are the Contractor's responsibility and shall be corrected at the Contractor's expense and to the satisfaction of the Engineer.

No vertical faces, transverse or longitudinal, shall be left exposed to traffic. If any vertical face is formed in an area exposed to traffic a temporary paved transition will be established according to the requirements shown on the plans. If the milling machine is used to form a temporary transition, the length of the temporary transition shall conform to, Section 4.06 – Bituminous Concrete, "Transitions for Roadway Surface", the requirements shown on the plans, or as directed by the Engineer. At all permanent limits of removal, a clean vertical face shall be established by saw cutting prior to paving.

The milling operation shall proceed in accordance with the requirements of the “Maintenance and Protection of Traffic” and “Prosecution and Progress” specifications, or other contract requirements. The more stringent specification shall apply.

Prior to opening an area which has been milled to traffic, the pavement shall be thoroughly swept with a sweeper. The sweeper shall be equipped with a water tank and be capable of removing the millings and loose debris from the surface. Other sweeping equipment may be provided in lieu of the sweeper where acceptable by the Engineer.

Method of Measurement: This work will be measured for payment by the number of square yards of area from which the milling of asphalt has been completed and the work accepted. No area deductions will be made for minor unmilled areas such as catch basin inlets, manholes, utility boxes and any similar structures.

The depth of removal will be calculated by taking a measurement at a minimum every 250 feet per each pass of the milling machine, or as directed by the Engineer. The average depth of each section will determine which payment item is applicable.

Basis of Payment: This work will be paid for at the contract unit price per square yard for “Milling of HMA, (0 to 4 inches)”. This price shall include all equipment, tools, labor, and materials incidental thereto.

No separate payments will be made for cleaning the pavement prior to paving; providing protection and doing handwork removal of bituminous concrete around catch basin inlets, manholes, utility valve boxes and any similar structures; repairing surface defects as a result of the Contractors negligence; providing protection to underground utilities from the vibration of the milling operation; removal of any temporary milled transition; removal and disposal of millings; furnishing a sweeper and sweeping after milling. The costs for these items shall be included in the contract unit price.

Pay Item	Pay Unit
Milling of HMA – (0- 4 inches)	Sq. Yd

ITEM #0406993A – BITUMINOUS CONCRETE PAVEMENT COLORING AND STAMPING

Description:

A. StreetPrintXD™ is a thermoplastic surfacing system that provides a textured, highly attractive and durable topical treatment to the surface of asphalt pavement. The system replicates, in relief, the grout lines common to brick. Use StreetPrintXD™ on paved roadway to create a shoulder within the roundabout.

REFERENCES:

- A. ASTM D570 Standard Test Method for the Water Absorption of Plastics.
- B. ASTM D792 Standard Test Methods for Density and Specific Gravity (relative density) of Plastics by Displacement.
- C. ASTM D2240 Standard Test Method for Rubber Property – Durometer Hardness.
- D. ASTM D92 Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester.
- E. ASTM D256, Mtd A Standard Test Methods for Determining the IZOD Pendulum Impact Resistance of Plastics.
- F. AASHTO T250 Standard Method of Test for Thermoplastic Traffic Line Material.
- G. ASTM D36 Standard Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus).
- H. ASTM D2496 Standard Test method for Bond Strength of Thermoplastic Traffic Marking Materials.
- I. Integrated Paving Concepts Inc. StreetPrintXD™ Substrate Guide.
- J. Integrated Paving Concepts Inc. StreetPrintXD™ Recommended Applications Procedure Guide.

DEFINITIONS:

- A. “Accredited StreetPrintXD™ Applicator” is an applicator that is accredited and licensed for the current calendar year by Integrated Paving Concepts Inc. (Tel. 800-688-5652) to install StreetPrintXD™.
- B. “Ambient air temperature” is the air temperature in the immediate surrounding area.
- C. “The Work” is as outlined in the Scope of Work and includes the execution of the StreetPrintXD™ system.
- D. “ASTM” is the American Society for Testing and Materials.

REQUIRED BID SUBMITTAL DOCUMENTS:

A copy of a valid license agreement as provided by Integrated Paving Concepts, Inc. to the Accredited StreetPrintXD™ Applicator or written verification from Integrated Paving Concepts Inc. that the bid applicator is qualified to perform this Work.

Materials:

The materials required for the successful execution of the StreetPrintXD™ system are listed as follows.

- A. StreetPrintXD™ thermoplastic in “Colonial Brick” is provided in pre-cut panels to match the “Diagonal Herringbone” pattern. This material is provided by the Accredited StreetPrintXD™ Applicator and is available only from Integrated Paving Concepts Inc. No substitutions.
- B. StreetPrintXD™ sand which is packaged in 50 lb bags. The sand is provided by the Accredited StreetPrintXD™ Applicator and is available only from Integrated Paving Concepts Inc. No substitutions.

Characteristics of StreetPrintXD™ thermoplastic:

- A. StreetPrintXD™ thermoplastic consists of homogeneously mixed non-hazardous polymer resins, pigments, fillers consisting of TiO² and CaCO³, glass beads and at least 12% coarse aggregate particles sized 6-14 mesh. This product is not a hazardous chemical as defined by the OSHA Hazard Communication Standard CFR TITLE 29 1910.1200 or the WHMIS Canadian Legislation.
- B. StreetPrintXD™ thermoplastic has a negligible VOC level.
- C. StreetPrintXD™ thermoplastic shall be supplied as pre-cut panels at a standard thickness of 180 mils +/-10 mils (4.6 mm +/-0.25mm).
- D. Upon heating to application temperature, the StreetPrintXD™ thermoplastic will flow and preserve the integrity of its properties including its color.
- E. Environmental and Chemical Resistance: StreetPrintXD™ thermoplastic is resistant to deterioration when exposed to sunlight, gasoline, oil, salt, water or adverse weather conditions.
- F. Storage Life: StreetPrintXD™ thermoplastic can be stored for a period of two years if stored indoors in its original packaging at room temperature (21°C +/-3°C) (70°F +/-5°F).
- G. The following table provides typical characteristics of the StreetPrintXD™ thermoplastic.

TABLE 1 Characteristics for StreetPrintXD™ thermoplastic

Characteristic	Test Method	Typical Results of StreetPrintXD™ thermoplastic
Water Absorption	ASTM D570	< 0.5%
Binder Content	AASHTO T250	18.8% – 20.0%
Low Temp. Resistance @ 15°F	AASHTO T250	No cracking
Specific Gravity	ASTM D792	2.0 – 2.16
Indentation resistance @ 46.1 °C	ASTM D 2240	44 - 52
Impact Resistance	ASTM D256, Mtd A	<20
Flash Point	ASTM D92	>440°F
Bond Strength	ASTM D4796	316+ psi
Friction	British Pendulum	BPN > 65

STREETHEAT™ EQUIPMENT:

The following StreetHeat™ equipment available only from Integrated Paving Concepts Inc. is an integral part of the proper execution of the StreetPrintXD™ system. Equipment substitutions are not permitted.

A. Templates. Two wire rope templates are required in the execution of the StreetPrintXD™ system. One template is used for imprinting the asphalt pavement and the other is used to post-print the melted StreetPrintXD™ thermoplastic. These are the same pattern but made using different diameter woven wire rope. The wire rope diameter for the template used for imprinting the specified pattern into the asphalt pavement is 3/8" in diameter. The post-printing template is made from 1/4" diameter woven wire rope material.

B. StreetHeat™ Pavement Heaters. Integrated Paving Concepts offers three mobile, proprietary pieces of equipment designed specifically to elevate the temperature of the asphalt pavement and the thermoplastic without adversely affecting these materials. Two of these, the SR-120 and SR-60 Pavement Heaters (SR-120, SR-60) each employ a bank of propane fired infrared heaters mounted on a track device such that these can reciprocate back and forth over a designated area thereby allowing the operator to monitor the temperature of the asphalt pavement and the thermoplastic at all times during the heating process.

C. The third mobile re-heating device is the StreetHeat™ SR-20 Pavement Heater (SR-20). The SR-20 is designed specifically to reheat areas such as borders and narrow areas that are inaccessible to the SR-120 and SR-60 heaters. It may also be used to melt the black thermoplastic transverse lines in place. Similar to the SR-120 and SR-60, the SR-20 allows the operator to monitor the temperature of the asphalt pavement and the thermoplastic at all times during the heating process.

D. The StreetHeat™ Portable Jet Heater is a hand-held portable heating device to be used to heat isolated areas of the asphalt pavement or StreetPrintXD™ thermoplastic.

E. The StreetPrintXD™ Hand Held Finishing Tool enables the applicator to complete both the imprinting of the asphalt pavement and the post-printing of the thermoplastic in areas around permanent structures such as curbs and manholes covers which may be inaccessible to the template.

F. An air-assisted sand spreader is used to spray the sand in a uniform manner. Vibratory Plate Compactors in the size range from 700 – 900 pounds shall be used for pressing the template into the heated asphalt pavement and for post-printing the thermoplastic. Please note that Integrated Paving Concepts does not supply Vibratory Plate Compactors.

Construction Methods:

GENERAL:

The StreetPrintXD™ system shall be supplied and installed only by an Accredited StreetPrintXD™ Applicator or an applicator with written authorization from Integrated Paving Concepts Inc. for this specific project. The StreetPrintXD™ system shall be supplied and installed in accordance with the most recent Recommended Application Procedure Guide as provided by Integrated Paving Concepts Inc. and the Work shall be carried out in accordance with the plans and specifications or as directed by the Engineer. Do not begin installation without written confirmation of applicator accreditation or authorization.

PRE-CONDITIONS:

A highly stable asphalt pavement free of defects is a pre-requisite for the installation of the StreetPrintXD™ system. Do not install StreetPrintXD™ over poor quality asphalt pavement. For further information, please refer to the StreetPrintXD™ Integrated Paving Concepts Inc. Substrate Guide.

Pre-requisites for new asphalt pavement: A durable and stable asphalt pavement mix design installed according to best practices over a properly prepared and stable substrate is a pre-requisite for all long-lasting asphalt pavement surfaces. The application of StreetPrintXD™ does not change this requirement. Generally, the asphalt pavement mix design for roadways as prescribed by the local jurisdiction will be sufficient for the application of StreetPrintXD™.

Pre-requisites for existing asphalt pavement: Depending upon the condition and age, existing asphalt pavement may or may not be suitable for the successful installation of StreetPrintXD™. Minimally, the asphalt pavement must be free of all visible defects including cracks, ruts or potholes nor can it demonstrate any flushing, excessive raveling or like deficiencies. The maximum recommended age of the asphalt surface is 5 years. The Accredited StreetPrintXD™ Applicator can advise on the suitability of the asphalt pavement.

Recommended guidelines for Resurfacing applications: The Engineer may decide to remove and replace the existing asphalt pavement; if so, a durable, stable mix design installed in accordance with best practices is a pre-requisite. A minimum lift thickness of two inches is recommended. It is generally recommended to not proceed with Resurfacing application when the outside air temperature is less than 50°F (10°C). It is also recommended that the new surface be machine

laid. For further information, please refer to the latest version of the StreetPrintXD™ Integrated Paving Concepts Inc. Substrate Guide.

SURFACE PREPARATION:

The asphalt pavement surface shall be dry and free from all foreign matter, including but not limited to dirt, dust, de-icing materials, and chemical residue.

LAYOUT:

Layout of the pattern for imprinting into the surface of the asphalt pavement shall be “Offset Brick” pattern as per the drawings and specifications and in accordance to the methods prescribed by the Accredited StreetPrintXD™ Applicator in conjunction with the Engineer.

HEATING THE ASPHALT PAVEMENT:

Primary heating of the pavement surface is accomplished using the SR-120 or SR-60 pavement heaters. The optimal pavement temperature for imprinting the template is dependent upon mix design, modifiers used in the mix, and the age of the pavement. Care must be taken to avoid over heating the pavement; excessive blue smoke emanating from the asphalt pavement must be avoided. Typically, the surface temperature of the pavement should not exceed 325°F (160°C) as determined by reading a calibrated infra-red thermometer. To obtain the most accurate reading, ensure the thermometer is at least 2 feet away from the propane fired infrared heaters.

SURFACE IMPRINTING:

Once the asphalt pavement has reached imprinting temperature, the first (3/8” diameter wire rope) template shall be placed in position then pressed into the surface using vibratory plate compactors. Once the top of the template is level with the surrounding asphalt pavement, the template can be removed. Areas that have an imprint depth less than the depth of the template shall be re-heated and re-stamped prior to installing the StreetPrintXD™ thermoplastic. In areas difficult to get at with the template, or areas that have light print, the StreetPrintXD™ Hand Held Finishing Tool may be used to complete the imprint process.

INSTALLING THE STREETPRINTXD™ THERMOPLASTIC AND SAND:

- A. The area must be thoroughly cleaned and dried before installing the StreetPrintXD™ thermoplastic.
- B. Do not install during periods of precipitation.
- C. Both the ambient air temperature and the pavement temperature must be above 45°F (7°C). Do not install when there is frost still in the ground.
- D. Place the StreetPrintXD™ thermoplastic sheets over top of the imprinted asphalt pavement and in-line with the pattern. The sheets are to be butted together without overlap and cover the entire area designated to receive the StreetPrintXD™ surfacing system.
- E. Using the StreetHeat™ equipment, heat is applied to the thermoplastic to gradually raise the temperature so that the thermoplastic is melted all the way through and begins to flow into the grout lines and fuse with both the surface of the asphalt pavement and the edges of the neighboring thermoplastic sheet.
- F. As the StreetPrintXD™ thermoplastic starts to flow and adhesion to the pavement surface is attained, the StreetPrintXD™ sand is seeded evenly into and on top of the thermoplastic using

the sand spreader at an approximate rate of one 50 pound bag per 200SF of StreetPrintXD™ surface.

G. Using the vibratory plate compactor, the thermoplastic is then post-printed using the second (1/4" diameter wire rope) template. The pattern will now be clearly defined.

H. The StreetPrintXD™ shoulders shall require demarcation by the Accredited StreetPrintXD™ Applicator using the preformed transverse black thermoplastic line stripe material.

PROTECTION AND OPENING TO TRAFFIC:

The melted thermoplastic is to be protected until it cools and hardens. Water may be introduced to the surface of the StreetPrintXD™ by the Accredited StreetPrintXD™ Applicator as a way to help accelerate the cooling of the thermoplastic. Do not permit any debris such as dust, excessive water, pollen etc to come in contact with the melted thermoplastic. The road may be opened to traffic once the thermoplastic has cooled to adjacent pavement temperature.

Method of Measurement:

The measured area is the actual area of pavement that has received the StreetPrintXD™ thermoplastic, measured in place. No deduction will be made for the area(s) occupied by manholes, inlets, drainage structures, bollards or by any public utility appurtenances within the area.

Basis of Payment:

This item will be paid for at the Contract unit price per square foot for "Bituminous Concrete Pavement Coloring and Stamping," which price shall include the furnishing of all equipment, tools, labor, and work incidental thereto.

Pay Item	Pay Unit
Bituminous Concrete Pavement Coloring and Stamping	S.F.

ITEM #0406999A - ASPHALT ADJUSTMENT COST

The Asphalt Price is available on the Department of Transportation web site at:

<http://www.ct.gov/dot/asphaltadjustment>

The asphalt adjustment cost will be based on the variance in price for the performance-graded binder component of hot mix asphalt (HMA) mixtures completed and accepted in the contract.

An asphalt adjustment cost will be applied only if all of the following conditions are met:

- a) The HMA mixture in which the adjustment is being applied is listed as a contract item with a pay unit of tons or metric tons.
- b) The total quantity for all HMA mixtures in a contract or individual purchase order (Department of Administrative Service contract awards) exceeds 1000 tons or more.
- c) The difference between the posted *Asphalt Base Price* and *Asphalt Period Price* varies by more than \$5.00.

The Connecticut Department of Transportation (ConnDOT) shall post on its website, the average per ton selling price (asphalt price) of the performance-graded binder. The average is based on the high and low selling price published in the most recent available issue of the **Asphalt Weekly Monitor**® furnished by Poten & Partners, Inc. under the “East Coast Market – New England, New Haven, Connecticut area”, F.O.B. manufacturer’s terminal.

The selling price furnished from the Asphalt Weekly Monitor ® is based on a standard ton (US\$/ST). The metric ton price is determined by applying a factor of 1.1023 (US\$/ST x 1.1023 = US\$/mton). Example: \$150.00/ton x 1.1023 = \$165.34/mton

Formula:
$$\text{HMA} \times \frac{\text{PG}\%}{100} \times [(\text{Period Price} - \text{Base Price})] = \$ \underline{\hspace{2cm}}$$

- **HMA:** The quantity (tons or metric tons) of accepted HMA mixture measured and accepted for payment.
- **Asphalt Base Price:** The asphalt price that is posted on the ConnDOT website 28 days before the actual bid opening posted.
- **Asphalt Period Price:** The asphalt price that is posted on the ConnDOT website for the period in which the HMA mixture is placed.

- Performance-Graded Binder percentage (PG%) for HMA mixes:

PG% = 4.5

- For Superpave 37.5mm (1.5 inch), Superpave 25.0mm (1.0 inch), HMA S1, and Class 4

PG % = 5.0

- For Superpave 12.5mm (0.50 inch), HMA S0.5 and Class 1.

PG % = 6.0

- For Superpave 0.375 inch (9.5mm), HMA S0.375, Superpave 6.25mm (0.25 inch), HMA S0.25, Superpave 4.75mm (#4) and Class 2.

The adjustment shall not be considered as a changed condition in the contract because of this provision and because the Contractors are being notified before submission of bids.

Basis of Payment: The "Asphalt Adjustment Cost" will be calculated using the formula indicated above. A payment will be made for an increase in costs. A deduction from monies due the Contractor will be made for a decrease in costs.

The sum of money shown on the estimate, and in the itemized proposal as "Estimated Cost", for this item will be considered the bid price although payment will be made as described above. The estimated cost figure is not to be altered in any manner by the bidder. If the bidder should alter the amount shown, the altered figure will be disregarded and the original cost figure will be used to determine the amount of the bid for the Contract.

ITEM #0601020A – STAMPED CONCRETE

Construct Stamped Concrete Pavement Surfaces as shown on the plans and in accordance with Article 4.01, supplemented as follows:

Article 4.01.01 - Description: Add the following:

Work under this item shall consist of textured (stamped), colored concrete surfaces constructed on gravel or reclaimed miscellaneous aggregate base with a thickness and stamped, colored concrete finish as shown on the plans or as directed by the Engineer, and in accordance with these specifications.

Article 4.01.02 – Materials: Add the following:

1. **Coloring Agent** – The primary concrete coloring agent shall be pigmented coloring admixtures processed specifically for incorporating into the concrete mix and complying with ASTM C979 and ASTM C494. The coloring agent shall contain colored, water-reducing, coloring agents that are lime proof and UV resistant, and without calcium chloride. If the concrete mix is not delivered with the coloring admixture already mixed in, pre-weighed and packaged dry high-grade coloring pigments for integrally colored concrete shall be used. The pigment color to be added to the concrete shall be selected as shown on the plans or as directed by the engineer from manufacturer's standards. A colored release agent compatible with the integral pigments shall be used in accordance with the manufacturer's recommendations to achieve the desired finished appearance.
2. **Color** – The color shall be as found on the Scofield Website:
(http://www.scofield.com/lkch_cchart.html) or approved equals:

For the truck apron: LITHOCHROME ® Color Hardener Color selection Guide Nos. A-59 Beige Cream for the larger portion between chevrons, and A-26 Brick Red for the chevrons, manufactured by L.M. Scofield Company, 280 Park Avenue, Rutherford, NJ 07070, telephone (201) 672-9050

For the splitter islands: LITHOCHROME ® Color Hardener Color selection Guide No. A-26 Brick Red, manufactured by L.M. Scofield Company, 280 Park Avenue, Rutherford, NJ 07070, telephone (201) 672-9050
3. **Releasing Agent** - The dry-shake powder releasing agent shall be used to facilitate release of imprinting tools as recommended by the manufacturer and compatible with integral color additives.
4. **Mat Tools** - Mat tools shall be high quality resilient mats reproduced from castings of natural materials and providing uniform control of joint depth. The stamped concrete pattern shall be the following patterns or approved equals:

For the truck apron: LITHOTEX ® Pavecrafters ® European Fieldstone – Random Interlocking Pattern No. 447C, manufactured by L.M. Scofield Company, 280 Park Avenue, Rutherford, NJ 07070, telephone (201) 672-9050, Viewed on the following website: http://www.scofield.com/stampedconcrete_patterns450.html

For the splitter islands: LITHOTEX ® Pavecrafters ® Used Brick – 36x16 Running Bond Pattern No. 2500, manufactured by L.M. Scofield Company, 280 Park Avenue, Rutherford, NJ 07070, telephone (201) 672-9050, Viewed on the following website: http://www.scofield.com/stampedconcrete_patterns25.html

4. **Curing and Sealing Compound** - The clear sealant shall be the following or an approved equal:

SCOFIELD® Cureseal-W™ [Semi Gloss], manufactured by L.M. Scofield Company, 280 Park Avenue, Rutherford, NJ 07070, telephone (201) 672-9050

Curing and sealing compound shall conform to the requirements of ASTM C309 and matching the color admixture manufacturer, for use with integrally colored concrete.

5. **Joint Sealant** - The silicone joint sealants shall be the following or an approved equal:

Dow Corning 888 or 890-SL, manufactured by The Dow Corning Corporation, PO Box 994, Midland, MI 48686-0994

Other silicone joint sealants expressly manufactured for use with concrete will be considered for use provided they are submitted in advance for approval to the Engineer. Other joint sealants will be considered for use only if a complete product description is submitted, as well as documentation describing at least five installations of the product. These documented installations must demonstrate that the product has performed successfully for at least three years under traffic conditions.

6. **Backer Rod** - An open-cell type rod with an impervious skin that will not outgas when ruptured. Use the backer rod together with the joint sealant. The backer rod shall be one of the following or an approved equal:

SOF ROD, manufactured by Nomaco Inc., 501 NMC Drive, Zebulon, NC 27597, telephone 1 800 345-7279, OR

CERA-ROD, manufactured by W.R. Meadows Inc., 2100 Monroe Street, York, PA 17404, telephone (717) 792-2627, OR

Sandells Open-Cell Backer Rod, manufactured by Sandell Mfg. Co. Inc., 310 Wayto Road, Schenectady, NY 12303, telephone 1 800 283-3888

Preformed expansion joint filler shall conform with Article M.03.01 Part 5.(b).(1).

Concrete must have a minimum 28-day compressive strength of 4500 psi concrete for the truck apron and splitter islands, with a maximum aggregate size of 1/2". Cement from the same mill and raw materials of the same type and brand should be used for all the stamped concrete surfaces on the project including the test panel to minimize the potential for color variations. In addition, the temperature of the concrete must be kept between 65 and 85 degrees Fahrenheit unless otherwise specified by the manufacturer.

Article 4.01.03 – Construction Methods: Add the following:

The contractor shall have at least 5 years of experience performing the installation of patterned and colored concrete on various state and/or municipal contracts. The prime Contractor submits a minimum of 5 references proving the satisfactory completion of such work performed by the concrete contractor within 7 calendar days of the award of the contract for Engineer approval. The submittal shall include the names, addresses, and phone numbers of the personnel responsible for the administering the contracts, and the location of the prior work. If the Engineer determines that the contractor proposed has insufficient experience, or has performed unsatisfactory work on other contracts, the prime Contractor will be required to resubmit documentation for an alternate contractor for the approval of the Engineer. Submit Contractor name and references to:

Mr. Gregory Strakta
Manager of Contracts
2800 Berlin Turnpike
Newington, CT 06131-7546

At least 30 days prior to construction of the first stamped concrete surfaces, the Contractor shall prepare a test form with a full scale field mock-up of the stamped concrete surface (5'x5') showing the proposed color, stamp pattern, surface finish, joint treatment and layout, and standard of workmanship as shown on the plans. Construct the test slab using the same methods as outlined in the above Construction Methods and using the same materials. The test panel shall include a repaired area of at least 1.5' X 1.5' to demonstrate the Contractors ability to match the color and texture in the event the stamped concrete becomes damaged during construction and requires repair. Additional test panels ordered by the Engineer for purposes of color comparison only, may be 1.5' X 1.5'. The Contractor may choose to supply several test panels of this size for purposes of color selection prior to construction the stamped 5' X 5' textured panel. If the resulting appearance is not acceptable to the Engineer, adjustments shall be made to the color, pattern, finished texture and/or joint treatment and another test form shall be prepared for inspection. The construction of the stamped concrete shall not begin until the Engineer has approved the test panel. The test panels shall be maintained during construction in an undisturbed condition as a standard for judging the completed work. All test panels shall be removed and disposed of when directed by the Engineer.

The pattern layout and joint locations shall be coordinated with and approved by the Engineer prior to any construction. The stamped concrete shall have a uniform and consistent color and pattern matching that of the approved test panel. Care is required while constructing the pattern with respect to the joints to insure the stones in the pattern line up with the joint locations. All manufacturers' recommendations shall be followed unless otherwise directed by the Engineer.

Excavation, construction of gravel or reclaimed miscellaneous aggregate base, constructing forms, and the placement of concrete shall be performed in accordance with the requirements of the applicable provisions of Article 9.21.03 – Construction Methods.

The concrete slab shall be placed on the prepared subbase to the depth and width as shown on the plans. The concrete shall be screeded to the finished grade and floated to a uniform surface using standard finishing techniques.

Low Temperature Placements: No concrete is to be placed when air temperature is below 50°F unless additional precautions are taken and prior approval is given by the Engineer. The Engineer must approve all placements below 50°F. No concrete will be placed on frozen subgrade or at temperatures below 20°F. Concrete exposed to temperatures below 40°F after placement must be protected through the use of insulating blankets, a six (6) inch layer of straw that is maintained in a dry condition by a covering of plastic sheeting, or other appropriate methods. Any concrete placed during cold weather that is damaged because of freezing shall be replaced at the Contractor's own expense.

A releasing agent shall be applied evenly to the surface. While the concrete is still in the plastic stage of set, the specified imprinting tools shall be applied to the surface in order to develop the desired patterned surface as indicated on the plans or specified by the Engineer. Once the concrete slab has reached initial cure, the releasing agent may be washed off with a normal garden hose. It is usually desirable to leave a certain amount of releasing agent in the imprint lines and textured areas to give a two-color effect, which is most desirable in stamped concrete surfaces.

The surface shall be cleaned of dirt, oil, gas and all other foreign material and allowed to dry completely before applying sealer per manufacturer's recommendations.

The Contractor shall have on the job, at all times, sufficient waterproof paper to provide complete coverage in the event of rain. Protect the surface if rain occurs before final set. If rain falls on the newly coated concrete before the curing film has dried sufficiently to resist damage, or if the film is damaged in any other manner, the contractor shall reapply same. Treated surfaces shall be protected from all foot or vehicular traffic for a sufficient period of time to prevent damage.

The Contractor shall protect newly poured concrete surfaces so as to prevent damage from falling objects, vandalism, etc. The Contractor shall repair or remove and replace any damaged or defaced concrete surface at his own expense. Determination to repair or remove and replace will be at the sole discretion of the Engineer.

The stamped concrete shall have a uniform and consistent color and pattern matching that of the approved test slab. Stamp patterns with respect to the joints to insure the stones in the pattern line up with the joint locations. Special procedures or stamping equipment is required to construct the pattern on the circular truck apron or irregular shaped islands. The Contractor shall follow all manufacturers' recommendations unless otherwise directed by the Engineer.

A Pre-Placement meeting shall be held one week prior to concrete placement to discuss the project and application methods. It is strongly suggested that the Engineer, General Contractor, Subcontractor, concrete representative, and a manufacturer's representative are all present at the meeting.

Article 4.01.04 - Method of Measurement: Delete Sections A & B in their entirety. Delete Section C Subarticle 1 and replace with the following:

1. Stamped Concrete: This work will be measured by the actual number of square feet of stamped concrete completed and accepted.

There will be no measurement for payment for coloring agent, releasing agent, mat tools, joint sealer or filler, but the cost shall be considered as included in the contract unit price for the stamped concrete surface.

Test panels shall be included in the general cost of the work and not measured for payment.

Article 4.01.05 - Basis of Payment: Delete the first paragraph of Section 1 and replace with the following:

1. Stamped Concrete: This work will be paid for at the contract unit price per square foot for "Stamped Concrete," complete in place, which price shall include all excavation, gravel or reclaimed miscellaneous aggregate base, PVC sleeves, equipment, tools, materials and labor incidental thereto. The price shall also include concrete complete in place and construction and proper disposal of test panels.

Reinforcing will be paid separately at the contract unit price per pound for "Deformed Steel Bars"

No separate payment will be made for joint sealer or filler

Warranty:

For a minimum of 3 years but no more than 5 years post construction, The Contractor shall furnish and repair any defects of the stamped concrete. Defects include a stamped concrete surface showing pockets of varying color concrete degradation as a result of poor workmanship or poor material. Poor workmanship or material consists of any of the following characteristics; a concrete mix with water or air content outside manufacturer's specifications, 28-day minimum compressive strength less than 4500 psi, aggregate larger than 1/2", a concrete slump exceeding 5 inches, or excessive

permeability. The Contractor shall furnish and repair all damaged sections resulting from poor workmanship or material, as directed by the Engineer, and at no cost to the State.

Pay Item
Stamped Concrete

Pay Unit
s.f.

ITEM #0601445A - EMBANKMENT WALL (SITE NO. 1)

Description: This item will consist of designing, furnishing and constructing an embankment retaining wall in the location, grades, and to the dimensions and details shown on the contract drawings, and in accordance with these specifications.

Retaining Wall Selection: The Contractor shall select the proprietary embankment retaining wall from the Department's current approved list shown below. The Engineer will reject any proposed retaining wall that is not listed below.

The following is a list of the proprietary embankment retaining walls for this project:

1. VERSA-LOK Retaining Wall
VERSA-LOK of New England
P.O. Box 6002
Nashua, NH 03063
(603) 883-3042

3. KeySystem I Retaining Wall
Keystone Retaining Wall Systems
13453 County Road 1
Fairhope, AL 36532
(251) 990-5761

2. MESA Retaining Wall System
TENSAR Earth Technology, Inc.
227 Ritter Road
Sewickley, PA 15143
(412) 749-9190

4. Pyramid Modular Blockwall
The Reinforced Earth Company
133 Park Street
North Reading, MA 01864
(978) 664-2830

5. Redi-Rock Retaining Wall-
Cobblestone Face Mold
Redi-Rock Walls-CT Division
68A South Canal Street
Plainville, CT 06062
(860) 793-6805

No other proprietary retaining walls will be allowed for this project.

This listing does not warrant that the individual walls can be designed to meet either the dimensional, structural, or geotechnical constraints at each site.

Design:

1 - Design Computations: It is the Contractor's responsibility for the design, detailing and additional construction specifications required to construct the wall. The actual designer of the retaining wall shall be a qualified Professional Engineer licensed in the State of Connecticut.

2 - Designer's Liability Insurance: The Designer shall secure and maintain at no direct cost to the State, a Professional Liability Insurance Policy for errors and omissions in the minimum amount of Five Hundred Thousand Dollars (\$500,000). The designer may, at his election, obtain a policy containing a maximum One Hundred Twenty Five Thousand Dollars (\$125,000) deductible clause, but if he should obtain a policy containing such a clause, the designer shall be liable to the extent of the deductible amount. The Designer shall obtain the appropriate and proper endorsement to its Professional Liability Policy to cover the indemnification clause in this contract as the same relates to negligent acts, errors or omissions in the work performed by the Designer. The Designer shall continue this liability insurance coverage for a period of three years from the date of the acceptance of the work by the agency head as evidenced by a certificate of acceptance issued to the contractor or for three years after the termination of the contract, whichever is earlier, subject to the continued commercial availability of such insurance.

The designer shall supply the certificate of this insurance to the Engineer prior to the start of construction of the wall. The designer's insurance company shall be licensed in the State of Connecticut.

3 - Preliminary Submissions: Prior to the start of fabrication or construction, the Contractor shall submit to the Engineer a design package, which shall include, but not be limited to the following:

a. Detailed Plans:

- Plan sheets shall be approximately 24" x 36"
- Stamped by a licensed Professional Engineer (Connecticut).
- Full plan view of the wall drawn to scale. The plan view must reflect the horizontal alignment and offset from the horizontal control line to the face of the wall. Beginning and ending stations, all utilities, signs, lights, etc. that affect the construction along with all property lines and easement lines adjacent to the wall shall be shown.
- Full elevation view of the wall drawn to scale. Elevation views should indicate the elevation at the top and bottom of walls, horizontal and vertical break points, and the location of finished grade.
- Typical cross sections drawn to scale including all appurtenances. Detailed cross section should be provided at significant reinforcement transitions such as wall ends.

- Details of all wall components and their connections such as the length, size and type of soil reinforcement and where any changes occur; facing details; connections; etc.
 - Certified test reports indicating the connection strength versus normal load relationship for the block-soil reinforcement connection to be used.
 - Drainage details for embankment backfill including attachment to outlets shown on contract drawings.
 - Details of any roadway drainage pipe projecting through the wall, or any attachments to the wall. Details of the treatment of drainage swales or ditches shown on the contract drawings.
 - Design parameters used along with AASHTO references.
 - Material designations for all materials to be used.
 - Detailed construction methods including a quality control plan. Construction quality control plans should include monitoring and testing frequencies (e.g, for setting batter and maintaining horizontal and vertical control). Construction restraints should also be listed in the details. Specific requirements for construction around obstructions should be included.
 - Details of installation of protective fencing where required.
 - Details of Architectural Treatment where required.
 - Details of Temporary Earth Retaining System(s) where required.
 - Details of wall treatment where the wall abuts other structures.
 - Treatment at underground utilities where required.
- b. Design Computations:
- Stamped by a licensed Professional Engineer (Connecticut).
 - Computations shall clearly refer to the applicable AASHTO provisions as stated in the Notes on the Contract Drawings.
 - Documentation of computer programs including all design parameters.

c. Construction Specifications:

- Construction methods specific to the proprietary retaining wall chosen. These specifications should include construction limitations including vertical clearance, right-of-way limits, etc. Submittal requirements for materials such as certification, quality, and acceptance/rejection criteria should be included. Details on connection of modular units and connection of reinforcements such that assurance of uniform stress transfer should be included.
- Any requirements not stated herein.

The submissions for proprietary retaining walls shall be treated as working drawings according to Section 1.05 amended as follows:

a. Six sets of each submission shall be supplied to the State

b. The Contractor shall allow 21 days for the review of each submission. If subsequent submissions are required as a result of the review process, 21 days shall be allowed for review of these submissions. No extensions in contract time will be allowed for the review of these submissions.

4 - Final Submissions: Once a proprietary retaining wall design has been reviewed and accepted by the Department, the Contractor shall submit the final plans. The final submission shall include one set of full size (approximately 24" x 36") mylar sheets and five sets of full size blue line copies.

The final submission shall be made within 14 days of acceptance by the State. No work shall be performed on the retaining wall until the final submission has been received by the Department.

Acceptance of the final design shall not relieve the Contractor of his responsibility under the contract for the successful completion of the work.

The actual designer of the proprietary retaining wall is responsible for the review of any shop drawings prepared for the fabrication of the wall. One set of full size blue line copies of all approved shop drawings shall be submitted to the Department's permanent records.

5 - General Design Requirements:

a. All designs for proprietary walls and temporary earth retaining systems shall conform to the latest edition of the American Association of State Highway and Transportation Officials (AASHTO) Standard Specifications for Highway Bridges and later interims published except as noted otherwise herein:

b. The wall design shall follow the general dimensions of the wall envelope shown in the contract plans.

c. The top of the concrete leveling pad shall be located at or below the theoretical leveling pad elevation. The minimum wall embedment shall be two feet as measured to the top of the leveling pad or as shown on the plans.

d. If footing steps are required, they shall be kept below the minimum embedment depth. Footing steps in addition to those shown on the plans will be permitted at no additional cost to the State.

e. The wall shall be designed to be within all property lines and easement lines shown on the contract drawings. If additional work areas are necessary for the construction of the proprietary retaining wall, the Contractor shall be responsible for obtaining the rights from the affected property owners. Copies of these rights shall be forwarded to the Department.

f. The top of the wall shall be at or above the top of the wall elevations shown on the plans. The top of the wall may be level or sloped to meet the top of the wall line noted.

g. Cast-in-place concrete will not be an acceptable replacement for areas noted by the wall envelope, except for minor grouting of pipe penetrations.

h. The mechanical wall height for the purposes of design calculations shall be from the top of the leveling pad to the top of the potential failure surface where the failure surface intercepts the ground surface.

i. The minimum length of internal soil reinforcement shall be as specified in AASHTO 5.8.1, except for the minimum eight (8.0') foot length requirement.

i. If there are specific surcharges acting on the wall, they shall also be accounted for. The minimum equivalent fluid pressure used to design the wall shall be 33 lbs./ft² per linear foot of wall.

j. The maximum allowable bearing capacity of the soil shall be assumed to be 4 ksf unless otherwise shown on the plans. If additional soils information is required by the designer, it must be obtained by the Contractor and will not be reimbursed by the State.

k. For limit state allowable stress computations of extensible reinforcements, the combined factor of safety for construction damage and environmental/aging effects shall not be less than 1.75.

Materials: Materials shall conform to the following requirements and those not listed below shall be as prescribed within the Standard Specifications for Roads, Bridges and Incidental Construction, including supplemental specifications and applicable special provisions.

1 – Facing Block: The facing block can be precast or drycast concrete and shall be the color specified on the plans. The block shall meet the following requirements:

a. Drycast Concrete:

- i. The minimum compressive strength of the block shall be 4000 psi measured at 28 days.
- ii. The maximum water absorption shall be less than five percent.

The Contractor shall submit to the Engineer a certified test report confirming the compressive strength and water absorption conform to the requirements of ASTM C-140.

b. Precast Concrete: Shall conform to the requirements of Section M.03 and as follows:

- i. The minimum compressive strength of the block shall be 4000 psi measured at 28 days.
- ii. All precast concrete components shall be air-entrained composed of portland cement, fine and coarse aggregates, admixtures and water. The air-entraining feature may be obtained by the use of either air-entraining portland cement or an approved air-entraining admixture. The entrained-air content shall be not less than four percent or more than seven percent.

2 - Geosynthetic Soil Reinforcement: The minimum strength of the geosynthetic soil reinforcement shall be based on experimental data. The Contractor shall submit to the Engineer a certified test report confirming the strength of the material when tested according to the methods specified in ASTM D5262 and extrapolated according to ASTM D2837 as outlined in AASHTO Article 5.8.7.2.

3 – Metallic Soil Reinforcement: All soil reinforcement and structural connectors shall be hot dipped galvanized according to the requirements of ASTM A123 (AASHTO M-111). The minimum thickness of the galvanizing shall be based on the service life requirements in the AASHTO Specifications.

Steel strip reinforcement shall be hot rolled to the required shape and dimensions. The steel shall conform to AASHTO M223 (ASTM A572) Grade 65 unless otherwise specified.

Welded wire fabric reinforcement shall be shop fabricated from cold-drawn wire of the sizes and spacings shown on the plans. The wire shall conform to the requirements of ASTM A82, fabricated fabric shall conform to the requirements of ASTM A185.

4 - Metal Connectors: All metal hardware shall be hot dipped galvanized according to the requirements of ASTM A123 (AASHTO M-111). The minimum thickness of the galvanizing shall be based on the service life requirements in the AASHTO Specifications.

5 - Backfill Material: The material for backfill shall be Pervious Structure Backfill conforming to the requirements of Articles M.02.05 and M.02.06.

6 - Facing Sealer: The face of all exposed drycast block shall be coated with clear Penetrating Sealer Protective Compound conforming to the requirements of Article M.03.01-11.

Construction Methods: All construction methods for items not listed below shall be in accordance with the detailed requirements prescribed for the construction of the several contract items entering into the completed structure as specified in the Standard Specifications for Roads, Bridges, and Incidental Construction.

1 - Installation: The foundation for the structure shall be graded level for a width equal to or exceeding the length of the soil reinforcements, or as shown on the plans. If rock is encountered in the excavation, it shall be removed to provide a level area equal to or exceeding the length of the soil reinforcements, but not greater than the pay limits shown on the plans.

Prior to wall construction, the foundation, if not in rock, shall be compacted as directed by the Engineer. Any foundation soils found to be unsuitable shall be removed and replaced.

At each foundation level, an unreinforced concrete leveling pad shall be provided as shown on the plans. The leveling pad shall have nominal dimensions of 6 inch thickness and 24 inch width, and shall be cast using minimum 2,000 psi 28-day compressive strength concrete. The leveling pad shall be cast to the design elevations as shown on the plans. Allowable elevation tolerances are +0.01 foot (1/8 inch), and -0.02 foot (1/4 inch), from the design elevation.

The materials for the wall shall be handled carefully and installed in accordance with manufacturer's recommendations and specifications. Special care shall be taken in setting the bottom course of blocks to true line and grade.

All blocks above the first course shall interlock with the lower courses by means of connecting pins. Vertical joints shall be staggered with each successive course as shown on the working drawings. Vertical tolerances and horizontal alignment tolerances measured from the face line shown on the plans shall not exceed 1/2 inch when measured along a 8-foot straightedge. The overall tolerance of the wall from top to bottom shall not exceed 1/2 inch per eight feet of wall height or one inch total, whichever is the lesser, measured from the face line shown on the plans. A bond breaker shall be placed between the blocks and any adjacent cast-in-place concrete.

2 - Backfilling: Backfill placement shall closely follow erection of each course of panels. Backfill shall be placed in such a manner as to avoid any damage or disturbance to the wall

materials or misalignment of the facing panels. Any wall materials which become damaged or disturbed during backfill placement shall be either removed and replaced at the Contractor's expense or corrected, as directed by the Engineer. Any backfill material placed within the reinforced soil mass which does not meet the requirements of this specification shall be corrected or removed and replaced at the Contractor's expense.

Backfill shall be compacted to 95 percent of the maximum density as determined by AASHTO T-99, Method C or D (with oversize correction, as outlined in Note 7).

The moisture content of the backfill material prior to and during compaction shall be uniform throughout each layer. Backfill material shall have a placement moisture content less than or equal to the optimum moisture content. Backfill material with a placement moisture content in excess of the optimum moisture content shall be removed and reworked until the moisture content is uniform and acceptable throughout the entire lift. The optimum moisture content shall be determined in accordance with AASHTO T-99, Method C or D (with oversize correction, as outlined in Note 7).

If 30 percent or more of the backfill material is greater than 19 mm in size, AASHTO T-99 is not applicable. For such a material, the acceptance criterion for control of compaction shall be either a minimum of 70 percent of the relative density of the material as determined by a method specification provided by the wall supplier, based on a test compaction section, which defines the type of equipment, lift thickness, number of passes of the specified equipment, and placement moisture content.

The maximum lift thickness after compaction shall not exceed 10 inches, regardless of the vertical spacing between layers of soil reinforcements. The Contractor shall decrease this lift thickness, if necessary, to obtain the specified density. Prior to placement of the soil reinforcements, the backfill elevation at the face shall be level with the connection after compaction. From a point approximately three feet behind the back face of the panels to the free end of the soil reinforcements the backfill shall be two inches above the attachment device elevation unless otherwise shown on the plans.

Compaction within three feet of the back face of the panels shall be achieved by at least three passes of a lightweight mechanical tamper, roller or vibratory system. The specified lift thickness shall be adjusted as warranted by the type of compaction equipment actually used. Care shall be exercised in the compaction process to avoid misalignment of the panels or damage to the attachment devices. Heavy compaction equipment shall not be used to compact backfill within three feet of the wall face.

At the end of each day's operation, the Contractor shall slope the last level of backfill away from the wall facing to direct runoff of rainwater away from the wall face. The Contractor shall control and divert runoff at the ends of the wall such that erosion or washout of the wall section does not occur. In addition, the Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

3 - Face Sealer: After the wall has been erected, the entire exposed face of the wall shall be coated with Penetrating Sealer Protective Compound. The application of the sealer shall conform to the requirements Article 8.18.03.

Several samples of the dry cast block shall be sealed prior to sealing the actual wall to ensure that the sealer will not discolor the block. If the sealer does discolor the block, the Contractor shall change to another approved supplier of sealer.

Method of Measurement: This work will be paid for on a lump sum basis and will not be measured for payment.

Basis of Payment: This work will be paid for at the contract lump sum for "EMBANKMENT WALL (SITE NO.)", complete in place, which price shall include all work shown within the pay limits shown on the plans for the retaining wall including but not limited to the following:

1. Design, detailing, and specifications for the wall.
2. Excavation for the wall
3. Design and Construction of temporary earth retaining systems for the support of the slope during construction.
4. Construction of the Embankment Wall, including the unreinforced concrete leveling pad.
5. The furnishing, placing and compacting of pervious structure backfill within the maximum payment lines.
6. The furnishing and placing of backfill drainage systems for the wall.
7. Any other work and materials shown on the plans for the construction of the wall.

The price shall also include all materials, equipment, tools and labor incidental thereto.

If bedrock or large boulders (greater than one cubic yard) are encountered in the excavation, the payment for it's removal will be made under the item "Structure Excavation - Rock".

ITEM #0755009A - GEOTEXTILE

Description: Geotextile shall conform to the Standard Specification Form 816, Section 7.55 amended as follows:

Materials: Materials shall conform to Section M.08.01-26 and meet the following criteria.

Property	Test Method	Criteria
Apparent Opening Size (AOS)	ASTM D 4571	$0.2\text{mm} \leq \text{AOS} \leq 1\text{mm}$
Permittivity (Ψ)	ASTM D4491	$\Psi \geq 0.2 \text{ sec}^{-1}$

Construction Methods: The Contractor shall insure that during all periods of shipment and storage, the geotextile material is protected from mud, dirt, all deleterious materials that might become affixed to the geotextile, and temperatures greater than 140°F. Follow manufacturer's recommendations with regards to protection from direct sunlight.

All areas beneath the installation area for the geotextile shall be properly prepared as detailed on the plans, specified within this specification, or as directed by the Engineer. All excavation required for construction shall conform to Article 2.02. The subgrade surface shall be free from frozen soil.

The geotextile shall be installed in accordance with the plans, specifications, and manufacturer's recommendation.

Place only that amount of geotextile reinforcement required for immediately pending work to prevent undue damage.

Geotextile shall be placed to lay flat and pulled tight prior to backfilling. After a layer of geotextile has been placed, suitable means, such as pins or small piles of soil, shall be used to hold the geotextile reinforcement in position until the subsequent soil layer can be placed.

Geotextile are to be placed within 3 inches of the design elevation view unless otherwise directed by the Engineer. The Contractor shall verify correct orientation of the geotextile reinforcement.

Tracked construction equipment shall not be operated directly upon the geotextile. A minimum fill thickness of 6 inches is required prior to operation of tracked vehicles over the geotextile. Turning of tracked vehicles should be kept to a minimum to prevent tracks from displacing the fill and the geotextile.

The Engineer may allow rubber tired equipment to pass over the geotextile reinforcement at speeds less than 10mph. Sudden braking and sharp turning shall be avoided.

Method of Measurement:

This work will be measured for payment by the actual number of square yards of the type indicated on the plans or authorized by the Engineer. Geotextile specifically included in the payment of another item will not be measured for payment under this item. No additional measurement will be made for necessary lap material.

Basis of Payment:

This work will be paid for at the contract unit price per square yard of “Geotextile”, complete in place, which price shall include all materials, labor, tools and equipment incidental and necessary for installation and removal if necessary.

<u>Pay Item</u>	<u>Pay Unit</u>
Geotextile	S.Y.

ITEM #0813031A – 6” GRANITE CURVED STONE CURBING

Description: This curbing consist of approved stone, furnished in accordance with the dimensions and details of the plans, or as ordered, and installed on the prepared base to the lines and grades given and in conformity with these specifications.

Materials: The materials for this work shall conform to the requirements of Article M.12.06 for Granite Curved Stone Curbing, of Article M.11.04 for mortar, of Article M.03 for concrete (Class “C”) used for footings and of Article M.02.02 for subbase.

The finish and surface dimensions of curbs for the splitter islands and truck apron shall conform to the dimensions and details of the plans.

All stone curbing shall have a minimum of two (2) holes drilled to allow for sufficient space for dowels as shown on plans.

Construction Methods: Construction methods for stone curbing shall conform to the following requirements:

- 1. Excavation:** Excavation shall be made to the bottom of the subbase below the curbing, the trench being sufficiently wide to permit thorough tamping. The base shall be compacted to a firm, even surface and shall be approved by the Engineer.
- 2. Installing Stone Curbing:** The curbing shall be set on edge and settled into place with a heavy wooden hand-rammer, to the line and grade required, straight and true for the full depth. The joints of the stone curbing shall be pointed with mortar for the full depth of the curbing. At approximately 50-foot intervals, a ½-inch joint shall not be filled with mortar but left free for expansion. Curbing shall be installed with a concrete footing as shown on the contract plans. The ends of the stone curbing at driveways and intersections shall be cut at a bevel or rounded, as directed by the Engineer.
- 3. Backfilling:** The trench for the stone curbing shall be backfilled with approved material; the first layer to be 4 inches in depth, thoroughly rammed; the other layers to be not more than 6 inches in depth and thoroughly rammed until the trench is filled or as required by the engineer.
- 4. Openings:** Where indicated on the plans, or as directed, drainage openings shall be made through the curbing at the elevations and of the size required.

Method of Measurement: This work will be measured for payment by the actual number of linear feet of “Granite Curved Stone Curbing” installed and accepted. Measurement shall be made along the top arris line of face of curb.

Basis of Payment: This work will be paid for at the contract unit price per linear foot for “Granite Curved Stone Curbing” of the type, size and kind specified, complete in place, which price shall include all materials, equipment, tools and labor incidental thereto, and all excavation, backfilling, disposal of surplus material and all drainage openings.

There will be no direct payment for drilling holes for dowels, furnishing, placing and compacting subbase, beveling or rounding the ends of curbing, concrete for footing and pointing the joints with mortar; but the cost of this work shall be considered as included in the general cost of the work.

Pay Item	Pay Unit
6” GRANITE CURVED STONE CURBING	L.F.

ITEM #0913850A - HIGH VISIBILITY SAFETY FENCE

Description: This work shall consist of furnishing, placing, and maintaining temporary high visibility fences as shown on the plans or directed by the Engineer. The purpose of this high visibility safety fence is to create a physical boundary at and within the confines along the areas of special concern. The Contractor shall limit his work from extending beyond this fence.

Materials: Posts for the barrier fence shall be made of wooden stakes with the minimum dimensions of 1 inch x 2 inches and a minimum length of 5 feet. The fabric shall be high visibility orange plastic mesh fence with a minimum roll width of 4 feet and the mesh opening dimension shall be 3.2" x 1.7". The fabric shall have a temperature service range of -40 to 200 degrees F.

Construction Methods: The Contractor shall install high visibility safety fences in the locations shown on plans or as directed by the Engineer. All posts shall be driven a minimum of 12 inches into the ground and shall be spaced appropriately to support the fabric firmly. The fabric shall be firmly attached to the post. The installations shall be maintained or replaced until they are no longer necessary for the purpose intended or as ordered by the Engineer.

The Contractor shall not encroach beyond the limits of the temporary fencing with personnel or equipment of any kind.

Method of Measurement: This work shall be measured for payment by the actual number of linear feet of "High Visibility Safety Fence" installed and accepted. The fence shall be measured once, throughout the duration of the project at the time of installation. No additional payment will be made for the reinstallation, repair or replacement of the fence. Measurement shall be made along the centerline of the fence.

Basis of Payment: Payment for this work will be made at the contract unit price per linear feet for "High Visibility Safety Fence" complete in place, which price shall include all materials, equipment, tools, labor incidental to the installation, maintenance, replacement, removal and disposal of fence.

Payment Item
High Visibility Safety Fence

Pay Unit
L.F.

ITEM #0914007A – WOOD PLANK RAIL

Description: This item shall consist of furnishing and erecting a wood post and rail fence of the kind, height, and type indicated in the plans or as ordered and in accordance with these specifications. In areas where the wood post conflicts with the soil reinforcement for the embankment wall a concrete footing shall be used to anchor the wood post in lieu of embedment.

Materials: The wood posts and rails shall be cut from Northern White Cedar or equivalent as determined by the Engineer. The posts shall be 8” x 8” and the rails shall be 4” x 8” and constructed as shown on the details. All metal hardware shall be hot-dipped galvanized to meet the requirements of ASTM A153.

Metal post bases for mounting the fence posts to the concrete foundation shall be constructed of galvanized steel and to the approximate dimensions shown in the plan details. Post bases shall be capable of being secured to the concrete foundation by means of anchor bolts and the post base shall be of a size designed to securely hold the wood fence post.

Concrete used for footings shall conform to the requirements of Article M.03 for class “C” concrete.

Anchor bolts shall be of a size recommended by and in accordance with the manufacturer’s specifications for the metal post base.

Construction Methods: The wood post and rail fence shall be erected to produce a continuous and sturdy fence as shown on the plans. The posts shall be spaced as shown and set plumb. The wood rail shall be set parallel to the ground.

The Contractor is responsible to design the soil reinforcement for the embankment wall around the concrete footings.

Method of Measurement: This work will be measured for payment by the actual number of linear feet of Wood Plank Rail erected and accepted by the Engineer, measured along the centerline of the posts from end to end of the fence. Lengths between posts where no rail is constructed will not be measured for payment; individual posts, if shown on the plans, will not be measured for payment.

Post bases and concrete for footings shall not be measured for payment but included in the linear foot price of Wood Fence.

Basis of Payment: This work will be paid for at the contract unit price per linear foot for “Wood Plank Rail,” complete in place, which price shall include all materials, post bases, drilling, concrete, metal hardware, excavation, all equipment, tools, and labor incidental thereto.

Rev. Date 02/01/02

Pay Item
Wood Plank Rail

Pay Unit
L.F.

ITEM #0917010A – REPAIR GUIDERAIL

Description: Work under this item shall consist of the repair of newly installed guiderail. It shall be repaired in the locations originally installed and fabricated in conformity with the lines, designations, dimensions, and details shown on the plans or as ordered by the Engineer.

Materials: The material for guiderail shall meet the requirements as specified within the original applicable contract items.

When repairing guiderail, the Contractor shall reuse any undamaged existing guiderail elements, timber rail, wire rope, appropriate posts, delineators, lap bolts, and other hardware within the project limits as approved by the Engineer to repair the guiderail. The Contractor shall use new materials when any components of the existing railing are damaged or missing and cannot be obtained from other guiderail systems being removed or converted within the Project limits.

Construction Methods: The repair of guiderail shall be in accordance with contraction methods as specified within the original applicable contract items.

Guiderail, including end anchors, which has been installed in final condition and accepted by the Engineer, shall be eligible for reimbursement for repairs subject to the conditions described below. If multiple runs are to be installed in a single stage as indicated in the contract documents, determination for reimbursement shall be made when all runs within the stage are complete and accepted as previously described. On projects without designated stages, guiderail installations must be complete and serving the intended function as determined by the Engineer.

When newly installed guiderail is damaged by public traffic, the following conditions must be satisfied prior to reimbursement for payment;

1. The damage must have been caused solely by the traveling public.
2. The contractor shall provide satisfactory evidence that such damage was caused by public traffic. Such as accident reports obtained from the Connecticut Department of Public Safety, police agencies or insurance companies; statements by reliable, unbiased eyewitnesses; or identification of the vehicle involved in the accident.
3. The contractor shall attempt to collect the costs from the person or persons responsible for the damage and provide documentation of those efforts to the satisfaction of the Engineer.
4. If such evidence cannot be obtained, the Engineer may determine that the damage was not caused by the Contractor and reimbursement for payment is warranted.

This repair provision does not relieve the Contractor of the requirements of Section 1.07, any other contractual requirements for maintenance and protection of traffic and final acceptance and relief of responsibility for the project.

The contractor shall remain responsible for the safety and integrity of the guiderail system for the duration of the project. In the event the guiderail is damaged, the Contractor shall provide sufficient cones, drums and other traffic control devices to provide safe passage by the public. When ordered by the Engineer, the Contractor shall furnish replacement parts and immediately repair the guiderail, but in no case more than 24 hours after notification from the Engineer. In non-emergency situations, the guiderail shall be repaired within 72 hours. The repaired guiderail or anchorages, when completed, shall conform to these specifications for a new system. The Contractor shall be responsible for the removal and the proper disposal of all damaged material and debris.

Method of Measurement: Guiderail damaged solely by the traveling public will be measured for payment. Damage caused by the Contractor's equipment or operations will not be measured for payment.

The sum of money shown on the estimate and in the itemized proposal as "Estimated Cost" for repair of guiderail will be considered the price bid even though payment will be made only for actual work performed. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded and the original price will be used to determine the total amount bid for the contract.

Basis of Payment: Repair of guiderail will be paid for in accordance with Article 1.09.04 as required to restore the rail to its full working condition in conformance with these specifications for a new system. There will be no payment for maintenance and protection of traffic for work associated with this item unless, in the opinion of the Engineer, the sole purpose of the maintenance and protection of traffic is for repair of the guiderail.

<u>Pay Item</u>	<u>Pay Unit</u>
Repair Guiderail	est. (est.)

ITEM #0921001A - CONCRETE SIDEWALK

Concrete sidewalks shall be constructed in accordance with Article 9.21, supplemented as follows:

Article 9.21.01 - Description: Add the following:

This item shall include furnishing and installing Detectable Warning Strips in the locations and to the dimensions and details shown on the plans or as ordered by the Engineer.

Article 9.21.02 – Materials: Add the following:

The Detectable Warning Strip shall be a prefabricated detectable warning surface tile as manufactured from Engineered Plastics Inc. 300 International Drive, Suite 100 Williamsville, NY 14221, telephone number (800) 682-2525 or the approved equal from ADA Fabricators, INC. P.O Box 179 North Billerica, MA 01862 telephone number (978) 262-9900. The tile shall conform to the dimensions shown on the plans and have a brick red homogeneous color throughout in compliance with Federal Standard 595A Color #22144 or approved equal.

Article 9.21.03 – Construction Methods: Add the following:

The Detectable Warning Strip for new construction shall be set directly in poured concrete according to the plans and the manufacturer's specifications or as directed by the Engineer. The contractor shall place two 25 pound concrete blocks or sandbags on each tile to prevent the tile from floating after installation in wet concrete.

Article 9.21.04 - Method of Measurement: Add the following:

The Detectable Warning strip will not be measured for payment. All materials, equipment, tools and labor incidental thereto shall be included in the Bid price for Concrete Sidewalk.

ITEM #0923001A – BITUMINOUS CONCRETE FOR PATCHING

Description: The work under this item shall consist of the placement of a smooth and dense bituminous concrete mixture with a uniform texture for establishing a temporary wedge course on any surfaces which have become uneven, unmatched in grade and at such other locations as the Engineer may designate for the support of traffic. Work under this item shall also include temporary trench patching or other temporary pavement patches ordered by the Engineer. The work shall include supplying bituminous material, placement, bond breaker, removal, disposal, and all other work incidental to temporary wedging of pavement surfaces.

Materials: The materials furnished and used in this work shall conform to the requirements of Section 4.06 and M.04. The specific material to be used for patching shall be as directed by the Engineer or shall be one of the following; HMA S0.25, S0.375, or S0.5. Materials furnished shall also include asphalt paper or bond breaker.

Construction Methods: The temporary wedge course or patching shall be done only at the locations and at such time as is deemed necessary by the Engineer or as shown on the Suggested Construction Sequence Plans. Prior to placing the patching material, the areas to be patched shall be cleaned of dirt and other debris and shall be reasonably dry. Compaction of the patching material shall be attained by methods approved by the Engineer.

Method of Measurement: The quantity of material will be measured by the net weight (mass), in tons, measured in the hauling vehicles, which are furnished at the expense of the Contractor. The total weight (mass) will be the sum of the weigh slips of bituminous concrete used in the work specified under this item.

Basis of Payment: This work will be paid for at the contract unit price per ton for “Bituminous Concrete for Patching,” complete in place, which price shall include furnishing all materials, equipment, tools, labor and work incidental thereto.

Removal and disposal of the temporary wedge course will not be paid for separately; the cost shall be considered as included in the price bid for the work.

Asphalt paper or bond breaker will not be paid for separately; the cost shall be considered as included in the price bid for the work.

Pay Item	Pay Unit
Bituminous Concrete for Patching	ton.

ITEM #0930001A – OBJECT MARKER

DESCRIPTION: This item shall consist of furnishing and installing a 12” square x 4” deep object marker to locate ends of duct banks (single or multiple conduits) installed in accordance with this specification at the locations and in accordance with the dimensions, designs, and details shown on the plans. This item shall include required materials for furnishing and installing of all object markers. This item shall also include all trenching, backfilling, removal, and restoration of any paved or turfed areas in accordance with the plans and specifications. Verification of conduit end locations is incidental to the pay items provided in this specification.

MATERIALS: All materials and equipment used to construct this item shall be submitted to the Engineer for approval prior to ordering the equipment.

Concrete for the object marker shall be preformed, constructed from Type 1 concrete, rated at 4,000 PSI. The object marker shall be labeled, “DUCT”, formed with letters with dimensions as shown on the plans.

CONSTRUCTION METHOD: Each object marker shall be installed flush with finished grade, directly above the end of the conduit run (or duct bank), at the location indicated on the plans, or where coordinated with the Engineer.

Prior to installation, the Contractor shall provide a minimum of 6 inches of sand or a material approved by the Engineer as a suitable base for the object marker. The base material shall be compacted and graded level and at proper elevation to receive the object marker in proper relation to the ground cover requirements, as indicated on the detail drawing.

After each excavation is completed and the sand base is ready, the Contractor shall notify the Engineer. Object markers shall be placed after the Engineer has approved the depth of the excavation and the suitability of the foundation base material.

The object marker shall be leveled, and installed with the wording on the marker oriented so it can be read from the street side.

METHOD OF MEASUREMENT: This work will be measured and paid for at the Contract unit price per each by the accepted quantity of installed “Object Markers”, completed in place and accepted by the Engineer.

BASIS OF PAYMENT: This work will be paid for at the contract unit price each for “Object Marker” which price shall include furnishing all materials, and all preparation, excavation, sand, backfilling and placing of the materials, furnishing and installation of appurtenances as may be required to complete the installation of subject item as shown on the plans and for all labor, tools, equipment and work incidental thereto.

ITEM #0949160A - SPECIAL SOIL PREPARATION

Description: This work shall consist of soil preparation, and composted leaves application at the locations indicated on the plans, or as directed by the Engineer.

Materials: Composted leaves from a source to be approved by the Engineer.

Construction Methods: The Contractor shall perform deep plowing or sub-soiling, to a depth of 7" to 10", shall be performed by using either a chisel plow or a backhoe. The Contractor shall perform deep plowing or sub-soiling operations at a time of optimum moisture content as approved by the Engineer.

After deep plowing or sub-soiling is performed, the Contractor shall rake the areas to a uniform surface. Thereafter, apply 3" of composted leaves to the entire surface which has been deep plowed or sub-soiled. Rototill the composted leaves into the top 4" to 5" of soil, assuring a thorough incorporation into the soil. The Contractor shall then place the topsoil at the locations and depth indicated on the plans, or as directed by the Engineer.

Method of Measurement: Special Soil Preparation will be measured for payment by the number of square yard of surface area which have been deep plowed or sub-soiled, rototilled and amended with composted leaves, and raked to a uniform surface.

Basis of Payment: Special Soil Preparation will be paid for at the contract unit price per square yard For "Special Soil Preparation" which price shall include all materials, equipment, tools, labor and work incidental thereto.

Pay Item
Special Soil Preparation

Pay Unit
Square Yard

ITEM #0950010A – TEMPORARY SEEDING

Description: The work included in this item shall consist of measures to control soil erosion through establishment of temporary a stand of grass and/or legumes by seeding and mulching soils that will be exposed for a period greater than 30 days but less than 12 months, or where designated by the Engineer, to temporarily stabilize the soil and reduce damage from wind erosion, water erosion and sedimentation until permanent stabilization can be accomplished. Such areas include but are not limited to stockpiles, excavated areas, embankment areas that are not at finished grade, areas that require stabilization during an “out-of-season” period for permanent turf establishment, and any other disturbed or unstable areas where the Engineer determines that there is a potential for soil erosion to occur.

This item shall not be used in areas that are to be left dormant for more than 1 year. Use permanent vegetative measures conforming to the requirements of Section 9.50 or 9.53 in those situations.

Materials: The materials for this work shall conform to the requirements of Section M.13, supplemented as follows.

The species listed in the table below shall be used for temporary seeding. The Contractor shall use the seed or seed mix from the table below, as directed by the Engineer. The Engineer will determine the appropriate seed mix for the rapid establishment of a temporary stand of grass producing effective erosion control based on a number of factors, including, but not limited to, timing of the seeding as it relates to the optimum seeding dates identified in the table, and site-specific conditions at the time that the temporary seeding is required. Preference will be given to perennial rye (*Lolium perenne*), as specified in Subarticle M.13.04 (b), but the use of other species may be required. Annual ryegrass (*Lolium multiflorum*) shall be used in areas where a specialty seed mix (other than the Department’s standard Turf Establishment, such as warm season grass mixtures, conservation seed mixtures, or native grass mixtures) is required.

Mulch for seed, including tackifiers and nettings used to anchor mulch, shall be:

- Biodegradable or photo-degradable within 2 years but without substantial degradation over a period of 6 weeks.
- Free from contaminants that pollute the air or waters of the State when properly applied.
- Free of foreign material, coarse stems and any substance toxic to plant growth or which interferes with seed germination
- Capable of being applied evenly such that it provides 80%-95% soil coverage and still adheres to the soil surface, does not slip on slopes when it rains or is watered, does not blow off site, dissipates raindrop splash, holds soil moisture, moderates soil temperatures and does not interfere with seed growth.

Tackifiers shall include, but are not limited to, water soluble materials that cause mulch particles to adhere to one another, generally consisting of either a natural vegetable gum

loosened within 48 hours prior to seeding; in no event will seeding be permitted on hard or crusted soil surface.

2. Seeding Season: The seeding seasons shall be as defined in Sub-article 9.50.03 – 2, “Seeding Season”. All seeding required outside of the defined seeding seasons are defined as “out-of-season” seeding.

3. Seeding Methods: The grass seed shall be applied uniformly by any agronomically acceptable procedure. The rate of application shall be no less than the minimum rate indicated in the “Temporary Seeding Rates and Dates” table for the seed being applied. Increase seeding rates by 10% when hydroseeding.

Fertilizer shall be applied at a rate of 300 pounds per acre or 7.5 pounds per 1,000 square feet.

Agricultural ground dolomitic limestone shall be applied at the rates given in the Table below.

Soil Texture vs. Liming Rates

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

4. Mulch: All seeding shall include mulch or other protective covering approved by the Engineer to protect the soil surface on a temporary basis and promote the establishment of temporary seeding. When hay is used as mulch with seeding, it shall be a minimum of 2 inches deep and held down with a non-petroleum based tackifier and applied immediately following the application of seed, fertilizer, and limestone. When wood fiber mulch is used, it shall be applied in a water slurry at a rate of 2000 pounds per acre with, or immediately after, the application of seed, fertilizer, and limestone.

All “out-of-season” seeding shall be accompanied by a bed of hay mulch covering with a mulch stabilizer such as a tackifier.

Mulch material shall be spread uniformly by hand or machine resulting in 80%-95% coverage of the disturbed soil when seeding within the recommended seeding dates. When seeding outside of the recommended seeding dates, increase mulch application rate to provide between 95%-100% coverage of the disturbed soil.

When needed, mulch anchoring shall be applied either with the mulch or immediately following the mulch application. The Contractor shall use tackifiers or other mulch anchoring system approved by the Engineer.

5. Maintenance: The Contractor shall inspect the seeded area at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.1 inch or greater for seed and mulch movement and rill erosion until the grasses are firmly established as determined by the Engineer. Where repeat rill erosion has occurred, additional temporary measures shall be implemented to allow for adequate grass establishment. Such additional temporary measures shall include, but not be limited to, temporary erosion control matting and temporary redirection of stormwater, as directed by the Engineer.

The Contractor shall at all times have on hand the necessary materials and equipment to provide for early slope stabilization and corrective measures to damaged slopes.

Method of Measurement: This work will be measured for payment by the number of square yards of surface area actually covered with established grass, as accepted by the Engineer. For the purpose of this specification, grass will be defined as established in areas where live grass growth at least 6 inches in height covers at least 80% of the bare soil temporarily seeded.

Mulch, tackifier, mowing, lime, and fertilizer will not be measured separately for payment.

Basis of Payment: This work will be paid for at the contract unit price per square yard for "Temporary Seeding" which price shall include all seed, mulch, tackifier or other mulch anchoring, lime, fertilizer, mowing, maintenance, and all other materials, equipment, tools, and labor incidental thereto.

<u>Pay Item</u>	<u>Pay Unit</u>
Temporary Seeding	s.y.

ITEM #0950019A – TURF ESTABLISHMENT - LAWN

Description: The work included in this item shall consist of providing an accepted stand of grass by furnishing and placing seed as shown on the plans or as directed by the Engineer.

Materials: The materials for this work shall conform to the requirements of Section 9.50 of Standard Specification Form 816. The following mix shall be used for this item:

Turf Seed Mix:

In order to preserve and enhance the diversity, the source for seed mixtures shall be locally obtained within the Northeast USA including New England, New York, Pennsylvania, New Jersey, Delaware, or Maryland. One approved seed mixture is detailed below. Other proposed mixtures must be approved by the Conn DOT Landscape Design office.

<u>Proportion (Percent)</u>	<u>Species Common name</u>	<u>Scientific name</u>
25	Abbey Kentucky Bluegrass	Poa pratensis
15	Envicta Kentucky Bluegrass	Poa pratensis
25	Pennlawn Red Fescue	Festuca rubra
15	Ambrose Chewing Fescue	Festuca rubra
20	Manhattan Ryegrass	Lolium perenne

Construction Methods: Construction Methods shall be those established as agronomically acceptable and feasible and that are approved by the Engineer. Rate of application shall be field determined in Pure Live Seed (PLS) based on the minimum purity and minimum germination of the seed obtained. Calculate the PLS for each seed species in the mix. Adjust the seeding rate for the above composite mix, based on 250 lbs. (274 kg.) per acre (hectare). The seed shall be mulched in accordance with Article 9.50.03.

Method of Measurement: This work will be measured for payment by the number of square yards (square meters) of surface area of accepted established grasses as specified or by the number of square yards (square meters) of surface area of seeding actually covered and as specified.

Basis of Payment: This work will be paid for at the contract unit price per square yard (square meters) for “Turf Establishment - Lawn” which price shall include all materials maintenance, equipment, tools, labor, and work incidental thereto. Partial payment of up to 60% may be made for work completed, but not accepted.

<u>Pay Item</u>	<u>Pay Unit</u>
Turf Establishment - Lawn	S.Y. (S.M.)

ITEM #0950043A – WETLAND GRASS ESTABLISHMENT

Description: The work included in this item shall consist of providing an accepted stand of established wetland grasses by furnishing and placing seed as shown on the plans, permits, or as directed by the Environmental Scientist from the Connecticut Department of Transportation's Office of Environmental Planning within the Wetland Mitigation Areas or other areas when required.

Materials: All approved seed mixtures shall be obtained in sufficient quantities to meet the pure live seed (PLS) application rates as determined by the seed analysis of the mixture. Application of fertilizer will be directed by the Environmental Scientist based on a soil analysis of the wetland area to be seeded. The following mixes shall be used for this item.

Wetland Seed Mixes: In order to preserve and enhance the diversity of native wetland species, it is necessary that the source for wetland seed mixtures for use in wetland mitigation areas shall be locally obtained within the Northeast USA including New England, New York, Pennsylvania, New Jersey, Delaware, or Maryland. Two approved seed mixtures are detailed below. Other proposed mixtures must be submitted and approved by the Environmental Scientist prior to use. The materials certification for any proposed mixture that is different from that described below must be submitted a minimum of ten (10) days prior to delivery on site. This certification must match both the previously approved substitute mixture and the seed tags on the bags that are to be removed upon delivery. No seeding shall occur if all three items do not match.

Wetland Seed Mixture: (NEWP) New England WetMix, New England Wetland Plants, Inc. 800 Main Street Amherst, MA 01002, or equal. Rate shall be 1 pound (.45kg) PLS per 2500 sq.ft. (232 sq.m.)

<u>scientific name</u>	<u>common name</u>
<i>Alisima plantago-aquatica</i>	Water plantain
<i>Aster umbellatus</i>	Flat-top Aster
<i>Bidens cernua</i>	Nodding Bur Marigold
<i>Carex comosa</i>	Bearded sedge
<i>Carex crinita</i>	Fringed sedge
<i>Carex lupulina</i>	Hop sedge
<i>Carex lurida</i>	Lurid sedge
<i>Carex vulpinoides</i>	Fox sedge
<i>Eupatorium maculatum</i>	Spotted Joe-pye weed
<i>Eupatorium perfoliatum</i>	Boneset
<i>Juncus effusus</i>	Soft rush
<i>Penthorum sedoides</i>	Ditch Stonecrop
<i>Scirpus acutus</i>	Hard-stem bulrush
<i>Scirpus atrovirens</i>	Green bulrush
<i>Scirpus cyperinus</i>	Wool grass
<i>Solidago graminifolia</i>	Grass-leaved goldenrod
<i>Verbena hastata</i>	Blue vervain

Wetland Seed Mixture: (BRN) Wetland Seed Mix, Blackledge River Nursery, 155 Jerry Daniels Road, Marlborough, CT, 06447, or equal. Rate shall be 1 pound (.45kg) PLS per 2500 sq.ft. (232 sq.m.)

scientific namecommon name

<i>Alisma plantago-aquatica</i>	Water Plantain
<i>Asclepias incarnata</i>	Swamp Milkweed
<i>Aster novae-angliae</i>	New England Aster
<i>Carex comosa</i>	Bristly Sedge
<i>Carex crinita</i>	Fringed Sedge
<i>Carex intumescens</i>	Bladder Sedge
<i>Carex lupulina</i>	Hop Sedge
<i>Carex lurida</i>	Lurid Sedge
<i>Carex scoparia</i>	Broom Sedge
<i>Carex stricta</i>	Tussock Sedge
<i>Carex tribuloides</i>	Blunt Broom Sedge
<i>Carex vesicaria</i>	Inflated Sedge
<i>Carex vulpinoidea</i>	Fox Sedge
<i>Eupatoriadelphis maculatus</i>	Joe Pye Weed
<i>Eupatorium perfoliatum</i>	Boneset
<i>Glyceria canadensis</i>	Canada Manna Grass
<i>Glyceria striata</i>	Fowl Mannagrass
<i>Hibiscus moscheutos</i>	Rose-mallow
<i>Iris versicolor</i>	Blue flag iris
<i>Juncus acuminatus</i>	Sharp-fruited Rush
<i>Juncus brevicaudatus</i>	Narrow-pannicled Rush
<i>Juncus canadensis</i>	Canada Rush
<i>Juncus effusus</i>	Soft Rush
<i>Lobelia cardinalis</i>	Cardinal Flower
<i>Lysimachia terrestris</i>	Swamp Candle
<i>Mimulus ringens</i>	Monkey Flower
<i>Rhynchospora capitellata</i>	Brownish Beak Rush
<i>Sagittaria latifolia</i>	Broad-leaved Arrowhead
<i>Scirpus atrovirens</i>	Green Bulrush
<i>Scirpus cyperinus</i>	Wool Grass
<i>Scirpus expansus</i>	Woodland Bulrush
<i>Scirpus hattorianus</i>	Green Bulrush
<i>Scirpus validus</i>	Soft-stem Bulrush
<i>Spirea tomentosa</i>	Steeplebush
<i>Triadenum virginicum</i>	Marsh St. John's Wort
<i>Verbena hastata</i>	Blue Vervain

Construction Methods: Construction methods shall be those established as agronomically acceptable and feasible and which the Environmental Scientist approves. Seeding shall occur during the fall season immediately following construction of the wetland site. Fall seeding must occur from August 15th to October 15th. Seeding shall be applied to all areas that will not be continuously inundated constructed wetland areas. The total area of constructed wetland shall determine the amount of seed to be spread based on 1 pound (.45 kg) PLS per 2500 square feet (232 sq.m.). If seed is purchased in bulk rather than by PLS, the rate of application must be adjusted to meet the required PLS seeding rate. This seeding rate shall be increased by the appropriate percentage as determined by the following formula based off of the information provided on the seed tags at delivery.

$(\text{Germination Percentage} \times \text{Purity Percentage}) / 100 = \text{Percentage PLS}$

The Engineer shall verify that the seed is applied at a rate that will allow for 100 percent PLS.

Method of Measurement: This work will be measured for payment by the number of square feet (square meters) of surface area of accepted established wetland plants as specified or by the number of square feet (square meters) surface area of seeding actually covered as specified.

Basis of Payment: This work will be paid for at the contract unit price per square foot (square meter) for "Wetland Grass Establishment," which price shall include all materials maintenance, equipment, tools, labor, and work incidental thereto. Partial payment of up to 50% may be made for work completed, but not accepted. Full payment shall not be made until the area has been accepted by the Environmental Scientist.

Pay Item	Pay Unit
Wetland Grass Establishment	Sq.ft. (Sq.m.)

ITEM #0952001A – SELECTIVE CLEARING AND THINNING

Section 9.52 is amended as follows:

Article 9.52.03 – Construction Methods is supplemented as follows:

Where directed by the Engineer, materials to be cut, trimmed or removed shall be those items that restrict visibility to an extruded aluminum sign to less than 400 ft (122 m). The entire sign will be visible for 400 ft (122 m) measured from the center of the right-travel lane approaching the sign, as viewed from a 3.5 ft (1.1 m) height above the roadway.

All trees scheduled to be removed shall be visibly marked or flagged by the Contractor at least seven days prior to the cutting of such trees.

The Engineer will inspect the identified trees and verify the limits of clearing and thinning prior to the Contractor proceeding with his cutting operation.

ITEM #0969000A - PROJECT COORDINATOR

Section 1.05.08 of the Standard Specifications is hereby deleted.

Description: Under this item the Contractor shall furnish the services of an administrative employee, entitled the Project Coordinator, for this project to coordinate and expedite all phases of the work required for the project to ensure that the construction schedule is maintained.

The minimum lump sum bid for this item shall be equal to 0.5% of the Contractor's total bid. Failure of the Contractor to bid at least the minimum amount will result in the Department adjusting the Contractor's bid to include the minimum bid amount for this item.

The Project Coordinator shall be submitted for approval by name, in writing with a resume of his qualifications, within seven (7) calendar days of the award of the Contract and shall not be changed without prior written notice to the Department.

This resume must demonstrate that his designated candidate is experienced and versatile in the preparation, interpretation and modification of Primavera construction schedules. This must include successful completion of at least 2 construction projects of similar complexity, where he served in a lead scheduling capacity. If he does not have a person in his company that has these skills, then the Contractor shall engage the services of a Consultant, subject to the approval of the Engineer, for the scheduling work required. If a Consultant is engaged, he shall be present at the first meeting, along with the Project Coordinator, prepared to discuss, in detail, the methods and techniques he proposes to use. Thereafter, the Project Coordinator or the Consultant responsible for updating the Critical Path Method (CPM) Schedule shall attend all meetings between the Contractor, his Subcontractors, and any other meetings, which will affect the CPM schedule. The Contractor shall prepare CPM Schedules utilizing the latest version of Primavera Project Planner software as described more fully hereinafter.

Computer Software and Printer: The Contractor shall provide the following equipment with all the required maintenance and repairs (to include labor and parts) throughout the contract life. The Engineer reserves the right to expand or relax the specification to adapt to the software and hardware limitations and availability.

The Contractor shall provide the Engineer with a licensed copy registered in the Department's name of the latest version of the software listed and maintain customer support services offered by the software producer for the duration of the project. The Contractor shall deliver to the Engineer all supporting documentation for the software and hardware including any instructions or manuals.

A) Software – Minimum Specification:

The Contractor shall provide the Engineer with a licensed copy of the latest version of the Primavera Contractor – Deluxe Version scheduling software, registered in the

Department's name, and maintain the Primavera customer support service contract over the duration of the project.

- B) HP Officejet Pro K8600 Color Printer – Minimum or equivalent (to be installed as a local printer on a computer provided under the field office specification):
Paper – 11 in x17 in, 8.5 in x 11 in and duplex/double-side print
Resolution – 1200x1200 DPI
Print Drivers – Must support HP PCL6.
RAM – 32 MB RAM
Print speed – 10 ppm – color, 13 ppm - black
Printer cable – 1.8 m (6 ft).

The contractor is responsible for service and repairs to all computer hardware. All repairs must be performed with-in 24 hours. If the repairs require more than a 24 hours then a replacement must be provided.

Construction Methods: The Project Coordinator shall attend all meetings between the Contractor and the Department, the Contractor and his Subcontractors, and any other meetings that affect the progress of the job. The Project Coordinator shall be knowledgeable of the status of all parts of the work throughout the length of the Contract.

The Contractor shall prepare a CPM Schedule in accordance with the pertinent provisions of "Section 1.03 - Award and Execution of Contract," "Section 1.05 - Control of the Work," and "Section 1.08 - Prosecution of Progress" of the Standard Specifications. The schedule shall incorporate the Sequence of Construction as outlined on the Plans and in the Specifications. All other limiting factors that affect construction shall also be incorporated into the schedule. All milestones or constrained dates within the schedule shall be clearly indicated.

The CPM schedule shall contain a list of activities that represents the major elements of the project. At a minimum, this list should include a breakdown by individual structure or stage, including major components of each. The schedule shall contain sufficient detail to describe the progression of the work in a comprehensive manner. As a guide, 10 to 15 activities should be provided for each \$1 million of contract value. The following list of items is provided as an example only and is not meant to be all-inclusive (or all-applicable):

General Items Applicable to all projects

Contractual Constraints

- Winter shutdowns
- Environmental permits/application time of year restrictions
- Milestones
- Third Party approvals
- Long lead time items (procurement and fabrication of major elements)
- Adjacent Projects or work by others

Award
Notice to Proceed
Signing (Construction, temporary, permanent by location)
Mobilization
Permits as required
Field Office
Utility Relocations
Submittals/shop drawings/working drawings/product data
Construction of Waste Stock pile area
Clearing and Grubbing
Earthwork (Borrow, earth excavation, rock excavation, etc.)
Traffic control items (including illumination and signalization)
Pavement markings
Roadway Construction (Breakdown into components)
Drainage (Breakdown into components)
Culverts
Final Plantings (including turf establishment)
Final Cleanup

The following additional guidelines supplement the general guidelines listed above for the specific project types indicated:

A. For bridges and other structures, include major components such as: Abutments, wingwalls, piers, decks and retaining walls; further breakdown by footings, wall sections, parapets etc.

Temporary Earth Retention Systems
Cofferdam and Dewatering
Structure Excavation
Piles/test piles
Temporary Structures
Removal of Superstructure
Bearing Pads
Structural Steel (Breakdown by fabrication, delivery, installation, painting etc.)
Bridge deck

B. Multiple location projects such as traffic signal, incident management, lighting, planting and guiderail projects will be broken down first by location and then by operation. Other major activities of these types of projects should include, but are not limited to:

Installation of anchors
Driving posts

Foundations
Trenching and Backfilling
Installation of Span poles/mast arms
Installation of luminaires
Installation of cameras
Installation of VMS
Hanging heads
Sawcut loops
Energizing equipment

C. Facility Projects shall reflect the same breakdown of the project as the schedule of values:

Division 2 – Existing Conditions
Division 3 – Concrete
Division 4 – Masonry
Division 5 – Metals
Division 6 – Wood, Plastic, and Composites
Division 7 – Thermal and Moisture Protection
Division 8 – Openings
Division 9 – Finishes
Division 10 – Specialties
Division 11 – Equipment
Division 12 – Furnishings
Division 13 – Special Construction
Division 14 – Conveying Equipment
Division 21 – Fire Suppression
Division 22 – Plumbing
Division 23 – Heating, Ventilating, and Air Conditioning
Division 26 – Electrical
Division 27 – Communications
Division 28 – Electronic Safety and Security
Division 31 – Earthwork
Division 32 – Exterior Improvements
Division 33 – Utilities

The CPM schedule will be compiled using this list of major activities. It will be the responsibility of the contractor to detail all milestones, environmental permit “window” periods, winter shutdowns etc. and include them on their schedule under the corresponding dates.

If the Engineer determines that additional detail is necessary, the Contractor shall provide it.

All documents, which require approval by the Department, shall be clearly identified within the schedule. The Department shall be allocated a minimum of thirty (30) calendar days (exclusive

of weekends and holidays) for review and approval of each submittal. Any submittals requiring approval by an outside Agency (ConnDEP, Coast Guard, Army Corps of Engineers, etc.) shall be allocated a minimum of sixty (60) calendar days. The Department shall not be held responsible for any delay associated with the approval or rejection of any substitution or other revisions proposed by the Contractor.

The schedule shall indicate the logic of the work for the major elements and components of work under the Contract, such as the planned mobilization of plant and equipment, sequences of operations, procurement of materials and equipment, duration of activities, type of relationship, lag time (if any), and such other information as it is necessary to present a clear statement of the intended activities.

The Contractor is responsible to inform its subcontractor(s) and supplier(s) of the project schedule and any relevant updates.

The schedules shall consist of a network technique of planning, scheduling and control, shall be a clear statement of the logical sequence of work to be done, and shall be prepared in such a manner that the Contractor's work sequence shall be optimized between early start and late start restraints. The Contractor shall utilize the same criteria in a consistent manner throughout the term of the project. If, at any time, the Contractor alters his logic, original durations, descriptions, adds activities, or activity codes or in any way modifies the Baseline Schedule, he must notify the Engineer of the change, in writing, with presentation detailing the reasons for the change. The Engineer reserves the right to approve or reject any such change.

The critical path of the project must be identified on the CPM schedule. The critical path is the longest-duration path through the network. The significance of the critical path is that the activities that lie on it cannot be delayed without delaying the project. Because of its impact on the entire project, critical path analysis is an important aspect of project planning.

The critical path can be identified by determining the following four parameters for each activity:

- ES - earliest start time: the earliest time at which the activity can start given that its precedent activities must be completed first.
- EF - earliest finish time, equal to the earliest start time for the activity plus the time required to complete the activity.
- LF - latest finish time: the latest time at which the activity can be completed without delaying the project.
- LS - latest start time, equal to the latest finish time minus the time required to complete the activity.

The *float time* for an activity is the time between its earliest and latest start time, or between its earliest and latest finish time. Float is the amount of time that an activity can be delayed past

its earliest start or earliest finish without delaying the project. Delays to activities on the critical path through the project network in which no float exists, that is, where $ES=LS$ and $EF=LF$ will delay the project.

Float available in the schedule, at any time shall not be considered for the exclusive use of either the State or the Contractor. During the course of contract execution, any float generated due to the efficiencies of either party is not for the sole use of the party generating the float; rather it is a shared commodity to be reasonably used by either party. Project Float will be a resource available to both the State and the Contractor.

Each CPM Schedule submittal shall be in the form of an activity on node diagram (precedence diagramming method) and shall include at a minimum; an Early Start computer sort, a Total Float computer sort, an Activity Number computer sort, a Schedule Diagram in the Time Scaled Logic format and a backup data diskette which includes all Primavera project files. The diagrams shall be on 2' x 3' sheets. Additional, more detailed, diagrams for important aspects or phases of the work will be required on large or complex projects.

Activity I.D. numbers shall be keyed to the item numbers assigned on the detailed estimate sheet. The first three digits (four digits for highway illumination, signing, traffic signals and utility work) of the activity I.D. number shall be identical to the first three digits of the item number in the contract. The remaining digits may be used to provide unique, orderly and sequential I.D. numbers for each activity.

Activity codes shall be added to the schedule dictionary at the direction of the Engineer. At a minimum, activity codes for responsibility (prime, subcontractor by name), location of work (bridge #, span #, sta. #, etc.) and stage or phase number should be included.

The Project Coordinator shall be required to prepare and submit the following documents:

1.) Baseline Submittal Requirements: The Contractor shall be guided by the following requirements when submitting the CPM Schedules for review and approval.

a.) Within ten (10) calendar days after award, the contractor and his scheduler will attend a meeting to discuss his submittal requirements. Within twenty (20) calendar days after contract award, the Contractor shall prepare and submit for review and approval a detailed CPM Schedule for all work. The review and approval process may take up to 21 calendar days and is more fully described in paragraph (b) of this section.

The work shall be broken out into sufficient detail such that no activity has a duration greater than twenty (20) days, unless approved by the Engineer. As a guide, 25 to 35 activities should be provided per \$1 million of contract work. The Engineer shall be the sole judge as to whether the schedule is sufficiently detailed.

All work shall be shown in sufficient detail such that the Critical Path may be identified and the schedule shall incorporate all contract milestones. Upon approval, this schedule shall be designated the "Baseline".

Failure to submit and gain approval for the "Baseline" may result in the Contractor being found in violation of Article 1.02.02 of the Standard Specifications. All elapsed contract time prior to the approval of the "Baseline", will be considered to be accurately represented by the actual as-built schedule of that time period. No claims for delays during that period will be allowed.

The approval of a Baseline Schedule shall in no way waive the requirements of the contract nor shall it excuse the Contractor from any obligations under the contract.

In no instance will the Contractor be permitted to commence work on any significant portion of the work for which a Baseline Schedule has not been approved.

b.) The Contractor, represented by the Project Coordinator and/or the Consultant, shall participate with the Engineer in the review and evaluation of each schedule submitted. Any and all revisions made necessary as a result of this review shall be made by the Contractor and a revised schedule submitted within ten (10) calendar days. Any further revisions required thereafter shall also be submitted for approval within (10) calendar days.

2.) Monthly Updates: Each month, as of a calendar date mutually acceptable to the Contractor and to the Engineer, the Contractor shall deliver to the Engineer three (3) prints of all required schedule diagrams and tabulations. In addition, the Contractor shall deliver one (1) copy of the project backup data diskette (s), which includes all Primavera project files. The schedule shall be updated to show the work actually accomplished during the preceding months, the actual time consumed for each activity, and the estimated time remaining for any activity which has been started but not completed.

The monthly update shall also include revisions to the CPM schedule necessitated by revisions to the project, which have been directed by the Engineer (including, but not limited to extra work) during the month preceding the update. Similarly, any changes to the schedule due to Contractor influences shall also be included within the schedule.

Any changes or revisions made to the approved Baseline shall be identified in narrative form in a cover letter accompanying the monthly update. The Engineer reserves the right to approve or reject any such changes. The narrative shall also describe in general terms the progress of the work since the last schedule update and shall identify any items of special interest. If the schedule revisions extend the contract completion date, due to extra or added work or delays beyond the control of the Contractor, the Contractor must submit a request in writing for an extension of time in accordance with Article 1.08.08. This request should be supported by the schedules submitted previously.

The contractor shall be responsible to develop mitigation measures for all delays, regardless of responsibility, and to identify all time and cost impacts to the work associated with those mitigation measures.

Except as otherwise authorized by the Engineer, monthly submissions received after the due date are considered late.

The reports required for each monthly update shall include all reports generated for approval of the CPM Schedule for that particular portion of the work. On larger or complex projects, the Engineer may require the schedule data sorted by an activity code to better reflect the progression of the work. Summary barcharts may also be required.

3.) Biweekly Schedules: Each week, the Contractor shall be required to produce and submit to the Engineer a biweekly schedule showing all activities planned for the following two week period. This short term schedule may be handwritten but shall clearly indicate all work planned on a crew basis for the two week period.

4.) Recovery Schedules: If, in the opinion of the Engineer, the updated schedule indicates that the Project has fallen behind schedule, or that a revision in sequence of operations may be necessary for any other reason, absent a justifiable time extension, the Contractor shall immediately institute all necessary steps to improve his progress and shall submit such revised network diagrams, tabulations and operational plans, as may be deemed necessary by the Engineer, to demonstrate the manner in which an acceptable rate of progress will be regained.

Should the Contractor not demonstrate an ability to regain an acceptable rate of progress, the Engineer shall require the schedule to be resource loaded with the next monthly update. No additional compensation will be allowed for resource loading the schedule.

5.) As-Built Schedules: Within thirty (30) days of completion of the project, including all corrective work, the Contractor shall submit an "As-Built Schedule" showing the actual progress of work. The Contractor shall submit three prints of this final CPM Schedule and one project backup data diskette which include all Primavera project files for the Engineer's exclusive use.

Method of Measurement: Within ten (10) calendar days of the award of the Contract, the Contractor shall submit to the Engineer for approval a breakdown of his lump sum bid price for this item detailing:

- 1.) The development cost to prepare the Baseline Schedule in accordance with these specifications. Development costs shall not exceed 25% of the total cost of the item and shall include costs to furnish and install all specified hardware.
- 2.) The cost to provide the services of the Project Coordinator, including costs to prepare and submit the Monthly Updates; furnish and submit any Recovery Schedules; furnish and

submit Two Week Look Ahead Schedules and maintenance of and supplies for the specified hardware noted above. A per month cost will be derived by taking this cost divided by the number of contract months remaining from the date of acceptance of the Baseline Schedule.

- 3.) The cost of submission and certification of the As-Built Schedule in accordance with these specifications. The submission and certification costs shall be no less than 2% of the total cost of the item.
- 4.) Substantiation showing that the costs submitted are reasonable based on the Contractor's lump sum bid.

Upon approval of the payment schedule by the Engineer, payments for work performed will be made as follows:

- 1.) Upon approval of the "Baseline" Schedule by the Engineer, the lump sum development cost will be certified for payment.
- 2.) Upon receipt of each monthly update of the "Baseline" Schedule, the per month cost for the services of the Project Coordinator will be certified for payment.
- 3.) Upon approval of the As-Built Schedule by the Engineer, the lump sum submission and certification cost will be certified for payment.

Basis of Payment: This service will be paid for at the contract lump sum price for "Project Coordinator" complete, which price shall include the preparation and submission of all schedules, updates, reports and submittals. The lump sum price shall also include the cost of providing a complete, licensed copy of the Primavera software which will remain the property of the Engineer, and all materials, equipment, labor and work incidental of this service.

The lump sum price will be certified for payment as described in "Method of Measurement" subject to the following conditions:

- 1) Any month where the monthly update of the "Baseline" CPM schedule is submitted late, without authorization from the Engineer, will result in the following actions:
 - a.) The monthly payment for the Project Coordinator item shall be deferred to the next monthly payment estimate. If any monthly submittal is more than thirty (30) calendar days late, there will be no monthly payment for the services of the Project Coordinator.
 - b) The greater of 5% of the monthly payment estimate or \$25,000 shall be retained from the monthly payment estimate until such time as the Contractor submits all required reports.

- c.) If in the opinion of the Engineer, the contractor is not in compliance with this specification, the Engineer may withhold all project payments.
- 2) In the event the project extends beyond the original completion date by more than thirty (30) calendar days, and a time extension is granted to the Contractor, the Department may require additional CPM updates which will be paid at the per month cost for the services of the Project Coordinator.
- 3) Failure of the Contractor to submit a "Baseline", monthly update or Recovery Schedule for any portion of the work in accordance with this specification shall result in the withholding of all contract payments until the schedule is submitted to, and approved by, the Engineer.

Pay Item
Project Coordinator

Pay Unit
L.S.

ITEM #0969062A - CONSTRUCTION FIELD OFFICE, MEDIUM

Description: Under the item included in the bid document, adequate weatherproof office quarters will be provided by the Contractor for the duration of the work, and if required, for a maximum of ninety days thereafter for the exclusive use of ConnDOT forces and others who may be engaged to augment ConnDOT forces with relation to the contract. The office quarters shall be located convenient to the work site and installed in accordance with Article 1.08.02, this office shall be separated from any office occupied by the Contractor. Ownership and liability of the office quarters shall remain with the Contractor.

Materials: Materials shall be in like new condition for the purpose intended and shall be approved by the Engineer.

Office Requirements: The Contractor shall furnish the office quarters and equipment as described below.

	Description:
400 SF	Sq. Ft. of floor space with a minimum ceiling height of 7 ft. and shall be partitioned as shown on building floor plan as provided by the Engineer.
2 EA	Minimum number of exterior entrances.
7 EA	Minimum number of parking spaces.

Office layout: The office shall have a minimum square footage as indicated in the table above, and shall be partitioned as shown on building floor plan as provided by the Engineer. The underside of the office shall be fully skirted to the ground.

Lavatory Facilities: The Contractor shall furnish lavatory and toilet facilities at a location convenient to the office quarters for the use of Department personnel and such assistants as they may engage. He shall also supply lavatory and sanitary supplies as required.

Windows and Entrances: The windows shall be of a type that will open and close conveniently, shall be sufficient in number and size to provide adequate light and ventilation, and shall be fitted with locking devices, blinds and screens. The entrances shall be secure, screened, and fitted with a lock for which four keys shall be furnished. All keys to the construction field office shall be furnished to the Department and will be kept in their possession while State personnel are using the office. Any access to the entrance ways shall meet applicable building codes and be slip resistant, with appropriate handrails.

Lighting: The Contractor shall equip the office interior with electric lighting that provides a minimum illumination level of 100 foot-candles at desk level height, and electric outlets for each desk and drafting table. The Contractor shall also provide exterior lighting that provides a minimum illumination level of 2 foot-candles throughout the parking area and for a minimum distance of 10 ft. on each side of the field office.

The Contractor shall provide the following additional equipment, facilities, and/or services at the Field Office on this project to include at least the following to the satisfaction of the Engineer:

Parking Facility: Adequate parking spaces with adequate illumination on a paved surface, with surface drainage if needed. If paved parking does not exist adjacent to the field office, the Contractor shall provide a parking area of sufficient size to accommodate the number of vehicles indicated in the table above. Construction of the parking area and driveway, if necessary, will consist of a minimum of 6 inches of processed aggregate base graded to drain. The base material will be extended to the office entrance.

Field Office Security: Physical Barrier Devices - This shall consist of physical means to prevent entry, such as: 1) All windows shall be barred or security screens installed; 2) All field office doors shall be equipped with dead bolt locks and regular day operated door locks; and 3) Other devices as directed by the Engineer to suit existing conditions.

Electric Service: The field office shall be equipped with an electric service panel to serve the electrical requirements of the field office, including: lighting, general outlets, computer outlets, calculators etc., and meet the following minimum specifications:

- A. 120/240 volt, 1 phase, 3 wire.
- B. Ampacity necessary to serve all equipment. Service shall be a minimum 100 amp dedicated to the construction field office.
- C. The electrical panel shall include a main circuit breaker and branch circuit breakers of the size and quantity required.
- D. Additional 120 volt, single phase, 20 amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed at each computer workstation location.
- E. Additional 120 volt, single phase, 20 amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed, for use by the Telephone Company.
- F. Additional 120-volt circuits and duplex outlets as required meeting National Electric Code requirements.
- G. One exterior (outside) wall mounted GFI receptacle, duplex, isolated ground, 120 volt, straight blade.
- H. After work is complete and prior to energizing, the State's ConnDOT electrical inspector, must be contacted at 860-594-2240. (Do Not Call Local Town Officials)
- I. Prior to field office removal the ConnDOT Data Communications office must be notified to deactivate the communications equipment.

Heating, Ventilation and Air Conditioning (HVAC): The field office shall be equipped with sufficient heating, air conditioning and ventilation equipment to maintain a temperature range of 68°-80° Fahrenheit within the field office.

The Following Furnishings and Equipment Shall Be Provided In The Applicable Field Office Type:

Qty	Description:
3 EA	Office desks (2.5 ft x 5 ft) with drawers, locks, and matching desk chairs that have

Qty	Description:
	pneumatic seat height adjustment and dual wheel casters on the base.
2 EA	Office Chairs.
1 EA	Fire resistant cabinets (legal size/4 drawer), locking.
1 EA	Drafting type tables (3 ft x 6 ft) and supported by wall brackets and legs; and matching drafters stool that have pneumatic seat height adjustment, seat back and dual wheel casters on the base.
2 EA	Personal computer tables (4 ft x 2.5 ft).
1 EA	Hot and cold water dispensing unit and supply of cups and bottled water shall be supplied by the Contractor for the duration of the project.
2 EA	Electronic office type printing calculators capable of addition, subtraction, multiplication and division with memory and a supply of printing paper.
2 EA	Telephone.
1 EA	Telephone answering machine.
1 EA	Plain paper facsimile (FAX) machine capable of transmitting via telephone credit card. All supplies, paper and maintenance shall be provided by the Contractor.
1 EA	Copier/Scanner - dry, plain paper with automatic feeder and reducing capability. All supplies, paper and maintenance shall be provided by the Contractor.
2 EA	Computer systems as specified below under <u>Computer Hardware and Software</u> . All supplies and maintenance shall be provided by the Contractor.
1 EA	Laser printer as specified below under <u>Computer Hardware and Software</u> . All supplies, paper and maintenance shall be provided by the Contractor.
2 EA	Digital Camera as specified below under <u>Computer Hardware and Software</u> . All supplies and maintenance shall be provided by the Contractor.
1 EA	Wastebaskets - 30 gal., including plastic waste bags.
3 EA	Wastebaskets - 5 gal., including plastic waste bags.
2 EA	Electric pencil sharpeners.
* EA	Fire extinguishers - provide and install type and number to meet applicable State and local codes for size of office indicated, including a fire extinguisher suitable for use on a computer terminal fire.
1 EA	Vertical plan racks for 2 sets of 2 ft x 3 ft plans for each rack.
1 EA	Infrared Thermometer, including certified calibration, case, cleaning wipes.
1 EA	Concrete Curing Box as specified below under <u>Concrete Testing Equipment</u> .
1 EA	Concrete Air Meter as specified below under <u>Concrete Testing Equipment</u> .
1 EA	Concrete Slump Cone as specified below under <u>Concrete Testing Equipment</u> .

The furnishings and equipment required herein shall remain the property of the Contractor. Any supplies required to maintain or operate the above listed equipment or furnishings shall be provided by the Contractor for the duration of the project.

Telephone Service: This shall consist of the installation of two (2) telephone lines: one (1) line for phone/voice service and one (1) line dedicated for the facsimile machine. The Contractor shall pay all charges except for out-of-state toll calls made by State personnel.

Data Communications Facility Wiring: Contractor shall install a Category 5e 468B patch panel in a central wiring location and Cat 5e cable from the patch panel to each PC station, terminating in a (category 5e 468B) wall or surface mount data jack. The central wiring location shall also house either the data circuit with appropriate power requirements or a category 5 cable run to the location of the installed data circuit. The central wiring location will be determined by the ConnDOT Data Center staff in coordination with the designated field office personnel as soon as the facility is in place. The ConnDOT Project Engineer will provide the Contractor with a copy of the current PC specifications, approved printer list and data wiring schematic as soon as possible after the contract is awarded.

Contractor to run a CAT 5e LAN cable a minimum length of 25 feet for each computer to LAN switch area leaving an additional 10 feet of cable length on each side with terminated RJ45 connectors. Each run / jack shall be clearly labeled with an identifying Jack Number.

The installation of a data communication circuit between the field office and the ConnDOT Data Communication Center in Newington will be coordinated between the ConnDOT District staff, ConnDOT Office of Information Systems and the local phone company. The ConnDOT District staff will coordinate the installation of the data communication service with ConnDOT PC Support once the field office phone number is issued. The Contractor shall provide the field office telephone number(s) to the ConnDOT Project Engineer as soon as possible to facilitate data line and computer installations.

Computer Hardware and Software:

The ConnDOT Project Engineer will provide the Contractor with a copy of the current PC specifications, approved printer list and data wiring schematic as soon as possible after the contract is awarded.

Before ordering the computer hardware and software, the Contractor must submit a copy of their proposed PC specifications and the type of printer to the ConnDOT Project Engineer for review by the ConnDOT Data Center. If the specification meets or exceeds the minimum specifications listed below, then the Contractor will be notified that the order may be placed.

Before any equipment is delivered to the Data Center, arrangements must be made a minimum of 24 hours in advance by contacting 860-594-3500. All software, hardware and licenses listed below shall be clearly labeled, specifying the (1) Project No., (2) Contractor Name, (3) Project Engineer's Name and (4) Project Engineer's Phone No., and shall be delivered to the ConnDOT Data Center, 2710 Berlin Turnpike, Newington, CT, where it will be configured and prepared for field installation. Installation will then be coordinated with ConnDOT field personnel and the computer system specified will be stationed in the Department's project field office.

The computer system furnished shall have all software and hardware necessary for the complete installation of the latest versions of the software listed, and therefore supplements the minimum specifications below. The Engineer reserves the right to expand or relax the specification to adapt to the software and hardware limitations and availability, the compatibility with current

agency systems, and to provide the Department with a computer system that can handle the needs of the project. This requirement is to ensure that the rapid changing environment that computer systems have experienced does not leave the needs of the project orphan to what has been specified. There will not be any price adjustment due to the change in the minimum system requirements.

The Contractor shall provide the Engineer with a licensed copy registered in the Department's name of the latest versions of the software listed and maintain customer support services offered by each software producer for the duration of the Contract. The Contractor shall deliver to the Engineer all supporting documentation for the software and hardware including any instructions or manuals. The Contractor shall provide original backup media for the software.

The Contractor shall provide the computer system with all required supplies, maintenance and repairs (including labor and parts) throughout the Contract life.

Once the Contract has been completed, the computer will remain the property of the Contractor. Prior to the return of any computer(s) to the Contractor, field personnel will coordinate with the Data Center personnel for the removal of Department owned equipment, software, data, and associated equipment.

A) Computer – Minimum Specification:

Processor – Intel® Core 2 Duo Processor (2.93 GHz, 1066 MHz FSB 3MB L2 Cache)

Memory – 4 GB DIMM DDR3 1333MHz.

Monitor – (2) 24.0 inch LCD color monitor.

Graphics – Intel Graphics Media Accelerator 4500 or equivalent.

Hard Drive – 500 GB Ultra ATA/SATA hard drive (Western Digital, IBM or Seagate).

Optical Drive – CD-RW/DVD-RW Combo.

Multi-Card Reader – Must include SD

Multimedia Package – Integrated Sound Blaster Compatible AC97 Sound and speakers.

Case – Small Form or Mid Tower, capable of vertical or horizontal orientation.

Integrated Network Adapter – comparable to 3COM 10/100/1000 twisted pair Ethernet.

Keyboard – 104+ Keyboard.

Mouse – Optical 2-button mouse with scroll wheel.

Operating System – Windows 7 Professional.

Application Software – MS Office Professional Edition 2010.

Additional Software (Latest Releases, including subscription services for the life of the Contract) –

- Norton Anti-Virus and CD/DVD burning software (ROXIO or NERO),
- Adobe Acrobat Standard

Resource or Driver CD/DVD – CD/DVD with all drivers and resource information so that computer can be restored to original prior to shipment back to the contractor.

Uninterrupted power supply – APC Back-UPS 500VA.

Note A1: All hardware components must be installed before delivery. All software

documentation and CD-ROMs/DVD for Microsoft Windows 7 Professional, Microsoft Office 2010 Professional Edition, and other software required software must be provided. Computer Brands are limited to Dell (preferred) and HP (acceptable) brands only. No other brands will be accepted. The ConnDOT Project Engineer will provide the Contractor with a copy of the current PC specifications and approved printer list as soon as possible after the contract is awarded.

B) Laser Printer – Minimum Specification:

Print speed – 20 ppm.
Resolution – 1,200 x 1,200 dpi.
Paper size – Up to 216 mm x 355 mm (8.5 in x 14 in).
RAM – 16 MB.
Print Drivers – Must support HP PCL6 and HP PCL5e.
Printer cable – 1.8 m (6 ft).

Note B1: Laser printer brands are limited to Hewlett-Packard and Savin brands only. The ConnDOT Project Engineer will provide the Contractor with a copy of the current PC specifications and approved printer list as soon as possible after the contract is awarded.

Note B2: It is acceptable to substitute a multi-function all-in-one printer/copier/scanner/fax machine listed on the approved printer list in place of the required laser printer and fax machine.

C) Digital Camera – Minimum Specification:

Optical – 5 mega pixel, with 3x optical zoom.
Memory – 2 GB.
Features – Date/time stamp feature.
Connectivity – USB cable or memory card reader.
Software – Must be compatible with Windows XP and Vista.
Power – Rechargeable battery and charger.

The Contractor is responsible for service and repairs to all computer hardware. All repairs must be performed with-in 48 hours. If the repairs require more than a 48 hours then a replacement must be provided. All supplies, paper and maintenance for the computers, laptops, printers, copiers, and fax machines shall be provided by the Contractor.

Concrete Testing Equipment: If the Contract includes items that require compressive strength cylinders for concrete, in accordance with the Schedule of Minimum Testing Requirements for Sampling Materials for Test, the Contractor shall provide the following. All testing equipment will remain the property of the Contractor at the completion of the project.

- A) Concrete Cylinder Curing Box – meeting the requirements of Section 6.12 of the Standard Specifications.

- B) Air Meter – The air meter provided shall be in good working order and will meet the requirements of AASHTO T 152.
- C) Slump Cone Mold – Slump cone, base plate, and tamping rod shall be provided in like-new condition and meet the requirements of AASHTO T119, Standard Test Method for Slump of Hydraulic-Cement Concrete.

Insurance Policy: The Contractor shall provide a separate insurance policy, with no deductible, in the minimum amount of twenty thousand dollars (\$20,000.00) in order to insure all State-owned data equipment and supplies used in the office against all losses. The Contractor shall be named insured on that policy, and the Department shall be an additional named insured on the policy. These losses shall include, but not be limited to: theft, fire, and physical damage. The Department will be responsible for all maintenance costs of Department owned computer hardware. In the event of loss, the Contractor shall provide replacement equipment in accordance with current Department equipment specifications, within seven days of notice of the loss. If the Contractor is unable to provide the required replacement equipment within seven days, the Department may provide replacement equipment and deduct the cost of the equipment from monies due or which may become due the Contractor under the contract or under any other contract. The Contractor's financial liability under this paragraph shall be limited to the amount of the insurance coverage required by this paragraph. If the cost of equipment replacement required by this paragraph should exceed the required amount of the insurance coverage, the Department will reimburse the Contractor for replacement costs exceeding the amount of the required coverage.

Maintenance: During the occupancy by the Department, the Contractor shall maintain all facilities and furnishings provided under the above requirements, and shall maintain and keep the office quarters clean through the use of weekly professional cleaning to include, but not limited to, washing & waxing floors, cleaning restrooms, removal of trash, etc. Exterior areas shall be mowed and clean of debris. A trash receptacle (dumpster) with weekly pickup (trash removal) shall be provided. Snow removal, sanding and salting of all parking, walkway, and entrance ways areas shall be accomplished during a storm if on a workday during work hours, immediately after a storm and prior to the start of a workday. If snow removal, salting and sanding are not completed by the specified time, the State will provide the service and all costs incurred will be deducted from the next payment estimate.

Method of Measurement: The furnishing and maintenance of the construction field office will be measured for payment by the number of calendar months that the office is in place and in operation, measured to the nearest month.

There will not be any price adjustment due to any change in the minimum computer system requirements.

Basis of Payment: The furnishing and maintenance of the construction field office will be paid at the listed unit price per month for the item “Construction Field Office, Medium”, which price shall include all material, equipment, labor, utility services and work incidental thereto.

The cost of providing the parking area, external illumination, trash removal and snow and ice removal shall be included in the monthly unit price bid for the respective item “Construction Field Office, Medium”.

The State will be responsible for payment of data communication user fees and for toll calls by State personnel.

<u>Pay Item</u>	<u>Pay Unit</u>
Construction Field Office, Medium	Month

ITEM #0970007A - TRAFFICPERSON (UNIFORMED FLAGGER)

9.70.01—Description: Under this item the Contractor shall provide the services of Trafficpersons of the type and number, and for such periods, as the Engineer approves for the control and direction of vehicular traffic and pedestrians. Traffic persons requested solely for the contractor's operational needs will not be approved for payment.

9.70.03—Construction Method: Prior to the start of operations on the project requiring the use of Trafficpersons, a meeting will be held with the Contractor, Trafficperson agency or firm, Engineer, and State Police, if applicable, to review the Trafficperson operations, lines of responsibility, and operating guidelines which will be used on the project. A copy of the municipality's billing rates for Municipal Police Officers and vehicles, if applicable, will be provided to the Engineer prior to start of work.

On a weekly basis, the Contractor shall inform the Engineer of their scheduled operations for the following week and the number of Trafficpersons requested. The Engineer shall review this schedule and approve the type and number of Trafficpersons required. In the event of an unplanned, emergency, or short term operation, the Engineer may approve the temporary use of properly clothed persons for traffic control until such time as an authorized Trafficperson may be obtained. In no case shall this temporary use exceed 8 hours for any particular operation.

If the Contractor changes or cancels any scheduled operations without prior notice of same as required by the agency providing the Trafficpersons, and such that Trafficperson services are no longer required, the Contractor will be responsible for payment at no cost to the Department of any show-up cost for any Trafficperson not used because of the change. Exceptions, as approved by the Engineer, may be granted for adverse weather conditions and unforeseeable causes beyond the control and without the fault or negligence of the Contractor.

Trafficpersons assigned to a work site are to only take direction from the Engineer.

Trafficpersons shall wear a high visibility safety garment that complies with OSHA, MUTCD, ASTM Standards and the safety garment shall have the words "Traffic Control" clearly visible on the front and rear panels (minimum letter size 2 inches (50 millimeters)). Worn/faded safety garments that are no longer highly visible shall not be used. The Engineer shall direct the replacement of any worn/faded garment at no cost to the State.

A Trafficperson shall assist in implementing the traffic control specified in the Maintenance and Protection of Traffic contained elsewhere in these specifications or as directed by the Engineer. Any situation requiring a Trafficperson to operate in a manner contrary to the Maintenance and Protection of Traffic specification shall be authorized in writing by the Engineer.

Trafficpersons shall consist of the following types:

1. Uniformed Law Enforcement Personnel: Law enforcement personnel shall wear the high visibility safety garment provided by their law enforcement agency. If no high visibility safety garment is provided, the Contractor shall provide the law enforcement personnel with a garment meeting the requirements stated for the Uniformed Flaggers' garment.

Law Enforcement Personnel may be also be used to conduct motor vehicle enforcement operations in and around work areas as directed and approved by the Engineer.

Municipal Police Officers: Uniformed Municipal Police Officers shall be sworn Municipal Police Officers or Uniformed Constables who perform criminal law enforcement duties from the Municipality in which the project is located. Their services will also include an official Municipal Police vehicle when requested by the Engineer. Uniformed Municipal Police Officers will be used on non-limited access highways. If Uniformed Municipal Police Officers are unavailable, other Trafficpersons may be used when authorized in writing by the Engineer. Uniformed Municipal Police Officers and requested Municipal Police vehicles will be used at such locations and for such periods as the Engineer deems necessary to control traffic operations and promote increased safety to motorists through the construction sites.

2. Uniformed Flagger: Uniformed Flaggers shall be persons who have successfully completed flagger training by the American Traffic Safety Services Association (ATSSA), National Safety Council (NSC) or other programs approved by the Engineer. A copy of the Flagger's training certificate shall be provided to the Engineer before the Flagger performs any work on the project. Uniformed Flaggers shall conform to Chapter 6E, Flagger Control, in the Manual of Uniformed Traffic Control Devices (MUTCD) and shall wear high-visibility safety apparel, use a STOP/SLOW paddle that is at least 18 inches (450 millimeters) in width with letters at least 6 inches (150 millimeters) high. The paddle shall be mounted on a pole of sufficient length to be 6 feet (1.8 meters) above the ground as measured from the bottom of the sign.

Uniformed Flaggers will only be used on non-limited access highways to control traffic operations when authorized in writing by the Engineer.

9.70.04—Method of Measurement: Services of Trafficpersons will be measured for payment by the actual number of hours for each person rendering services approved by the Engineer. These services shall include, however, only such trafficpersons as are employed within the limits of construction, project right of way of the project or along detours authorized by the Engineer to assist the motoring public through the construction work zone. Services for continued use of a detour or bypass beyond the limitations approved by the Engineer, for movement of construction vehicles and equipment, or at locations where traffic is unnecessarily restricted by the Contractor's method of operation, will not be measured for payment.

Trafficpersons shall not work more than twelve hours in any one 24 hour period. In case such services are required for more than twelve hours, additional Trafficpersons shall be furnished and measured for payment. In cases where the Trafficperson is an employee on the Contractor's payroll, payment under the item "Trafficperson (Uniformed Flagger)" will be made only for those hours when the Contractor's employee is performing Trafficperson services.

Travel time will not be measured for payment for services provided by Uniformed Municipal Police Officers or Uniformed Flaggers.

Mileage fees associated with Trafficperson services will not be measured for payment.

Safety garments and STOP/SLOW paddles will not be measured for payment.

9.70.05—Basis of Payment: Trafficpersons will be paid in accordance with the schedule described herein.

There will be no direct payment for safety garments or STOP/SLOW paddles. All costs associated with furnishing safety garments and STOP/SLOW paddles shall be considered included in the general cost of the item.

1. Uniformed Law Enforcement Personnel: The sum of money shown on the Estimate and in the itemized proposal as "Estimated Cost" for this work will be considered the bid price even though payment will be made as described below. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded and the original price will be used to determine the total amount for the contract.

The Department will pay the Contractor its actual costs for "Trafficperson (Municipal Police Officer)" plus an additional 5% as reimbursement for the Contractor's administrative expense in connection with the services provided.

The invoice must include a breakdown of each officer's actual hours of work and actual rate applied. Mileage fees associated with Trafficperson services are not reimbursable expenses and are not to be included in the billing invoice. The use of a municipal police vehicle authorized by the Engineer will be paid at the actual rate charged by the municipality. Upon receipt of the invoice from the municipality, the Contractor shall forward a copy to the Engineer. The invoice will be reviewed and approved by the Engineer prior to any payments. *Eighty (80%) of the invoice will be paid upon completion of review and approval. The balance (20%) will be paid upon receipt of cancelled check or receipted invoice, as proof of payment.* The rate charged by the municipality for use of a uniformed municipal police officer and/or a municipal police vehicle shall not be greater than the rate it normally charges others for similar services.

2. Uniformed Flagger: Uniformed flaggers will be paid for at the contract unit price per hour for "Trafficperson (Uniformed Flagger)", which price shall include all compensation, insurance benefits and any other cost or liability incidental to the furnishing of the trafficpersons ordered.

Pay Item	Pay Unit
Trafficperson (Uniformed Flagger)	Hr.

ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC

Article 9.71.01 – Description is supplemented by the following:

The Contractor shall maintain and protect traffic as described by the following and as limited in the Special Provision "Prosecution and Progress":

ROUTE 82 AND ROUTE 85

The Contractor shall maintain and protect a minimum of one lane of traffic in each direction, each lane on a paved travel path not less than 11 feet in width.

Where turn lanes exist, the Contractor shall provide an additional 10' paved travel path to be used for turning vehicles only. This additional 10' travel path shall be a minimum length of 150'. It shall be so implemented such that sufficient storage, taper length and turning radius are provided.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall maintain and protect at least an alternating one-way traffic operation on a paved travel path not less than 11 feet in width. The length of the alternating one-way traffic operation shall not exceed 300 feet nor shall there be more than one alternating one-way traffic operation within the project limits without prior approval of the Engineer.

COMMERCIAL AND RESIDENTIAL DRIVEWAYS

The Contractor shall maintain access to and egress from all commercial and residential driveways throughout the project limits. The Contractor will be allowed to close said driveways to perform the required work during those periods when the businesses are closed unless permission is granted from the business owner to close the driveway during business hours. If a temporary closure of a residential driveway is necessary, the Contractor shall coordinate with the owner to determine the time period of the closure.

Article 9.71.03 - Construction Method is supplemented as follows:

General

Travel paths shall be paved except that unpaved travel paths will be permitted for areas requiring full depth and full width reconstruction. In which cases, the Contractor will be allowed to maintain traffic on processed aggregate until the roundabout is ready to be opened to traffic according to the Construction Sequence Plans (Stage 8). The unpaved section shall be the full width of the road and perpendicular to the travel lanes. Opposing traffic lane dividers shall be used as a centerline.

Remote Control Changeable Message Signs shall be placed on Route 2 in the vicinity of Route 11 and in the vicinity of Route 85 and I-395.

The Contractor shall schedule operations so that pavement removal and roadway resurfacing shall be completed full width across a roadway (bridge) section by the end of a workday (work night) or as directed by the Engineer. All transverse height differentials on all roadway surfaces shall be tapered to negate any "bump" to traffic.

When the installation of all the intermediate courses of bituminous concrete pavement is completed for an entire roadway, the Contractor shall install the final course of bituminous concrete pavement.

When the Contractor is excavating adjacent to the roadway the Contractor shall provide a three foot shoulder between the work area and travel lanes with traffic drums spaced every 50 feet the three foot shoulder area. At the end of the workday if the vertical drop off exceeds 3 inches the Contractor shall provide a temporary traversable slope of 4:1 or flatter that is acceptable to the Engineer.

The Contractor shall not store any material on site which would present a safety hazard to motorists (e.g. fixed object or obstruct sight lines) or pedestrians.

Existing Signing

The Contractor shall maintain all existing side-mounted signs throughout the project limits during the duration of the project. The Contractor shall temporarily relocate signs and sign supports as many times as deemed necessary and install temporary sign supports if necessary as directed by the Engineer.

Requirements for Winter

The Contractor shall schedule a meeting with representatives from the Department including the offices of Maintenance and Traffic, and the Town/City to determine what interim traffic control measures the Contractor must accomplish for the winter to provide safety to the motorist and permit adequate snow removal procedures. This meeting shall be held prior to October 31 of each year and will include, but not be limited to, discussion of the status and schedule of the

following items: lane and shoulder widths, pavement restoration, traffic signal work, pavement markings, and signing.

Signing Patterns

The Contractor shall erect and maintain all signing patterns in accordance with the traffic control plans contained herein. Proper distances between advance warning signs and proper taper lengths are mandatory. 42 Inch traffic Cones and approved traffic drums are to be utilized for lane closures on expressways and 36 inch traffic cones and traffic drum are allowed on all other roadways.

Article 9.71.05 – Basis of Payment is supplemented by the following:

The temporary relocation of signs and supports, and the furnishing, installation and removal of any temporary supports shall be paid for under the item “Maintenance and Protection of Traffic”. Temporary overhead sign supports and foundations shall be paid for under the appropriate item(s).

The cost of furnishing, installing and removing the material for the 4H:1V traversable slope shall be paid for under the item “Maintenance and Protection of Traffic.”

Pavement Markings -Non-Limited Access Multilane Roadways

Secondary and Local Roadways

During construction, the Contractor shall maintain all pavement markings on paved surfaces on all roadways throughout the limits of the project.

Interim Pavement Markings

The Contractor shall install painted pavement markings, which shall include centerlines, shoulder edge lines, lane lines (broken lines), lane-use arrows, and stop bars, on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work day/night. If the next course of bituminous concrete pavement will be placed within seven days, shoulder edge lines are not required. The painted pavement markings will be paid under the appropriate items.

If the Contractor will install another course of bituminous concrete pavement within 24 hours, the Contractor may install Temporary Plastic Pavement Marking Tape in place of the painted pavement markings by the end of the work day/night. These temporary pavement markings shall include centerlines, lane lines (broken lines) and stop bars; shoulder edge lines are not required. Centerlines shall consist of two 4 inch wide yellow markings, 2 feet in length, side by side, 4 to 6 inches apart, at 40-foot intervals. No passing zones should be posted with signs in those areas where the final centerlines have not been established on two-way roadways. Stop bars may consist of two 6 inch wide white markings or three 4 inch wide white markings placed side by side. The Contractor shall remove and dispose of the Temporary Plastic Pavement Marking Tape when another course of bituminous concrete pavement is installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

If an intermediate course of bituminous concrete pavement will be exposed throughout the winter, then Epoxy Resin Pavement Markings should be installed unless directed otherwise by the Engineer.

Final Pavement Markings

The Contractor should install painted pavement markings on the final course of bituminous concrete pavement by the end of the work day/night. If the painted pavement markings are not installed by the end of the work day/night, then Temporary Plastic Pavement Marking Tape shall be installed as described above and the painted pavement markings shall be installed by the end of the work day/night on Friday of that week.

If Temporary Plastic Pavement Marking Tape is installed, the Contractor shall remove and dispose of these markings when the painted pavement markings are installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

The Contractor shall install permanent Epoxy Resin Pavement Markings in accordance with Section 12.10 entitled "Epoxy Resin Pavement Markings, Symbols, and Legends" after such time as determined by the Engineer.

TRAFFIC CONTROL DURING CONSTRUCTION OPERATIONS (English Version)

The following guidelines shall assist field personnel in determining when and what type of traffic control patterns to use for various situations. These guidelines shall provide for the safe and efficient movement of traffic through work zones and enhance the safety of work forces in the work area.

TRAFFIC CONTROL PATTERNS: Traffic control patterns shall be used when a work operation requires that all or part of any vehicle or work area protrudes onto any part of a travel lane or shoulder. For each situation, the installation of traffic control devices shall be based on the following:

- Speed and volume of traffic
- Duration of operation
- Exposure to hazards

Traffic control patterns shall be uniform, neat and orderly so as to command respect from the motorist.

In the case of a horizontal or vertical sight restriction in advance of the work area, the traffic control pattern shall be extended to provide adequate sight distance for approaching traffic.

If a lane reduction taper is required to shift traffic, the entire length of the taper should be installed on a tangent section of roadway so that the entire taper area can be seen by the motorist.

Any existing signs that are in conflict with the traffic control patterns shall be removed, covered, or turned so that they are not readable by oncoming traffic.

When installing a traffic control pattern, a Buffer Area should be provided and this area shall be free of equipment, workers, materials and parked vehicles.

Typical traffic control plans 20 through 25 may be used for moving operations such as line striping, pot hole patching, mowing, or sweeping when it is necessary for equipment to occupy a travel lane.

Traffic control patterns will not be required when vehicles are on an emergency patrol type activity or when a short duration stop is made and the equipment can be contained within the shoulder. Flashing lights and appropriate trafficperson shall be used when required.

Although each situation must be dealt with individually, conformity with the typical traffic control plans contained herein is required. In a situation not adequately covered by the typical traffic control plans, the Contractor must contact the Engineer for assistance prior to setting up a traffic control pattern.

PLACEMENT OF SIGNS: Signs must be placed in such a position to allow motorists the opportunity to reduce their speed prior to the work area. Signs shall be installed on the same side

of the roadway as the work area. On multi-lane divided highways, advance warning signs may be installed on both sides of the highway. On directional roadways (on-ramps, off-ramps, one-way roads), where the sight distance to signs is restricted, these signs should be installed on both sides of the roadway.

Allowable Adjustment of Signs and Devices
Shown on the Traffic Control Plans

The traffic control plans contained herein show the location and spacing of signs and devices under ideal conditions. Signs and devices should be installed as shown on these plans whenever possible.

The proper application of the traffic control plans and installation of traffic control devices depends on actual field conditions.

Adjustments to the traffic control plans shall be made only at the direction of the Engineer to improve the visibility of the signs and devices and to better control traffic operations. Adjustments to the traffic control plans shall be based on safety of work forces and motorists, abutting property requirements, driveways, side roads, and the vertical and horizontal curvature of the roadway.

The Engineer may require that the traffic control pattern be located significantly in advance of the work area to provide better sight line to the signing and safer traffic operations through the work zone.

Table I indicates the minimum taper length required for a lane closure based on the posted speed limit of the roadway. These taper lengths shall only be used when the recommended taper lengths shown on the traffic control plans cannot be achieved.

TABLE I – MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT MILES PER HOUR	MINIMUM TAPER LENGTH IN FEET FOR A SINGLE LANE CLOSURE
30 OR LESS	180
35	250
40	320
45	540
50	600
55	660
65	780

SECTION 1. WORK ZONE SAFETY MEETINGS

- 1.a) Prior to the commencement of work, a work zone safety meeting will be conducted with representatives of DOT Construction, Connecticut State Police (Local Barracks), Municipal Police, the Contractor (Project Superintendent) and the Traffic Control Subcontractor (if different than the prime Contractor) to review the traffic operations, lines of responsibility, and operating guidelines which will be used on the project. Other work zone safety meetings during the course of the project should be scheduled as needed.
- 1.b) A Work Zone Safety Meeting Agenda, (see Section 9), shall be developed and used at the meeting to outline the anticipated traffic control issues during the construction of this project. Any issues that can't be resolved at these meetings will be brought to the attention of the District Engineer and the Office of Construction.

SECTION 2. INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS

- 2.a) Lane Closures shall be installed beginning with the advanced warning signs and proceeding forward toward the work area.
- 2.b) Lane Closures shall be removed in the reverse order, beginning at the work area, or end of the traffic control pattern, and proceeding back toward the advanced warning signs.
- 2.c) Stopping traffic may be allowed:
 - As per the contract for such activities as blasting, steel erection, etc.
 - During paving, milling operations, etc. where, in the middle of the operation, it is necessary to flip the pattern to complete the operation on the other half of the roadway and traffic should not travel across the longitudinal joint or difference in roadway elevation.
 - To move slow moving equipment across live traffic lanes into the work area.
- 2.d) Under certain situations when the safety of the traveling public and/or that of the workers may be compromised due to conditions such as traffic volume, speed, roadside obstructions, or sight line deficiencies, as determined by the Engineer and/or State Police, traffic may be briefly impeded while installing and/or removing the advanced warning signs and the first ten traffic cones/drums only. Appropriate measures shall be taken to safely slow traffic. If required, State Police may use traffic slowing techniques, including the use of Truck Mounted Impact Attenuators (TMAs) as appropriate, for a minimum of one mile in advance of the pattern starting point. Once the advanced warning signs and the first ten traffic cones/drums are installed/removed, the two TMAs and sign crew should continue to install/remove the pattern as described in Section 4c and traffic shall be allowed to resume their normal travel.

- 2.e) The Contractor must adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.
- 2.f) Additional devices are required on entrance ramps, exit ramps, and intersecting roads to warn and/or move traffic into the proper travel path prior to merging/exiting with/from the main line traffic. This shall be completed before installing the mainline pattern past the ramp or intersecting roadway.
- 2.g) Prior to installing a pattern, any conflicting existing signs shall be covered with an opaque material. Once the pattern is removed, the existing signs shall be uncovered.
- 2.h) On limited access roadways, workers are prohibited from crossing the travel lanes to install and remove signs or other devices on the opposite side of the roadway. Any signs or devices on the opposite side of the roadway shall be installed and removed separately.

**SECTION 3. USE OF HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING
ARROW**

- 3.a) On limited access roadways, one Flashing Arrow shall be used for each lane that is closed. The Flashing Arrow shall be installed concurrently with the installation of the traffic control pattern and its placement shall be as shown on the traffic control plan. For multiple lane closures, one Flashing Arrow is required for each lane closed. If conditions warrant, additional Flashing Arrows should be employed (i.e.: curves, major ramps, etc.).
- 3.b) On non-limited access roadways, the use of a Flashing Arrow for lane closures is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to use the Flashing Arrow.
- 3.c) The Flashing Arrow shall not be used on two lane, two-way roadways for temporary alternating one-way traffic operations.
- 3.d) The Flashing Arrow board display shall be in the “arrow” mode for lane closure tapers and in the “caution” mode (four corners) for shoulder work, blocking the shoulder, or roadside work near the shoulder. The Flashing Arrow shall be in the “caution” mode when it is positioned in the closed lane.
- 3.e) The Flashing Arrow shall not be used on a multi-lane roadway to laterally shift all lanes of traffic, because unnecessary lane changing may result.
- 3.f) If the required number of Flashing Arrows is not available, the traffic control pattern shall not be installed.

SECTION 4. USE OF TRUCK MOUNTED IMPACT ATTENUATOR VEHICLES (TMAs)

- 4.a) For lane closures on limited access roadways, a minimum of two TMAs shall be used to install and remove traffic control patterns. If two TMAs are not available, the pattern shall not be installed.
- 4.b) On non-limited access roadways, the use of TMAs to install and remove patterns closing a lane(s) is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to utilize the TMAs.
- 4.c) Generally, to establish the advance and transition signing, one TMA shall be placed on the shoulder and the second TMA shall be approximately 1,000 feet ahead blocking the lane. The flashing arrow board mounted on the TMA should be in the “flashing arrow” mode when taking the lane. The sign truck and workers should be immediately ahead of the second TMA. In no case shall the TMA be used as the sign truck or a work truck. Once the transition is in place, both TMAs shall travel in the closed lane until all Changeable Message Signs, signs, Flashing Arrows, and cones/drums are installed. The flashing arrow board mounted on the TMA should be in the “caution” mode when traveling in the closed lane.
- 4.d) A TMA shall be placed prior to the first work area in the pattern. If there are multiple work areas within the same pattern, then additional TMAs may be positioned at each additional work area as needed. The flashing arrow board mounted on the TMA should be in the “caution” mode when in the closed lane.
- 4.e) TMAs shall be positioned a sufficient distance prior to the workers or equipment being protected to allow for appropriate vehicle roll-ahead in the event that the TMA is hit, but not so far that an errant vehicle could travel around the TMA and into the work area. For additional placement and use details, refer to the specification entitled “Type ‘D’ Portable Impact Attenuation System”. Some operations, such as paving and concrete repairs, do not allow for placement of the TMA(s) within the specified distances. In these situations, the TMA(s) should be placed at the beginning of the work area and shall be advanced as the paving or concrete operations proceed.
- 4.f) TMAs should be paid in accordance with how the unit is utilized. When it is used as a TMA and is in the proper location as specified, then it should be paid at the specified hourly rate for “Type ‘D’ Portable Impact Attenuation System”. When the TMA is used as a Flashing Arrow, it should be paid at the daily rate for “High Mounted Internally Illuminated Flashing Arrow”. If a TMA is used to install and remove a pattern and then is used as a Flashing Arrow, the unit should be paid as a “Type ‘D’ Portable Impact Attenuation System” for the hours used to install and remove the pattern, typically 2 hours (1 hour to install and 1 hour to remove), and is also paid for the day as a “High Mounted Internally Illuminated Flashing Arrow”.
- 4.g) If the required number of TMAs is not available, the pattern shall not be installed.

SECTION 5. USE OF STATE POLICE OFFICERS

- 5.a) On limited access highways, the Engineer may determine that State Police Officers will be utilized for regional work zone traffic safety and enforcement operations in addition to project-related work zone assignments. State Police Officers shall be uniformed off-duty sworn Connecticut State Police Officers. Their services will also include the use of official State Police vehicles and associated equipment. State Police Officers will be used on all limited access highways. State Police Officers will not be used on non-limited access highways unless specifically under their jurisdiction or authorized in writing by the Engineer. State Police Officers with official State Police vehicles will be used at such locations and for such periods as the Engineer deems necessary to control traffic operations and promote increased safety to motorists through the construction sites.
- 5.b) On a weekly basis, the Contractor shall submit to the Engineer the state police request form (DPS-0691-C) as an indication of their scheduled operations for the following week. This form shall be submitted no later than Wednesday Morning of the week prior to the scheduled operations. The Engineer shall review this schedule and approve the type and number of Officers required by signing off under the "Completed by DOT's Authorized Representative" line on Department of Public Safety Form DPS-0691-C. Once the Engineer has approved the number of Officers requested the Engineer will fax the order to the Department of Public Safety's Overtime Office.
- 5.c) Prior to the start of operations, a meeting will be held with the Contractor, Trooper in charge and Engineer to review the Trafficperson operations, lines of responsibility, and operating guidelines which will be used for the scheduled work.
- 5.d) At least one Officer should be used per critical sign pattern. Shoulder closures and right lane closures can generally be implemented without the presence of a State Police Officer. Likewise in areas with moderate traffic and wide, unobstructed medians, left lane closures can be implemented without State Police presence. Certain situations may require State Police presence, if one is available, even though the general guidelines above indicate otherwise. Examples of this include: nighttime lane closures; left lane closures with minimal width for setting up advance signs and staging; lane and shoulder closures on turning roadways/ramps or mainline where sight distance is minimal; and closures where extensive turning movements or traffic congestion regularly occur.
- 5.e) Once the pattern is in place, the State Police Officer should be positioned in a non-hazardous location at the beginning of the pattern or at one of the work areas not protected by a TMA. If traffic backs up beyond the beginning of the pattern, then the State Police Officer should be repositioned prior to the backup to give warning to the oncoming motorists. Where State Police Officer and TMA are in close proximity to each other, the TMA should be placed to protect the State Police Officer's vehicle from oncoming traffic.
- 5.f) Other functions of the State Police Officer(s) shall include:

- *Assisting entering/exiting construction vehicles within the work area.
- *Enhancing worker visibility/safety for workers in close proximity to the open travel lane(s).
- Speed control of traffic within the work area.
- Enforcement of speed and other motor vehicle laws within the work area.

Typically, the State Police Officer should be out of the vehicle for the functions marked with an asterisk (*).

- 5.g) State Police Officers assigned to a work site are to only take direction from the Engineer.
- 5.h) There will be no separate payment to the Contractor for State Police Services. The direct cost of such services will be paid by the Department. Indirect costs associated with scheduling and coordinating State Police shall be included under the Item – Maintenance and Protection of Traffic.

SECTION 6. USE OF (REMOTE CONTROLLED) CHANGEABLE MESSAGE SIGNS

- 6.a) For lane closures on limited access roadways, one Changeable Message Sign shall be used in advance of the traffic control pattern. Prior to installing the pattern, the Changeable Message Sign shall be installed and in operation, displaying the appropriate lane closure information (i.e.: Left Lane Closed - Merge Right). The Changeable Message Sign shall be positioned ½ - 1 mile ahead of the lane closure taper. If the nearest Exit ramp is greater than the specified ½ - 1 mile distance, than an additional Changeable Message Sign shall be positioned a sufficient distance ahead of the Exit ramp to alert motorists to the work and therefore offer them an opportunity to take the exit.
- 6.b) On non-limited access roadways, the use of Changeable Message Signs for lane closures is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to use the Changeable Message Sign.
- 6.c) The advance Changeable Message Sign is typically placed off the right shoulder, 5 feet from the edge of pavement. In areas where the Changeable Message Sign cannot be placed beyond the edge of pavement, it may be placed on the paved shoulder with a minimum of five (5) traffic drums placed in a taper in front of it to delineate its position. The advance Changeable Message Sign shall be adequately protected if it is used for a continuous duration of 36 hours or more.
- 6.d) When the Changeable Message Signs are no longer required, they should be removed from the clear zone and have the display screen cleared and turned 90° away from the roadway.

- 6.e) The Changeable Message Sign generally should not be used for generic messages (ex: Road Work Ahead, Bump Ahead, Gravel Road, etc.).
- 6.f) The Changeable Message Sign should be used for specific situations that need to command the motorist's attention which cannot be conveyed with standard construction signs (Examples include: Exit 34 Closed Sat/Sun - Use Exit 35, All Lanes Closed - Use Shoulder, Workers on Road - Slow Down).
- 6.g) Messages that need to be displayed for long periods of time, such as during stage construction, should be displayed with construction signs. For special signs, please coordinate with the Office of Construction and the Division of Traffic Engineering for the proper layout/dimensions required.
- 6.h) Section 11 contains the messages that are allowed on the Changeable Message Sign. For any other message(s), approval must be received from the Office of Construction prior to their use. No more than two (2) displays shall be used within any message cycle.
- 6.i) If the required number of Changeable Message Signs is not available, the pattern shall not be installed.

SECTION 7. USE OF (REMOTE CONTROLLED) CHANGEABLE MESSAGE SIGNS WITH RADAR

- 7.a) (Remote Controlled) Changeable Message Signs with Radar shall be used when specified, or as directed by the Engineer.
- 7.b) The typical placement of a (Remote Controlled) Changeable Message Sign with Radar is in the work zone portion of the traffic control pattern.
- 7.c) The typical usage of the (Remote Controlled) Changeable Message Sign with Radar is to display a message when a preset speed is exceeded. The sign will blank when no vehicles are present.
- 7.d) The preset speed for activating the message should be set 5-10 MPH above the posted, or desired, speed.
- 7.e) Section 12 contains the messages that are allowed on the (Remote Controlled) Changeable Message Sign with Radar. For any other message(s), approval must be received from the Office of Construction prior to their use. No more than two (2) displays shall be used within any message cycle.

SECTION 8. USE OF TRAFFIC DRUMS AND TRAFFIC CONES

- 8.a) Traffic drums shall be used for taper channelization on limited-access roadways, ramps, and turning roadways and to delineate raised catch basins and other hazards.

- 8.b) Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 72-hour duration.
- 8.c) Traffic Cones less than 42 inches in height shall not be used on limited-access roadways or on non-limited access roadways with a posted speed limit of 45 mph and above.
- 8.d) Typical spacing of traffic drums and/or cones shown on the Traffic Control Plans in the Contract are maximum spacings and may be reduced to meet actual field conditions as required.

SECTION 9. GENERAL

- 9.a) If the required minimum number of signs and equipment (i.e. one High Mounted Internally Illuminated Flashing Arrow for each lane closed, two TMAs, Changeable Message Sign, etc.) are not available, the traffic control pattern shall not be installed.
- 9.b) The Contractor shall have back-up equipment (TMAs, High Mounted Internally Illuminated Flashing Arrow, Changeable Message Sign, construction signs, cones/drums, etc.) available at all times in case of mechanical failures, etc. The only exception to this is in the case of sudden equipment breakdowns in which the pattern may be installed but the Contractor must provide replacement equipment within 24 hours.
- 9.c) Failure of the Contractor to have the required minimum number of signs and equipment, which results in the not being installed, shall not be a reason for a time extension.
- 9.d) In cases of legitimate differences of opinion between the Contractor and the Inspection staff, the Inspection staff shall err on the side of safety. The matter shall be brought to the District Office for resolution immediately or, in the case of work after regular business hours, on the next business day.

SECTION 10. WORK ZONE SAFETY MEETING AGENDA

- 1) Review Project scope of work and time.
- 2) Review Section 1.08, Prosecution and Progress of the Special Provisions.
- 3) Review Section 9.70, Trafficperson of the Specifications.
- 4) Review Section 9.71, Maintenance and Protection of Traffic of the Special Provisions, including "Work Zone Safety Procedures".
- 5) Review Contractor's schedule and method of operations.
- 6) Review areas of special concern: ramps, turning roadways, medians, lane drops, etc.

- 7) Open discussion of work zone questions and issues.
- 8) Discussion of review and approval process for changes in contract requirements as they relate to work zone areas.

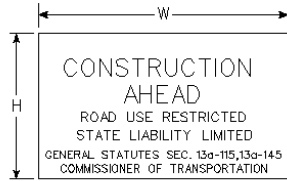
SECTION 11. WORK ZONE SAFETY PROCEDURES - ALLOWABLE MESSAGES FOR CHANGEABLE MESSAGE SIGNS

<u>Message No.</u>	<u>Frame 1</u>	<u>Frame 2</u>	<u>Message No.</u>	<u>Frame 1</u>	<u>Frame 2</u>
1	LEFT LANE CLOSED	MERGE RIGHT	9	LANES CLOSED AHEAD	REDUCE SPEED
2	2 LEFT LANES CLOSED	MERGE RIGHT	10	LANES CLOSED AHEAD	USE CAUTION
3	LEFT LANE CLOSED	REDUCE SPEED	11	WORKERS ON ROAD	REDUCE SPEED
4	2 LEFT LANES CLOSED	REDUCE SPEED	12	WORKERS ON ROAD	SLOW DOWN
5	RIGHT LANE CLOSED	MERGE LEFT	13	EXIT XX CLOSED	USE EXIT YY
6	2 RIGHT LANES CLOSED	MERGE LEFT	14	EXIT XX CLOSED USE YY	FOLLOW DETOUR
7	RIGHT LANE CLOSED	REDUCE SPEED	15	2 LANES SHIFT AHEAD	USE CAUTION
8	2 RIGHT LANES CLOSED	REDUCE SPEED	16	3 LANES SHIFT AHEAD	USE CAUTION

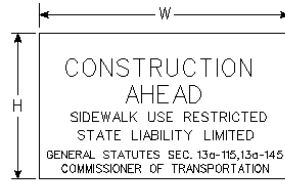
SECTION 12. WORK ZONE SAFETY PROCEDURES - ALLOWABLE MESSAGES FOR CHANGEABLE MESSAGE SIGN WITH RADAR

<u>Message No.</u>	<u>Frame 1</u>	<u>Frame 2</u>	<u>Message No.</u>	<u>Frame 1</u>	<u>Frame 2</u>
1	TOO FAST	SLOW DOWN	4		
2	TOO FAST SLOW DOWN		5		
3	YOU'RE SPEEDING	FINES DOUBLE	6		

SERIES 16 SIGNS



		W	H
16-E	80-1605	84"	60"
16-H	80-1608	60"	42"
16-M	80-1613	30"	24"



		W	H
16-S	80-1619	48"	30"

THE 16-S SIGN SHALL BE USED ON ALL PROJECTS THAT REQUIRE SIDEWALK RECONSTRUCTION OR RESTRICT PEDESTRIAN TRAVEL ON AN EXISTING SIDEWALK.

SERIES 16 SIGNS SHALL BE INSTALLED IN ADVANCE OF THE TRAFFIC CONTROL PATTERNS TO ALLOW MOTORISTS THE OPPORTUNITY TO AVOID A WORK ZONE. SERIES 16 SIGNS SHALL BE INSTALLED ON ANY MAJOR INTERSECTING ROADWAYS THAT APPROACH THE WORK ZONE. ON LIMITED- ACCESS HIGHWAYS, THESE SIGNS SHALL BE LOCATED IN ADVANCE OF THE NEAREST UPSTREAM EXIT RAMP AND ON ANY ENTRANCE RAMP PRIOR TO OR WITHIN THE WORK ZONE LIMITS.

THE LOCATION OF SERIES 16 SIGNS CAN BE FOUND ELSEWHERE IN THE PLANS OR INSTALLED AS DIRECTED BY THE ENGINEER.

SIGNS 16-E AND 16-H SHALL BE POST MOUNTED.

SIGN 16-E SHALL BE USED ON ALL EXPRESSWAYS.

SIGN 16-H SHALL BE USED ON ALL RAMP, OTHER STATE ROADWAYS, AND MAJOR TOWN/CITY ROADWAYS.

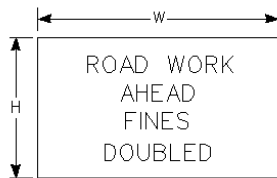
SIGN 16-M SHALL BE USED ON OTHER TOWN ROADWAYS.

REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

THE REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY IN CONNECTICUT WHEN THERE ARE WORKERS ON THE HIGHWAY OR WHEN THERE IS OTHER THAN EXISTING TRAFFIC OPERATIONS.

THE "ROAD WORK AHEAD, FINES DOUBLED" REGULATORY SIGNS SHALL NOT BE INSTALLED ON TOWN ROADS.

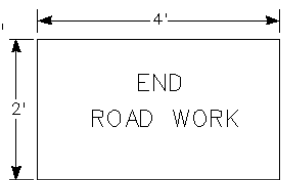
THE "ROAD WORK AHEAD FINES DOUBLED" REGULATORY SIGN SHALL BE PLACED AFTER THE SERIES 16 SIGN AND IN ADVANCE OF THE "ROAD WORK AHEAD" SIGN.



		W	H
31-1906		48"	42"

"END ROAD WORK" SIGN

THE LAST SIGN IN THE PATTERN MUST BE THE "END ROAD WORK" SIGN.



80-9612

REV'D 1-02



CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING &
HIGHWAY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING

CONSTRUCTION
TRAFFIC CONTROL PLAN

REQUIRED SIGNS

APPROVED J. Carey DATE 1-02
PRINCIPAL ENGINEER

NOTES FOR TRAFFIC CONTROL PLANS

1. IF A TRAFFIC STOPPAGE OCCURS IN ADVANCE OF SIGN (A), THEN AN ADDITIONAL SIGN (A) SHALL BE INSTALLED IN ADVANCE OF THE STOPPAGE.
2. SIGNS (AA), (A) AND (D) SHOULD BE OMITTED WHEN THESE SIGNS HAVE ALREADY BEEN INSTALLED TO DESIGNATE A LARGER WORK ZONE THAN THE WORK ZONE THAT IS ENCOMPASSED ON THIS PLAN.
3. SEE TABLE #1 FOR ADJUSTMENT OF TAPERS IF NECESSARY.
4. A CHANGEABLE MESSAGE SIGN MAY BE UTILIZED ONE HALF TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.
5. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 72 HOURS, THEN TRAFFIC DRUMS SHALL BE USED IN PLACE OF TRAFFIC CONES.
6. ANY LEGAL SPEED LIMIT SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA WILL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS REOPENED TO ALL LANES OF TRAFFIC.
7. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN THE EXISTING CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED AND TEMPORARY PAVEMENT MARKINGS THAT DEPICT THE PROPER TRAVEL PATHS SHALL BE INSTALLED.
8. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 200' ON LOW SPEED URBAN ROADS (SPEED LIMIT < 40 MPH).
9. FOR LANE CLOSURES ONE (1) MILE OR LONGER, A "REDUCE SPEED TO 45 MPH" SIGN SHALL BE PLACED AT THE ONE MILE POINT AND AT EACH MILE THEREAFTER.
10. IF THIS PLAN IS TO REMAIN IN OPERATION DURING THE HOURS OF DARKNESS, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.
11. A CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.

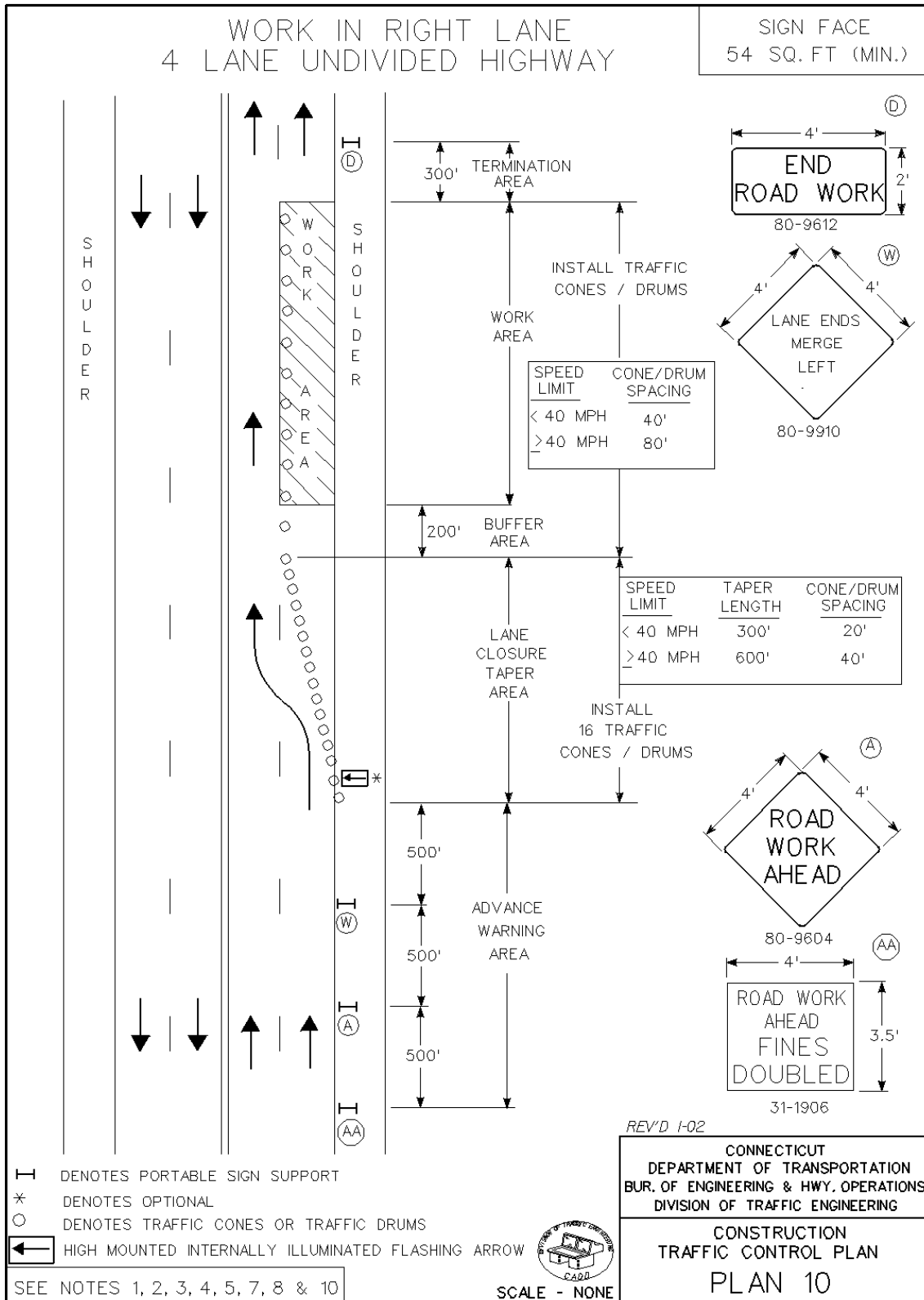


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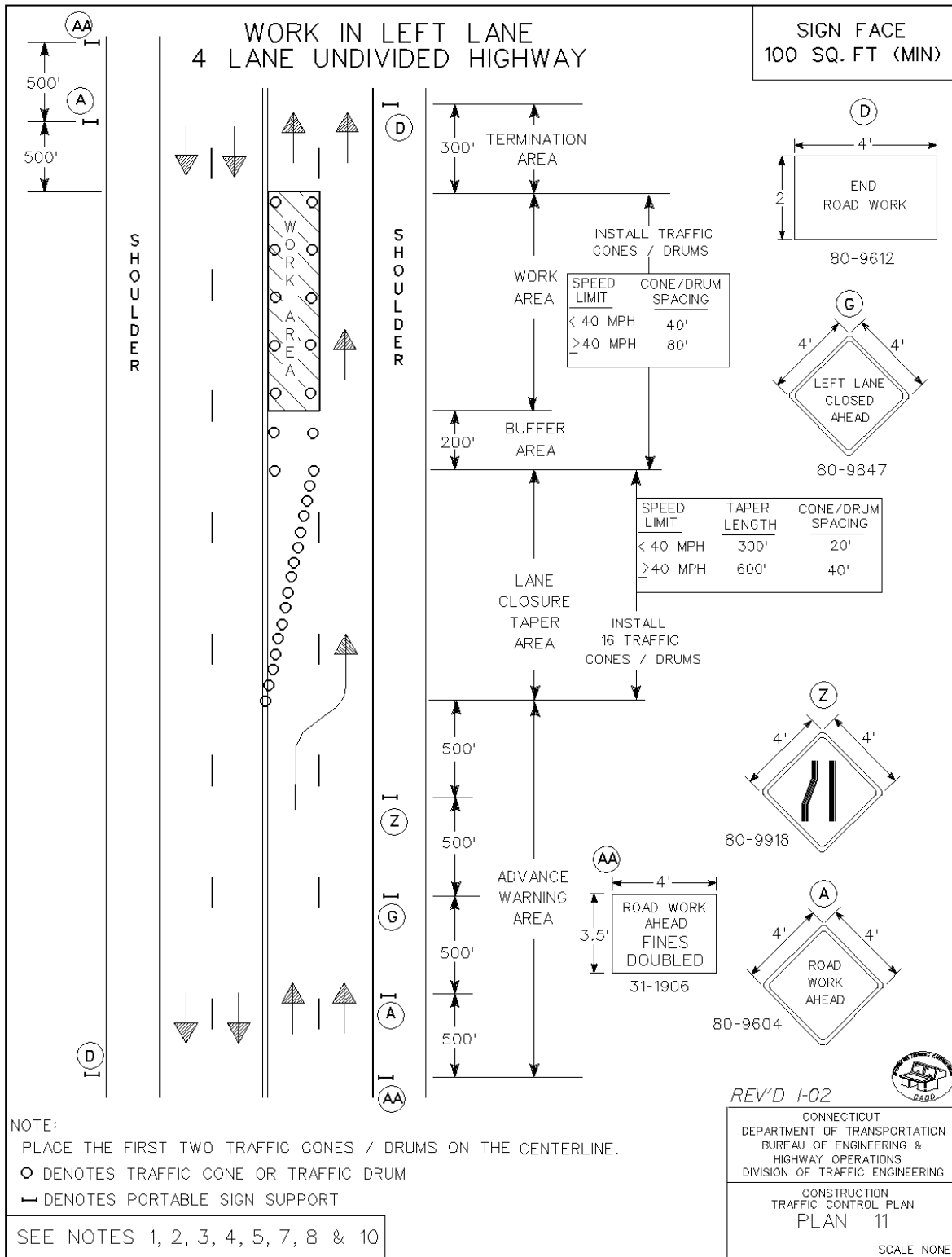
CONNECTICUT
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DIVISION OF TRAFFIC ENGINEERING

CONSTRUCTION
TRAFFIC CONTROL PLAN
NOTES

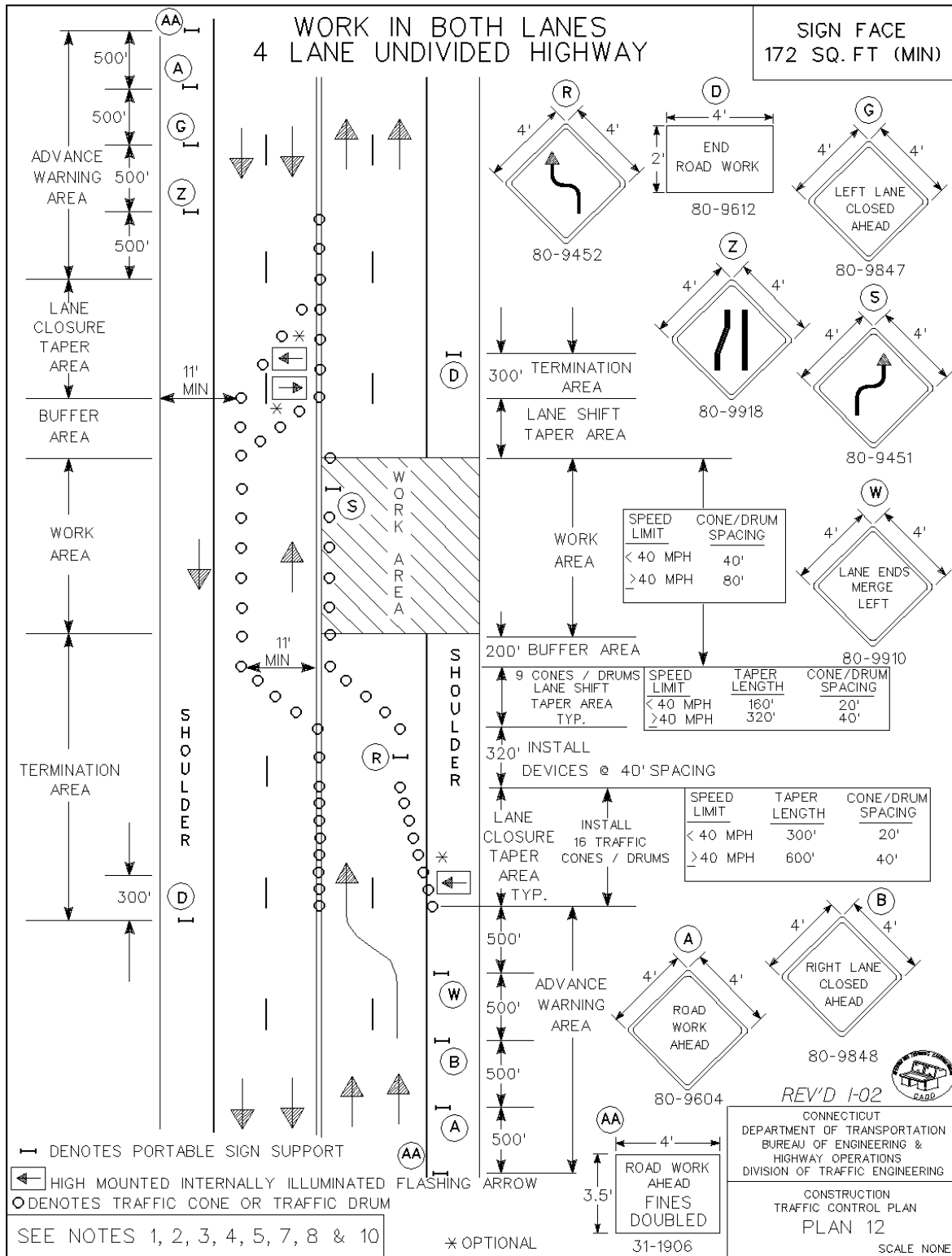
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APPROVED J. Carey DATE 1-02
 PRINCIPAL ENGINEER



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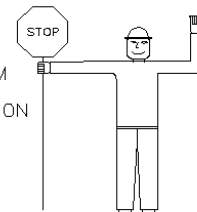
WORK IN TRAVEL LANE AND SHOULDER TWO LANE HIGHWAY ALTERNATING ONE-WAY TRAFFIC OPERATIONS

HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

THE FOLLOWING METHODS FROM SECTION 6E.04 FLAGGER PROCEDURES IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE USED BY UNIFORMED FLAGGERS WHEN DIRECTING TRAFFIC THROUGH A WORK AREA. THE STOP/SLOW SIGN PADDLE (SIGN NO. 80-9950) SHOWN ON THE TYPICAL DETAIL SHEET ENTITLED "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" SHALL BE USED.

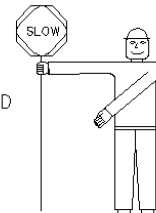
A. TO STOP TRAFFIC

TO STOP ROAD USERS, THE FLAGGER SHALL FACE ROAD USERS AND AIM THE STOP PADDLE FACE TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FREE ARM SHALL BE HELD WITH THE PALM OF THE HAND ABOVE SHOULDER LEVEL TOWARD APPROACHING TRAFFIC.



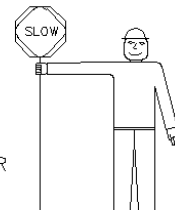
B. TO DIRECT TRAFFIC TO PROCEED

TO DIRECT STOPPED ROAD USERS TO PROCEED, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FLAGGER SHALL MOTION WITH THE FREE HAND FOR ROAD USERS TO PROCEED.



C. TO ALERT OR SLOW TRAFFIC

TO ALERT OR SLOW TRAFFIC, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. TO FURTHER ALERT OR SLOW TRAFFIC, THE FLAGGER HOLDING THE SLOW PADDLE FACE TOWARD ROAD USERS MAY MOTION UP AND DOWN WITH THE FREE HAND, PALM DOWN.



SEE NOTES 1, 2, 5, 7, 8 & 10

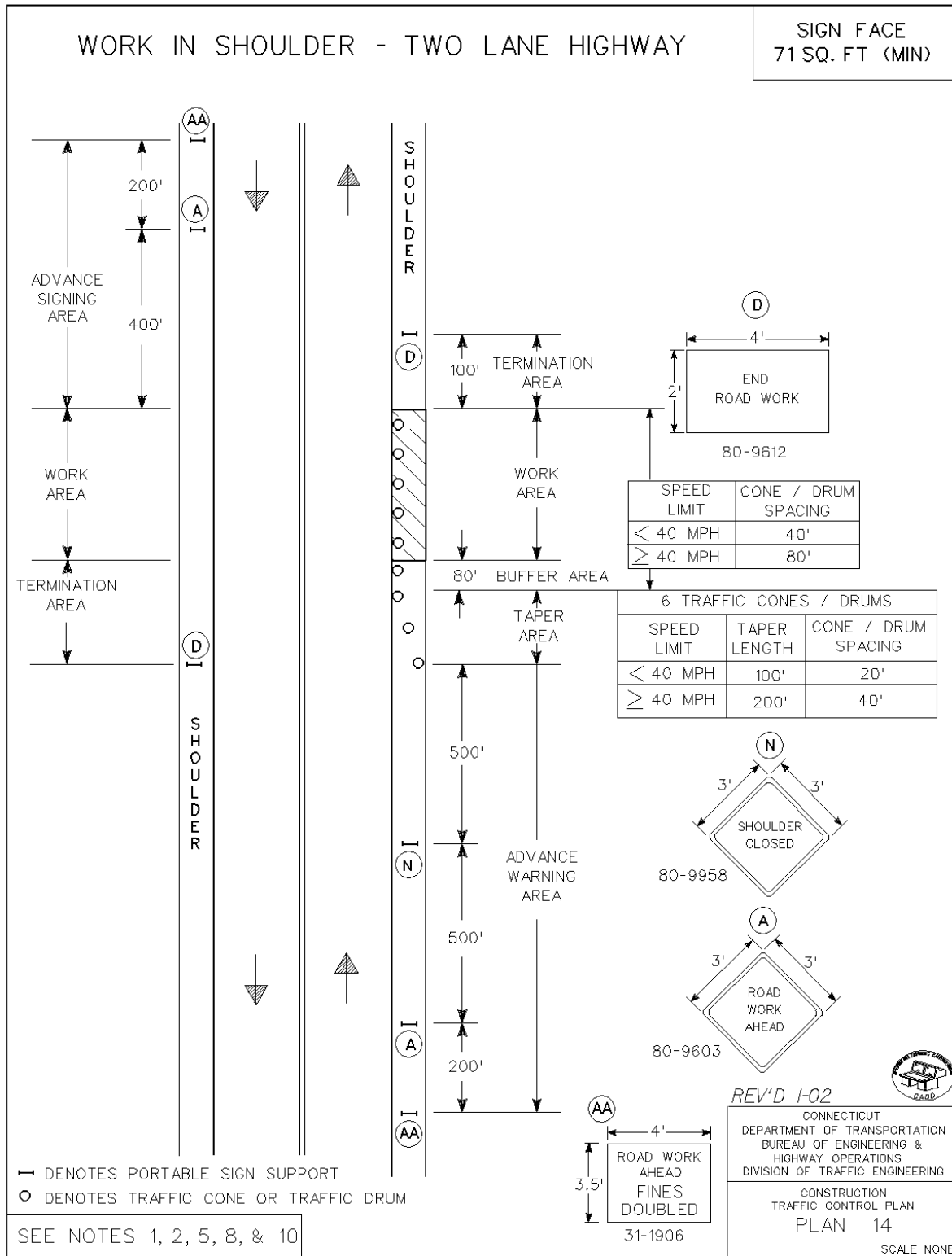
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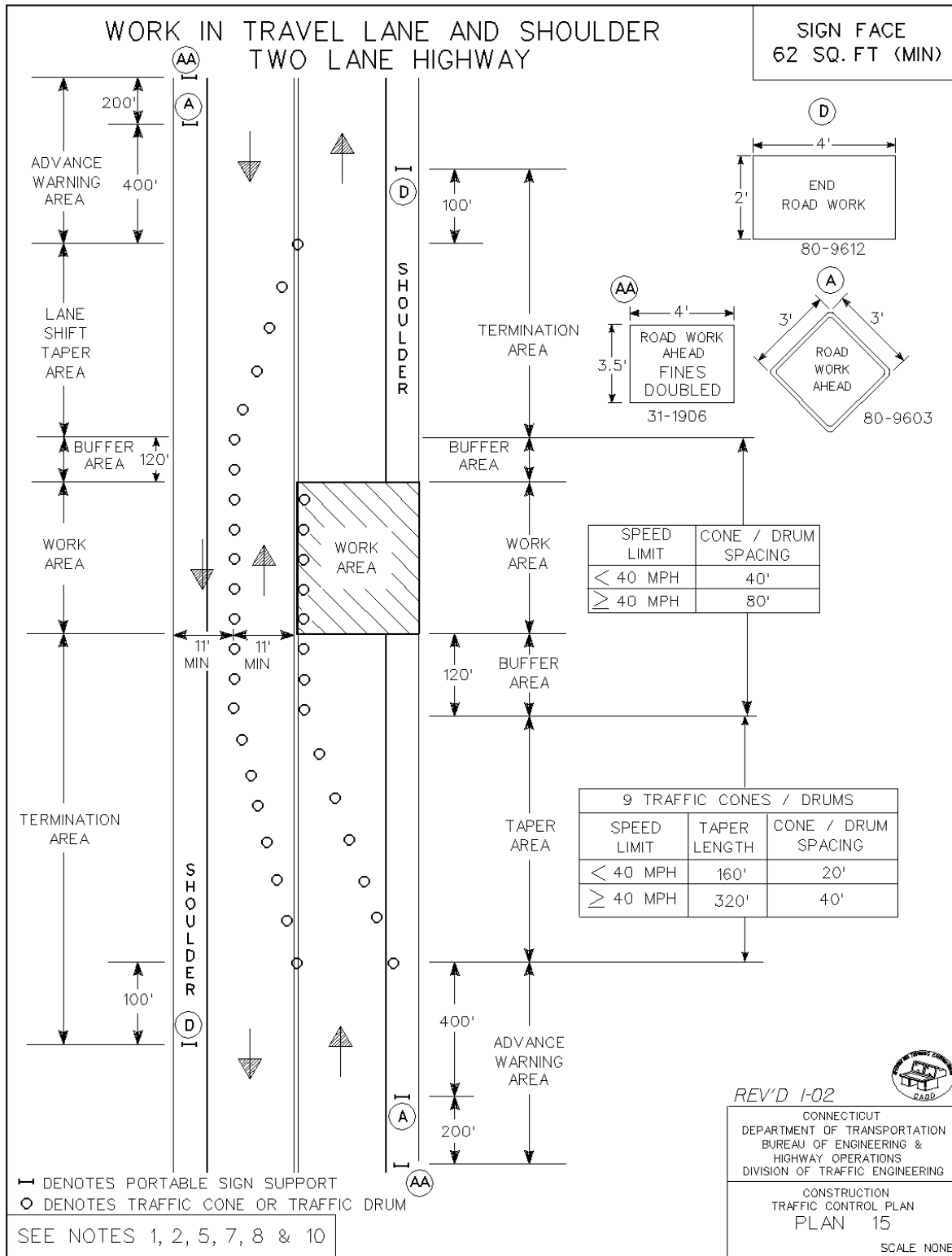


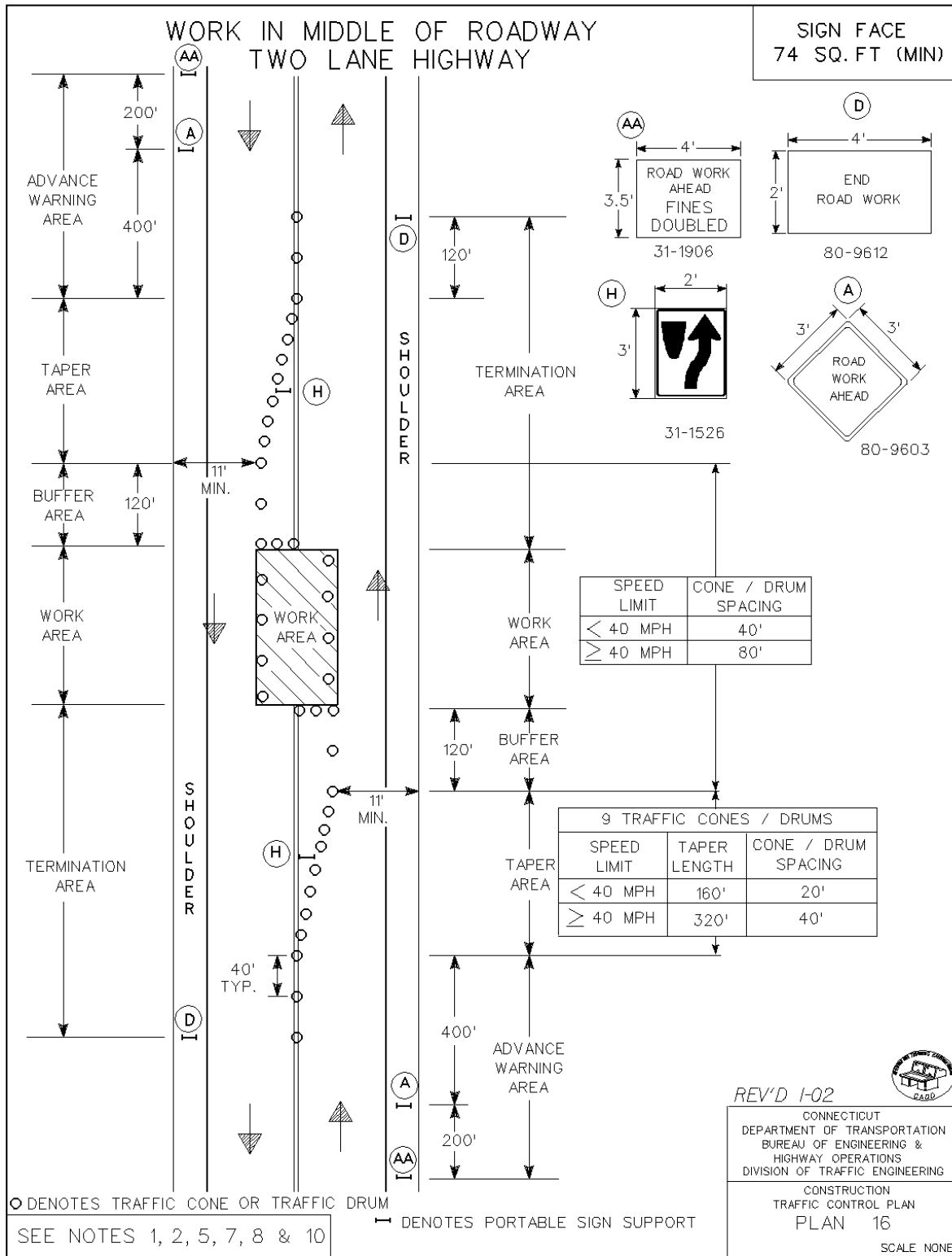
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DIVISION OF TRAFFIC ENGINEERING

CONSTRUCTION
TRAFFIC CONTROL PLAN
PLAN 13
SHEET 2 OF 2 SCALE NONE

APPROVED J. Carey DATE 1-02
PRINCIPAL ENGINEER







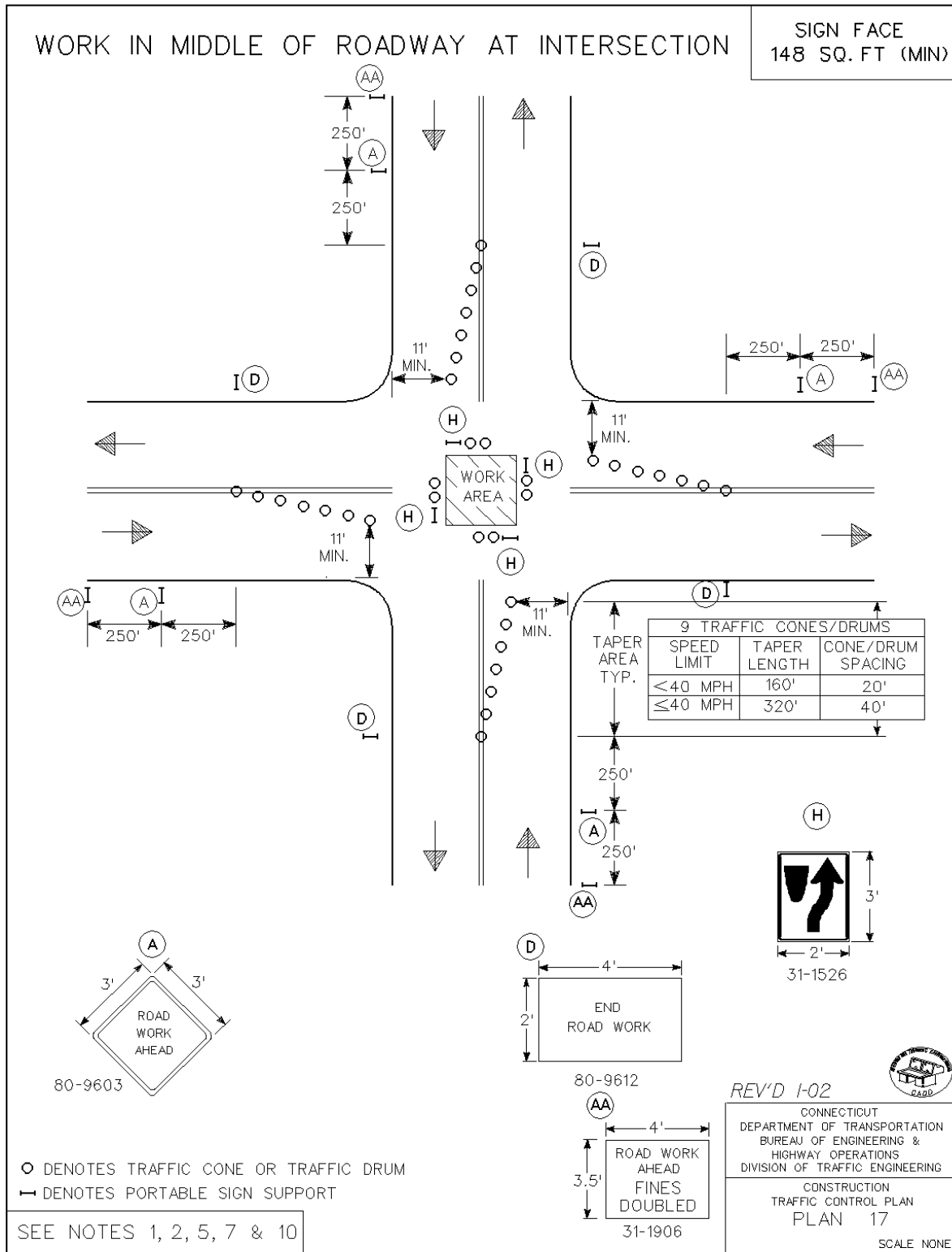
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DIVISION OF TRAFFIC ENGINEERING

CONSTRUCTION
TRAFFIC CONTROL PLAN
PLAN 16

SCALE NONE

APPROVED J. Carey DATE 1-02
PRINCIPAL ENGINEER



APPROVED J. Carey DATE 1-02
 PRINCIPAL ENGINEER

Article 9.71.05 – Basis of Payment is supplemented by the following:

The temporary relocation of signs and supports, and the furnishing, installation and removal of any temporary supports shall be paid for under the item “Maintenance and Protection of Traffic”. Temporary overhead sign supports and foundations shall be paid for under the appropriate item(s).

The cost of furnishing, installing and removing the material for the 4H:1V traversable slope shall be paid for under the item “Maintenance and Protection of Traffic.”

ITEM #0980001A – CONSTRUCTION STAKING

9.80.01—Description: The work under this item shall consist of construction layout and reference staking necessary for the proper control and satisfactory completion of all work on the project, except property lines, highway lines, or non-access lines.

9.80.02—Materials: All stakes used for control staking shall be of the same quality as used by the Department for this purpose. For slope limits, pavement edges, gutter lines, etc., where so-called "green" or "working" stakes are commonly used, lesser quality stakes will be acceptable, provided the stakes are suitable for the intended purpose.

9.80.03—Construction Methods: The Department will furnish the Contractor such control points, bench marks, and other data as may be necessary for the construction staking and layout by qualified engineering or surveying personnel as noted elsewhere herein.

The Contractor shall be responsible for the placement and preservation of adequate ties to all control points, necessary for the accurate re-establishment of all base lines, center lines, and all critical grades as shown on the plans.

All stakes, references, and batter boards which may be required for construction operations, signing and traffic control shall be furnished, set and properly referenced by the Contractor. The Contractor shall be solely and completely responsible for the accuracy of the line and grade of all features of the work. Any errors or apparent discrepancies found in previous surveys, plans, specifications or special provisions shall be called to the Engineer's attention immediately for correction or interpretation prior to proceeding with the work.

During roadway construction (or site work), the Contractor shall provide and maintain for the periods needed, as determined by the Engineer, reference stakes at 100 foot intervals outside the slope limits. Further, the Contractor shall provide and maintain reference stakes at 50 foot intervals immediately prior to and during the formation of subgrade and the construction of all subsequent pavement layers. These stakes shall be properly marked as to station, offset and shall be referenced to the proposed grade, even if laser or GPS machine controls are used.

The Contractor shall provide and maintain reference stakes at drainage structures, including reference stakes for the determination of the structure alignments as may be needed for the proper construction of the drainage structure. The reference stakes shall be placed immediately prior to and maintained during the installation of the drainage structure. These stakes shall be properly marked as to station, offset and shall be referenced to the proposed grade.

The Contractor shall furnish copies of data used in setting and referencing stakes and other layout markings used by the Contractor after completion of each operation.

The Contractor shall provide safe facilities for convenient access by Department forces to control points, batter boards, and references.

All staking shall be performed by qualified engineering or surveying personnel who are trained, experienced and skilled in construction layout and staking of the type required under the contract. Prior to start of work, the Contractor shall submit for review and comment the qualifications of personnel responsible for construction staking on the project. On all projects with an original contract value greater than \$25 million and bridge rehabilitation and reconstruction projects greater than \$10 million, surveying shall be performed under the direct supervision of a Professional Surveyor licensed in the State of Connecticut. The submission shall

include a description of the experience and training which the proposed staff possesses and a list of state projects the personnel have worked on previously. All field layout and staking required for the project shall be performed under the direct supervision of a person, or persons, of engineering background experienced in the direction of such work and acceptable to the Engineer. If the personnel responsible for construction staking change during the course of the project, then a revised submittal will be required.

The Department may check the control of the work, as established by the Contractor, at any time as the work progresses. The Contractor will be informed of the results of these checks, but the Department by so doing in no way relieves the Contractor of responsibility for the accuracy of the layout work. The Contractor shall correct or replace, at the Contractor's own expense, any deficient layout and construction work which may be the result of the inaccuracies in the Contractor's staking operations or the failure to report such inaccuracies, or the Contractor's failure to report inaccuracies found in work done by the Department or by others. If, as a result of these inaccuracies, the Department is required to make further studies, redesign, or both, all expenses incurred by the Department due to such inaccuracies will be deducted from any monies due the Contractor.

The Contractor shall furnish all necessary personnel, engineering equipment and supplies, materials, transportation, and work incidental to the accurate and satisfactory completion of this work.

For roadways where the existing pavement markings need to be reestablished:

Prior to any resurfacing or obliteration of existing pavement markings, the Contractor and a representative of the Engineer must establish and document pavement marking control points from the existing markings. These control points shall be used to reestablish the positions of the lanes, the beginnings and endings of tapers, channelization lines for on and off ramps, lane use arrows, stop bars, and any lane transitions in the project area. The Contractor shall use these control points to provide appropriate premarking prior to the installation of the final markings.

The Contractor shall provide and maintain reference stakes and/or markings at 100 foot intervals immediately off the edge of pavement to be used to reestablish the existing pavement markings. The Contractor shall also provide and maintain reference stakes and/or markings at any point where there is a change in pavement markings to reestablish the existing pavement markings.

For non-limited access roadways

On non-limited access roadways it may be necessary to adjust the final locations of the pavement markings to accommodate pedestrians and bicyclists where feasible. Prior to any resurfacing or obliteration of existing pavement markings, the Contractor, a representative of the Engineer, and a representative of the Division of Traffic Engineering must establish and document pavement marking control points from the existing markings as described above. The control points at that time may be adjusted to provide minimum shoulder widths of 4 to 5 feet wherever possible while maintaining travel lane widths of no less than 11 feet and no more than 12 feet.

9.80.04—Method of Measurement: Construction staking will be at the Contract lump sum for construction staking.

When no price for "Construction Staking" is asked for on the proposal form, the cost of the work described above shall be included in the general cost of the work and no direct payment for "Construction Staking" will be made.

9.80.05—Basis of Payment: Construction staking will be paid for at the Contract lump sum price for "Construction Staking," which price shall include all materials, tools, equipment, labor and work incidental thereto. A schedule of values for payment shall be submitted to the Department for review and comment prior to payment.

Pay Item	Pay Unit
Construction Staking	l.s.

ITEM #0981101A - OPPOSING TRAFFIC LANE DIVIDER

Article 9.81.01 - Description:

This item shall include furnishing, installing, resetting, and removing Opposing Traffic Lane Dividers. Opposing Traffic Lane Dividers will be used to separate opposing traffic on a two-lane two-way roadway. The legend on the divider shall be two opposing arrows.

The Opposing Traffic Lane Divider shall meet the requirements of Federal Highway Administration's Strategic Highway Research Program (SHRP). The Opposing Traffic Lane Divider shall be 12 inch wide by 18 inch high sign panels mounted back to back on a flexible support post. The post shall be mounted to a base.

A series of these devices shall be placed on the center line of a temporary two-way operation. The support shall be designed to recover automatically to a vertical position if struck by a vehicle.

The opposing Traffic Lane Divider is covered in Section 6F.76 of the Manual on Uniform Traffic Control Devices (2009 Edition).

Article 9.81.02 - Materials:

- 1) Panel - The vertical panel shall be constructed of a flexible material resistant to ultraviolet light, ozone and hydrocarbons. The surface shall be smooth and suitable for adherence of appropriate reflective sheeting. The reflective sheeting shall be Type III or Type VI reflective sheeting in accordance with Section M.18.09.01.
- 2) Support Post - The support post shall be made of a material resistant to ultraviolet light, ozone, and hydrocarbons. The post shall have sufficient stiffness to remain rigid in windy conditions. The support shall be designed to recover automatically to a vertical position or manually restored (when fastened to the roadbed), if struck by a vehicle.
- 3) Base - The base shall consist of a metal ballast plate fastened to a rubber base. For long-term use, the metal ballast plate can be fastened directly to the roadbed. When fastened to the roadbed, the post will need to be manually reset when hit. The base shall meet the requirements of the Federal Highway Administration's Strategic Highway Research Program (SHRP).

Article 9.81.03 - Construction Methods:

The Opposing Traffic Lane Dividers shall be spaced every 30 feet apart or as directed by the Engineer. The Contractor shall insure that the devices are kept clean and bright. Any devices that are missing, damaged, or defaced so that they are not effective, as determined by the Engineer and in accordance with the American Traffic Safety Services Association (ATSSA) guidelines contained in "Quality Standards for Work Zone Traffic Control Devices", shall be replaced by the Contractor at no cost to the State. When no longer required, they shall remain the property of the Contractor.

Article 9.81.04 - Method of Measurement:

This work will be measured for payment by the number of opposing traffic lane dividers furnished, installed and accepted on the project. Replacement devices shall not be measured for payment. Devices relocated to a different location in accordance with the Engineer shall not be measured.

Article 9.81.05 - Basis of Payment:

This work will be paid for at the contract unit price each for "Opposing Traffic Lane Divider" which price shall include all materials, equipment, tools, labor and work incidental to furnishing, installing, maintaining and removing the units.

ITEM #0992088A - FLAGPOLE

Description: This item shall consist of installing a flagpole with a foundation at the location shown on the plans or as directed by the engineer. The Town of Salem will provide the flagpole.

Materials: The flagpole provided by the Town of Salem will have an exposed height of 36 feet. The Engineer shall coordinate pick up of the flagpole from the town facilities

Construction Methods: The flagpole shall be installed with a foundation at the location shown on the plans or as directed by the Engineer. The flagpole and corresponding foundation shall be installed in accordance with the manufacturer’s recommendations.

Any instructions for maintenance and care of the flagpole shall be provided to the Engineer who will forward the material to the Town of Salem.

Method of Measurement: This work will be measured for payment by the actual number of flagpoles installed and accepted by the Engineer.

Basis of Payment: This work will be paid for at the contract unit price each for “Flagpole”, complete in place, which price shall include the foundation and all materials, equipment, tools, excavation, backfill, and labor incidental to the installation of the flag pole and foundation.

Pay Item	Pay Unit
Flagpole	ea.

ITEM #0992090A - BENCH

Description: This item shall consist of installing benches with a concrete pad at the locations shown on the plans or as directed by the engineer.

The Town of Salem will provide the bench for this item.

Materials: The bench will be provided by the Town of Salem. The Engineer shall coordinate pick up of the benches from the town facilities.

The concrete pad materials shall conform to Section 9.21.02.

Construction Methods: The benches shall be installed with a concrete pad at the location shown on the plans or as directed by the Engineer. The benches shall be installed in accordance with the manufacturer’s recommendations.

The concrete pad construction shall conform to Section 9.21.03. The foundation shall be one (1) slab and extend two (2) feet beyond the footprint of the bench or as directed by the engineer.

Method of Measurement: This work will be measured for payment by the actual number of benches installed and accepted by the Engineer.

Excavation below the finished grade of the concrete pad, backfilling and disposal of surplus material will not be measured for payment, but the cost shall be included in the price bid for the bench. Excavation above the finished grade of the concrete pad will be measured and paid for in accordance with Section 2.02.

Gravel or reclaimed miscellaneous aggregate base will not be measured for payment, but the cost shall be considered as included in the price bid for the bench.

The concrete pad will not be measured for payment, but the cost shall be considered as included in the contract unit price for the bench.

Basis of Payment: This work will be paid for at the contract unit price each for “Bench”, complete in place, which price shall include the concrete pad, pick up and installation of the bench, all excavation as specified above, backfill, disposal of surplus material, gravel or reclaimed miscellaneous aggregate base, equipment, tools, materials, and labor thereto.

Pay Item
Bench

Pay Unit
ea.

ITEM #1003621A - DECORATIVE LIGHT STANDARD

DESCRIPTION: This item shall consist of the Contractor assembling and installing a decorative light standard (decorative light standard and luminaire to be provided by the Town of Salem) on a foundation, complete, with luminaire, integral ballast, lamp, photocell, miscellaneous hardware, and conductors from the luminaire to the distribution circuit, grounding wire and connections, complete in place, at the locations and to the dimensions and details shown on the plans or as directed by the Engineer.

MATERIALS: The decorative light standard shall be provided by the Town of Salem. The decorative light standard model number, manufacturer, height, and other associated details can be obtained from the plans. The Contractor through the Engineer shall coordinate with the town for receipt of the decorative light standard. The Contractor shall verify the light standard bolt circle diameter before ordering foundations (foundations to be paid under a separate item).

The Contractor shall be responsible for any damage to the decorative light standard incurred during assembly, delivery, and installation. All repairs or replacements due to damage or loss by the Contractor shall be made at the Contractor's expense.

Conductors shall match the existing branch circuit conductors in conductor type, insulation type, and voltage rating.

Grounding conductor shall conform to M.15.13.

CONSTRUCTION METHOD: The Contractor through the Engineer shall contact The Town of Salem and shall arrange and take acceptance of the Town-furnished decorative light standard and luminaire.

Light fixtures shall be securely fastened, lamped, connected, cleaned, and ready for operation. The Contractor shall assemble the decorative light standard which includes the luminaire, ballast, miscellaneous hardware, and bracketing where required, or where directed by the Engineer.

The decorative light standard shall be installed in accordance with the manufacturer's recommendations. The decorative light standard and luminaire shall be bolted securely to the anchor bolts of the new foundation. The completely assembled light standard shall be erected plumb with the aid of aluminum shims, if necessary.

No. 10 conductors from the luminaire ballast shall be connected to the branch lighting circuit conductors in the pole base as required.

Tap conductors shall be in conformance with section 240.21B of the N.E.C. Each luminaire shall be effectively grounded with a No. 8 bare copper grounding conductor attached to the light standard by an approved lug and stainless steel bolt, run to the ground rod, and connected with a square head bolt clamp. All splices shall be suitable for outdoor use.

Any instructions for maintenance and care of the decorative luminaire along with manufacturer warranty information shall be provided to the Engineer who will forward the material to the Town of Salem.

All work shall be in strict conformance with the National Electric Code.

METHOD OF MEASUREMENT: This work will be measured for payment by the number of decorative light standards, installed complete and accepted in place.

BASIS OF PAYMENT: This work shall be paid for at the contract unit price each for “Decorative Light Standard”, completely installed in place, which price shall include pick-up, assembly, storage, installation, and all materials, including washers, nuts, bolts, No. 8 ground wire, connections, conductors, connectors, and all materials, equipment, tools, labor incidental thereto.

The light standard foundation (with excavation) shall be paid for separately under Item No. 1002101, “Light Standard Foundation”.

ITEM #1003935A – POLE MOUNTED FLOOD LIGHT

DESCRIPTION: This item shall consist of furnishing and installing a metal halide floodlight, stanchion mount, and concrete foundation, for the purpose of illuminating a flag on a flagpole at the location as indicated on the plans.

MATERIALS: The floodlight shall be a 150 watt metal halide flood light with die cast aluminum housing. The floodlight shall have a knuckle mount and shall be installed on a 18” cast aluminum stanchion.

The floodlight shall be watertight with a silicone gasketed lens, glare shield, and door assembly. All hardware for the door and mounting accessories shall be stainless steel. Single tool captive tamper proof fasteners shall retain the door, junction box cover, and knuckle mount. One common wrench shall provide the ability to access and aim the fixture. The integrally mounted ballast shall be UL recognized high power factor, 100% factory tested rated for –20 degree starting temperatures. The ballast shall operate at 120 volts. The 150 watt metal halide lamp shall be rated for “universal burning position”. The stanchion mount shall be 18” in length by 6” square with a built in splice enclosure and access plate. The floodlight and stanchion shall be polyester powder coated, the color shall be Dark Bronze. The floodlight shall be manufactured by Holophane, model number, H710 150CM 120 HFL KM HPSSA LPI BZ GS, or approved equal. For flood lights other than the one specified a sample fixture shall be submitted upon request.

The concrete foundation shall be of the size indicated on the plans and shall be formed from Class A concrete which shall conform to the requirements of Section M.03.01.

CONSTRUCTION METHOD: The Concrete foundation shall be formed and poured at the location as shown on the plans. The exact location of the foundation shall be coordinated with landscape plantings as required. Anchor bolts shall be either cast into the foundation or installed after the concrete has cured using approved chemical anchors. Cast in place anchor bolts shall be galvanized, 3/8” in diameter, overall length as per manufacturer recommendations. Chemical anchors shall be stainless steel, 3/8” in diameter, with embedment depth as per manufacturer recommendations. Only ConnDOT approved chemical anchors can be used. The base plate of the stanchion mount shall be drilled with the appropriate bolt to match the foundation anchor bolt pattern, and the stanchion shall be securely mounted to the foundation. Conductors shall be run from the adjacent concrete handhole to the integral junction box of the stanchion. The floodlight shall be securely attached to the knuckle mount of the stanchion, properly aimed, and connected for operation. The complete stanchion mount with floodlight shall be properly grounded.

METHOD OF MEASUREMENT: This work will be measured for payment by the number of pole mounted floodlights installed, complete and accepted.

BASIS OF PAYMENT: This work will be paid for at the contract unit price each for "Pole Mounted Flood Light" of the type and size specified, complete and accepted in place, which price shall include all materials including floodlight, integral ballast, lamp, stanchion, foundation,

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concrete, anchor bolts, chemical anchors, forming, excavation, backfilling, connections, aiming, and all labor, tools, equipment and work incidental thereto.

ITEM #1017032A – SERVICE (METERED)

DESCRIPTION: Under this item the Contractor shall install a metered service, including underground service lateral, to electrically feed and control the decorative and flood lighting, at the locations shown on the plans.

MATERIALS: Materials associated with Service (Metered) shall conform to the pertinent sections of Article M.15.15.

Rigid metal conduit shall conform to the requirements of Article M.15.09.

Photoelectric control shall be included in this item, to be installed on the lighting control cabinet, as shown on the plans. Wiring with final connections to the photoelectric control shall be included as part of this item.

The work required for connection of the new lighting circuits in the lighting control cabinet will also be included in this item.

The meter socket shall conform to all utility company requirements including the latest edition of “Information and Electric Service for Electric Supply below 600 Volts”, as published by the Connecticut Light and Power Company.

The Service (Metered) shall be 120/240V single phase. The main circuit breaker for the lighting control cabinet shall be rated for 60 amps and 250 volts and shall have an interrupt rating as specified by the CL&P representative.

CONSTRUCTION METHOD: The Contractor shall install a Service (Metered) with associated equipment as indicated on the plans.

The Contractor shall contact Connecticut Light and Power Company representatives Mr. Giuseppe (“Joe”) C. Cassata at (860) 447-5746 or Mr. Martin J. Grzymkowski at 860-447-5782 30 days in advance to coordinate the required utility work for this installation.

All work shall be in accordance with the National Electric Code.

The Contractor shall install the control cabinet foundation at the location as indicated on the plans and install the underground service lateral (3” RMC) from the foundation to the proposed service location (SNET pole number 128). The conduit shall stub-up at the base of the service pole with a 90 degree sweep. The Contractor shall install a pull rope in the conduit and then cap the open ends to prevent dirt and debris from entering the conduit.

The concrete foundation shall be constructed to the dimensions as indicated on the plans and shall be of sufficient size to accommodate the lighting control cabinet. The Contractor shall verify the anchor bolt pattern for the lighting control cabinet prior to casting the anchor bolts into the foundation.

The Contractor shall furnish and install the meter socket on the cabinet and all conduit lengths required to connect the service feed as required. Ground rods and grounding cable shall be installed as detailed on the plans.

METHOD OF MEASUREMENT: The work shall be measured for payment by the number of Metered Services with associated equipment installed, complete and accepted in place.

BASIS OF PAYMENT: This work will be paid for at the contract unit price each for "Service (Metered)" which price shall include pedestal cabinet (supplied complete with photoelectric eye, controls and overcurrent protection), the labor required for connecting lighting and other circuits in the pedestal lighting control cabinet, foundation, service lateral conduit and sweeps, pull rope, trenching, backfilling, service lateral, utility conduit slip joint, grounding, meter socket, connections, coordination, utility construction costs, and all work, tools, equipment, and labor incidental thereto.

ITEM #1118012A - REMOVAL AND/OR RELOCATION OF TRAFFIC SIGNAL EQUIPMENT

Section 11.18: Replace the entire section with the following:

11.18.01 – Description:

Remove all abandon traffic signal equipment. Restore the affected area. Where indicated on the plans remove and reinstall existing traffic signal equipment to the location shown.

11.18.02 – Materials:

The related sections of the following specifications apply to all incidental and additional material required for the proper relocation of existing equipment and the restoration of any area affected by this work.

- Division III, “Materials Section” of the Standard Specifications.
- Current Supplemental Specifications to the Standard Specifications.
- Current Special Provisions to the Standard Specifications.
- Current Department of Transportation, Functional Specifications for Traffic Control Equipment.

Article 11.18.03 - Construction Methods:

Schedule/coordinate the removal and/or relocation of existing traffic signal equipment with the installation of new equipment to maintain uninterrupted traffic signal control. This includes but is not limited to vehicle signals and detectors, pedestrian signals and pushbuttons, co-ordination, and pre-emption.

Abandoned Equipment

The contract traffic signal plan usually does not show existing equipment that will be abandoned. Consult the existing traffic signal plan for the location of abandoned material especially messenger strand, conduit risers, and handholes that are a distance from the intersection. A copy of the existing plan is usually in the existing controller cabinet. If not, a plan is available from the Division of Traffic Engineering upon request.

Unless shown on the plans it is not necessary to remove abandoned conduit in-trench and conduit under-roadway

When a traffic signal support strand, rigid metal conduit, down guy, or other traffic signal equipment is attached to a utility pole, secure from the pole custodian permission to work on the pole. All applicable DPUC regulations and utility company requirements govern. Keep utility

company apprised of the schedule and the nature of the work. Remove all abandoned hardware, conduit risers, and down guys, Remove anchor rods, to 6" (0.15m) below grade.

When underground material is removed, backfill the excavation with clean fill material. Compact the fill to eliminate settling. Remove entirely the following material: pedestal foundation; controller foundation; handhole; pressure sensitive vehicle detector complete with concrete base. Unless otherwise shown on the plan, remove steel pole and mast arm foundation to a depth of 2 feet (0.6m) below grade. Restore the excavated area to a grade and condition compatible with the surrounding area.

- If in an unpaved area apply topsoil and establish turf in accordance with Section 9.44 and Section 9.50 of the Standard Specifications.
- If in pavement or sidewalk, restore the excavated area in compliance with the applicable Sections of Division II, "Construction Details" of the Standard Specifications.

Relocated Equipment

In the presence of the Engineer, verify the condition of all material that will be relocated and reused at the site. Carefully remove all material, fittings, and attachments in a manner to safeguard parts from damage or loss. Replace at no additional cost, all material which becomes damaged or lost during removal, storage, or reinstallation.

Scrap and Salvage Equipment

Scrap Material	Stock No.
Steel Span Pole, 30' (9000mm)	330-16-7050
Steel Span Pole, all other lengths	330-16-7016
Steel Mast Arm Assembly	N/A
Copper Cable	N/A
Pedestrian Pushbutton and Sign	N/A

Salvage Material	Stock No.	Value
Controller Cabinet, Complete including but not limited to the following: Conflict Monitor Coordination Equipment Vehicle Detection Equipment	330-03-7010	\$ 500.00
Controller Unit	330-03-7005	\$ 500.00
Aluminum Pedestal 8 foot (2400 mm)	330-16-7108	\$ 100.00
4 foot, 4 inch (1300 mm)	330-16-7112	\$ 100.00

All material not listed as scrap or salvage, becomes the property of the Contractor. Properly handle, transport, then dispose in a suitable dump or recycle this material. Comply with all Federal and State hazardous waste laws and regulations.

In the presence of the Engineer, verify the condition and quantity of salvage material prior to removal. After removal transport and store the material protected from moisture, dirt, and other damage. Coil and secure copper cable separate from other cable such as galvanized support strand.

Within 4 working days of removal, return the State owned scrap and salvage material to the Department of Transportation Stores warehouse listed below. Supply all necessary manpower and equipment to load, transport, and unload the material. The condition and quantity of the material after unloading will be verified by the Engineer.

DOT Salvage Store #134
660 Brook Street
Rocky Hill, CT

Contact Materials Management Scrap and Salvage Coordinator, at (860) 258-1980, at least 24 hours prior to delivery.

Municipal Owned Traffic Signal

Return all municipal owned material such as pre-emption equipment to the Town.

Article 11.18.04 – Method of Measurement:

This work will be measured as a Lump Sum.

Article 11.18.05 – Basis of Payment:

Payment is at the contract lump sum price for “Removal and/or Relocation of Traffic Signal Equipment” inclusive of all labor, vehicle usage, storage, and incidental material necessary for the complete removal of abandoned material and/or relocation of existing traffic signal material. Payment will also include the necessary labor, equipment, and material for the complete restoration of all affected areas.

A credit will be calculated and deducted from monies due the Contractor equal to the listed value of salvage material not returned or that has been damaged and deemed unsalvageable due to the Contractors operations.

Pay Item	Pay Unit
Removal and/or Relocation of Traffic Signal Equipment	l.s (l.s.)

ITEM #1118051A – TEMPORARY SIGNALIZATION (SITE NO. 1)

Description:

The Contractor shall keep each traffic signal in the project limits operational at all times during construction through the use of the existing signal, the temporary signal, the revised signal or any combination thereof. The Contractor shall furnish, install, maintain, relocate, and remove existing, temporary, and proposed traffic signal equipment and all necessary hardware as needed throughout the duration of construction and in conformance with the applicable specifications.

The Contractor shall relocate the existing and temporary traffic signal heads and appurtenances (span poles, mast arms, span wire, pedestrian push buttons, pedestrian walk signals, etc.) and revise the signal phasing and timing as many times as deemed necessary during construction to maintain and protect traffic and pedestrian movements where shown on the plans or as proposed by the Contractor and approved by the Engineer.

The Contractor shall make modifications to the controller as necessary to maintain temporary signalization during each phase/stage of construction.

Throughout the duration of construction, the Contractor shall provide detection on the existing, temporary, and/or new roadway alignment for all intersection approaches that have existing detection. The Contractor shall furnish, install, maintain, relocate and revise the necessary equipment (loop detectors, preformed loop detectors, microwave detectors, cable, conduit, amplifiers, pushbuttons, handholes, etc.) to provide proper vehicle detection and pedestrian detection during each phase of construction. During construction, if a detector becomes non-operational, the associated phase shall be put on max recall and the Contractor shall provide detection within 24 hours.

Throughout the duration of construction, the Contractor shall furnish, install, maintain, relocate, and remove the equipment necessary to maintain existing emergency vehicle pre-emption and the equipment necessary to maintain existing interconnect to adjacent signals.

The Contractor shall furnish, install, maintain, relocate, and remove signal-related signing (lane-use, signal ahead, NTOR, etc.) and pavement markings as needed throughout the duration of construction.

Materials:

All materials used for Temporary Signalization shall conform to the pertinent articles of the Standard Specifications, the Supplemental Specifications, and the Special Provisions contained in this contract, or as approved by the Engineer.

Construction Methods:

In the presence of the Engineer and a representative from the DOT Electrical Maintenance Office, the Electrical Contractor shall inspect the existing controller and verify its working condition prior to Temporary Signalization.

The Contractor shall submit a traffic signal plan to the Engineer for approval showing the signal phasing, timing, and the location of the signal supports, signal heads, detectors, pedestrian push buttons, pedestrian signals, and pavement markings at least 30 days prior to each phase/stage change.

Temporary Signalization will begin when the Contractor revises or relocates the existing signal or installs temporary traffic signal equipment. The Contractor shall be responsible for maintenance of all equipment during Temporary Signalization. The Engineer shall record the date Temporary Signalization begins for each site and shall notify the DOT Electrical Maintenance Office and the Local Police Department that maintenance responsibility has been transferred to the Contractor.

The Contractor shall provide to the Engineer a list of telephone numbers of personnel who will be responsible for the maintenance of the traffic signals during Temporary Signalization. The Contractor shall respond to traffic signal malfunctions by having a representative at the site within three hours and the Contractor shall have the traffic signal back in operation within 24 hours.

If the Engineer determines that the nature of a malfunction requires immediate attention and the Contractor does not respond within three hours following the initial contact, then DOT personnel will be called to repair the signal. The State will deduct all expenses incurred by the State, with a minimum deduction of \$1,000. for each service call, from money due or to due to the contractor.

For intersections with a State furnished controller, Temporary Signalization shall terminate when the signal inspection is complete and is accepted by the Engineer. For intersections with a Contractor furnished controller, Temporary Signalization shall terminate at the beginning of the 30 day test period. For locations that will not be permanently signalized, Temporary Signalization shall terminate when construction is complete and the temporary signal equipment is removed from the project as approved by the Engineer.

All equipment shall be relocated and/or removed in such a manner as to cause no hazard to pedestrians, traffic or property. When the Contractor is performing signal work, the Contractor shall maintain traffic as specified in the Special Provisions "Prosecution and Progress" and "Maintenance and Protection of Traffic."

During Temporary Signalization, all existing equipment shall remain the property of the owner. Temporary equipment supplied by the Contractor for Temporary Signalization will

remain the Contractor's property unless noted otherwise. All existing equipment that is removed and designated as salvage shall be returned to the owner.

The Contractor shall be responsible for obtaining secondary service required for continuous operation of the traffic signals during Temporary Signalization. The party previously responsible for payment of electricity shall continue to be responsible during Temporary Signalization.

The Contractor shall be responsible for the cost of electricity at unsignalized intersections that require Temporary Signalization due to construction activities. Locations where the temporary signal equipment will be removed when no longer needed shall have a metered service.

Method of Measurement:

Temporary Signalization shall be paid for only once per site on a percentage of the contract Lump Sum price. Fifty percent (50%) shall be paid when Temporary Signalization begins and fifty percent (50%) shall be paid when Temporary Signalization terminates.

Basis of Payment:

This work shall be paid at the contract Lump Sum price for "Temporary Signalization (Site No.)" for each site. This item shall consist of furnishing, installing, maintaining, relocating, revising, and removing existing, temporary, and proposed traffic signal equipment (except for the items identified below), signing and all necessary hardware, materials, labor and work incidental thereto. This price shall also include any modifications to the controller including timing and phasing changes. All Contractor supplied items that will remain the Contractor's property shall be included in the contract Lump Sum price for "Temporary Signalization." Any items installed as part of the permanent installation will not be paid for under this item. The following established contract items, if used for Temporary Signalization, will be paid for at the contract unit price: Loop Detector Amplifiers, Trenching and Backfilling, Handholes, Rigid Metal Conduit (Type), Loop Detector Sawcut, Cable, Removal of Pavement Markings, and temporary pavement marking items.

<u>Pay Item</u>	<u>Pay Unit</u>
Temporary Signalization (Site No.)	L.S.

ITEM #1131002A - REMOTE CONTROL CHANGEABLE MESSAGE SIGN

Description: Work under this item shall include furnishing and maintaining a trailer-mounted, “Changeable Message Sign”, “Remote Control Changeable Message Sign”, “Changeable Message Sign with Radar”, or “Remote Control Changeable Message Sign with Radar” whichever is applicable, at the locations indicated on the plans or as directed by the Engineer.

Materials: The full matrix, internally illuminated variable message sign shall consist of a LED, fiber optic, lamp matrix, or hybrid magnetically operated matrix – LED message board; and a computer operated interface, all mounted on a towable, heavy duty trailer.

The sign shall have a minimum horizontal dimension of 115 inches and rotate a complete 360 degrees atop the lift mechanism.

In the raised position, the bottom of the sign shall be at least 7 feet above the roadway. The messages displayed shall be visible from a distance of 1/2 mile and be clearly legible from a distance of 900 feet during both the day and night.

The lighting system shall be controlled both manually and by a photocell for automatic sign dimming during nighttime use.

The sign shall be capable of storing a minimum of 100 preprogrammed messages and be able to display any one of those messages upon call from the trailer mounted terminal and/or through the cellular telephone hookup for the remote controlled sign.

The sign shall be a full matrix sign that is able to display messages composed of any combination of alphanumeric text, punctuation symbols, and graphic images (notwithstanding NTCIP limitations). The display shall be capable of producing arrow functions. Full- matrix displays shall allow the use of graphics, traffic safety symbols and various character heights.

Standard messages shall be displayed in a three-line message format with 8 characters per line. The letter height shall not be less than 18 inches.

The sign shall utilize yellow green for the display with a black background. Each matrix shall have a minimum size of 6 x 9 pixels. Each pixel shall utilize a minimum of four high output yellow green LEDs or equivalent light source. The LEDs or light source shall have a minimum 1.4 candela luminance intensity, 22 degrees viewing angle, and wavelength of 590 (+/- 3) nanometers.

For hybrid magnetically operated matrix – LED matrix, each pixel shall have one single shutter faced with yellow green retro-reflective sheeting with a minimum of four high output yellow green LEDs or equivalent light source. The hybrid magnetically operated matrix – LED matrix sign shall be capable of operating in three display modes; shutter only, LED only, and both LED and shutter. These modes shall be automatically controlled by a photocell for day and night conditions and also capable of being manually controlled through the software.

The sign shall be controlled by an on-board computer. The sign shall automatically change to a preselected default message upon failure. That default message shall remain on display until the problem is corrected.

The sign shall include all necessary controls, including, but not limited to, personal computer, keyboard or alphanumeric hand-held keyboard, and software. The sign shall interface with PCs, cellular phones, and radar speed detection devices as required.

Controls shall be furnished for raising and lowering the message board, aligning the message board and, for solar powered units, a read-out of the battery bank charge.

Power shall be provided by a self-contained solar maintained power source or a diesel engine driven generator. Hardware for connection to a 110-volt power source shall also be provided.

Solar powered signs shall display programmed messages with the solar panel disconnected, in full night conditions, for a minimum of 30 consecutive days.

Remote Control Changeable Message Signs shall include one (1) industrial-grade cellular telephone and be equipped with a modem to control the sign and a security system to prevent unauthorized access. The security system shall allow access only through use of a code or password unique to that sign. If the proper code or password is not entered within 60 seconds of initial telephone contact, the call will be terminated. Remote control for the Remote Controlled Changeable Message Sign shall be by cellular telephone and touch tone modem decoder.

The radar equipped signs shall include a high-speed electronic control module (ECM-X), Radar SI transceiver, signal processing board and radar logging software.

The radar software will operate the sign in four modes:

- 1) The sign will display words "YOUR SPEED" followed by the speed (2 digits). The display will repeat the message as long as vehicles are detected. The sign will blank when no vehicles are present.
- 2) The sign will display a series of up to six messages (programmed by the user) when a preset speed (programmed by the user) is exceeded. The sign will blank when no vehicles are present.
- 3) Will perform like mode #2 with the addition of displaying the actual speed with it.
- 4) The sign will work as a standard Changeable Message Sign or Remote Control Changeable Message Sign with no radar.

Construction Methods: The Contractor shall furnish, place, operate, maintain and relocate the sign as required. When the sign is no longer required, it shall be removed and become the property of the Contractor. The cellular telephone required for the Remote Control Changeable Message Sign shall be provided to the Engineer for his use, and subsequently returned to the Contractor.

When the sign is not in use, it shall either be turned off with a blank display or turned from view.

Any signs that are missing, damaged, defaced or improperly functioning so that they are not effective, as determined by the Engineer and in accordance with the ATSSA guidelines contained in "Quality Standards for Work Zone Traffic Control Devices," shall be replaced by the Contractor at no cost to the State.

Method of Measurement: This work will be measured for payment for each "Changeable Message Sign", "Remote Control Changeable Message Sign", "Changeable Message Sign with Radar", or "Remote Control Changeable Message Sign with Radar", whichever applies, furnished and installed, for the number of calendar days that the sign is in place and in operation, measured to the nearest day. When a sign is in operation for less than a day, such a period of time shall be considered to be a full day regardless of actual time in operation.

Basis of Payment: This work will be paid for at the Contract unit price per day for each "Changeable Message Sign", "Remote Control Changeable Message Sign", "Changeable Message Sign with Radar", or "Remote Control Changeable Message Sign with Radar" which price shall include placing, maintaining, relocating and removing the sign and its appurtenances and all material, labor, tools and equipment incidental thereto. Additionally, for the "Remote Control Changeable Message Sign", or "Remote Control Changeable Message Sign with Radar", the cellular telephone service and telephone charges shall be included.

<u>Pay Item</u>	<u>Pay Unit</u>
Remote Control Changeable Message Sign	Day

ITEM #1205225A – SEASONAL DELINEATOR

Description: This item shall consist of furnishing removable high visibility delineators, furnishing and installing a permanent delineator slot.

The permanent delineator slot is drilled into the concrete within the splitter islands at the locations specified in the plans or as directed by the Engineer. A removable high visibility delineator in conformance with the plans and these specifications is inserted into the slot to mark the splitter island for visibility during winter season.

Materials: The permanent delineator slot shall consist of a low-density polyethylene (LDPE) pipe with a length of 6 inches and an inner diameter of 3/8 inch.

An epoxy-adhesive shall be used to chemically anchor the LDPE pipe to the concrete.

The materials for the removable high visibility delineator shall consist of a high visibility fiberglass marker with a length of 4 feet and diameter of 3/8 inch. The delineator shall be orange and have a 5 inch tall reflective area within 10 inches of the top of the marker. The bottom of the marker shall be tapered for easy installation into the permanent delineator slot.

Construction Methods: After the concrete within the splitter islands has fully cured a permanent delineator slot shall be installed at the locations indicated on the plans or as directed by the Engineer. The Contractor shall drill a hole for the slot large enough to accommodate the 3/8 inch inner diameter LDPE pipe at the specified locations plumb below the concrete. The 6 inch LDPE pipe shall be inserted within the drilled hole, such that it is flush with the concrete surface; and the delineator, when installed in the slot, shall be plumb above ground. The LDPE pipe shall be chemically adhered to the concrete using an epoxy-adhesive approved by the Engineer.

Six removable high visibility delineators shall be provided for *each* permanent delineator slot installed to the local State Maintenance Garage for storage. The Contractor shall contact Mr. Stephen Matos at (860) 823-3220 to arrange for the delivery of the delineators.

Method of Measurement: This work will be measured for payment by the actual number of *permanent delineator slots* installed and accepted by the Engineer.

Basis of Payment: This work will be paid for at the Contract unit price each for “Seasonal Delineator,” complete in place, which price shall include the LDPE pipe and associated drilling, epoxy-adhesive, removable high visibility delineators (6 for each permanent delineator slot) and all materials, equipment, tools and labor incidental thereto. No direct payment will be made for the additional high visibility delineators provided to the State Maintenance Garage.

Pay Item	Pay Unit
Seasonal Delineator	ea.

ITEM #1206023A - REMOVAL AND RELOCATION OF EXISTING SIGNS

Section 12.06 is supplemented as follows:

Article 12.06.01 – Description is supplemented with the following:

Work under this item shall consist of the removal and/or relocation of designated side-mounted extruded aluminum and sheet aluminum signs, sign posts, sign supports, and foundations where indicated on the plans or as directed by the Engineer. Work under this item shall also include furnishing and installing new sign posts and associated hardware for signs designated for relocation.

Article 12.06.03 – Construction Methods is supplemented with the following:

The Contractor shall take care during the removal and relocation of existing signs, sign posts, and sign supports that are to be relocated so that they are not damaged. Any material that is damaged shall be replaced by the Contractor at no cost to the State.

All state-owned sheet aluminum signs designated for removal are to be salvaged if they are in suitable condition as determined by the Engineer. All Town-owned sheet aluminum signs designated for removal are to be salvaged. The Contractor shall sort all salvaged sheet aluminum signs by size and owner and shall stack ten signs to a bundle. Each bundle shall be bound by tape or metal strap and the bundles shall be stacked on pallets.

The Contractor shall confirm intended delivery of the salvaged State-owned sheet aluminum signs at least seven days in advance and shall deliver the signs to the following address:

D.O.T. Sign Shop
1107 Cromwell Avenue
Rocky Hill, CT 06067
Attention: Jeffrey Adams (Phone # (860) 258-4675)

The Contractor shall confirm intended delivery of the salvaged town-owned sheet aluminum signs at least seven days in advance by contacting the Traffic Engineering Office at (203) 574-6820 and shall deliver the signs to the following address:

Extruded aluminum signs, sheet aluminum signs not suitable for salvage as determined by the Engineer, sign posts, and sign supports designated for removal shall be returned to the Department for scrap. Scrap signs shall be cut to be no larger than 4' by 8' (1.2 m by 2.4 m). Scrap steel shall be separated from scrap aluminum and delivered to the Department. The Contractor shall confirm intended delivery of the scrap material at least seven days in advance and shall deliver the scrap material to the following address:

Connecticut Department of Transportation
Division of Purchasing and Materials Management
Stores Central Warehouse

660 Brook Street
Rocky Hill, CT 06067
Attention: Fred Connors (Phone # (860) 258-1976)

Foundations and other materials designated for removal shall be removed and disposed of by the Contractor as directed by the Engineer and in accordance with existing standards for Removal of Existing Signing.

Sheet aluminum signs designated for relocation are to be re-installed on new sign posts.

Article 12.06.04 – Method of Measurement is supplemented with the following:

Payment under Removal and Relocation of Existing Signs shall be at the contract lump sum price which shall include all extruded aluminum and sheet aluminum signs, sign posts, and sign supports designated for relocation, all new sign posts and associated hardware for signs designated for relocation, all sheet aluminum signs designated for salvage, all extruded aluminum signs, sheet aluminum signs, sign posts and sign supports designated for scrap, and foundations and other materials designated for removal and disposal, and all work and equipment required.

Article 12.06.05 – Basis of Payment is supplemented with the following:

This work will be paid for at the contract lump sum price for “Removal and Relocation of Existing Signs” which price shall include relocating designated extruded aluminum and sheet aluminum signs, sign posts, and sign supports, providing new posts and associated hardware for relocated signs, removing and disposing of foundations and other materials, and all equipment, material, tools and labor incidental thereto. This price shall also include removing, loading, transporting, and unloading of sheet aluminum signs designated for salvage and all equipment, material, tools and labor incidental thereto. This price shall also include removing, loading, transporting, and unloading of extruded aluminum signs, sheet aluminum signs not suitable for salvage, sign posts, and sign supports designated for scrap and all equipment, material, tools and labor incidental thereto.

<u>Pay Item</u>	<u>Pay Unit</u>
Removal and Relocation of Existing Signs	L.S.

ITEM #1207034A – SIGN FACE - EXTRUDED ALUMINUM (TYPE IV RETROREFLECTIVE SHEETING)

Article 12.07.01 – Description is revised as follows: This item shall consist of furnishing and installing sign face extruded aluminum with Type IV retroreflective sheeting at locations indicated on the plans or as ordered and in conformance with the plans and these specifications.

Sign Face – Extruded Aluminum is supplemented with the sign details that are located in Appendix A of this contract.

Article 12.07.02 – Materials is supplemented as follows: For Article M.18.10.02, the heading “2. Type III Reflective Sheeting” shall be replaced with “2. Type IV Retroreflective Sheeting”.

Article 12.07.03 – Construction Methods is supplemented as follows: All sign foundations shall be field staked and the locations approved by an engineer from the Division of Traffic Engineering a minimum of seven days prior to installation.

For side-mounted signs on structural steel breakaway sign supports, the offset to the near edge of sign face shall exceed the maximum deflection of the guide rail unless directed otherwise by the Engineer.

Pay Item	Pay Unit
Sign Face - Extruded Aluminum (Type IV Retroreflective Sheeting)	S.F.

CONNECTICUT
 DEPARTMENT OF TRANSPORTATION
SIGN DETAILS
 FOR
 EXTRUDED ALUMINUM SIGNS

COPY AND BORDER DEMOUNTABLE TYPE IV RETROREFLECTIVE SHEETING *
 BACKGROUND — TYPE IV RETROREFLECTIVE SHEETING

* BLACK COPY — TO BE DEMOUNTABLE NON-REFLECTORIZED
 SERIES E OR E(M).

STATIONING AND/OR MILEAGES ARE APPROXIMATE.

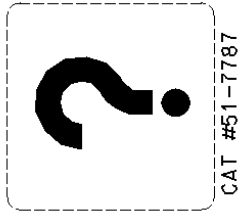
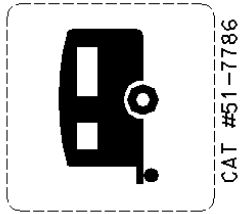
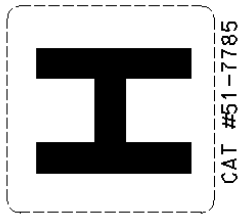
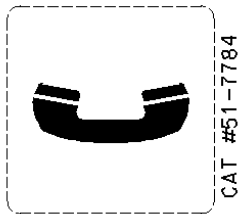
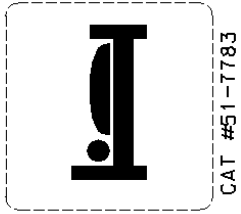
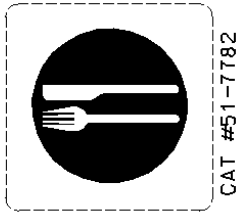
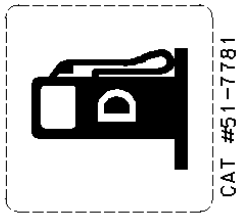
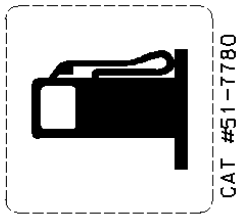


FILE # TITSON.DGN

TYPICAL SIGN APPURTENANCES

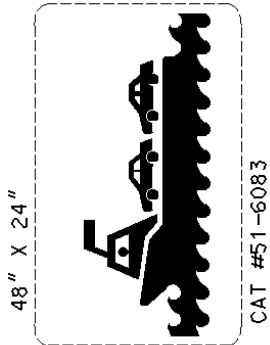
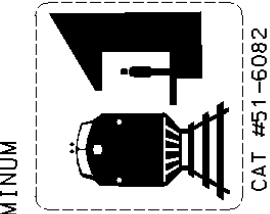
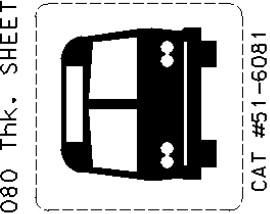
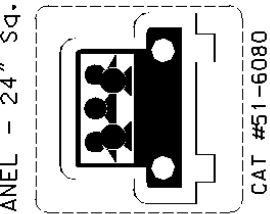
SYMBOL SERVICE SIGNS

TO BE USED AS OVERLAY PANELS ON EXPRESSWAY SIGNS
BACKGROUND - BLUE TYPE IV RETROREFLECTIVE SHEETING
COPY - SILVER TYPE IV RETROREFLECTIVE SHEETING WITHOUT BORDER
PANEL - 24" Sq. - .080 Thk. SHEET ALUMINUM



PARK & RIDE SIGNS

TO BE USED AS OVERLAY PANELS ON EXPRESSWAY SIGNS
BACKGROUND - GREEN TYPE IV RETROREFLECTIVE SHEETING
COPY - SILVER TYPE IV RETROREFLECTIVE SHEETING WITHOUT BORDER
PANEL - 24" Sq. - .080 Thk. SHEET ALUMINUM



48" X 24"



LOC - ZIP - STD SHEETS
FILENAME - LOGO.APP.DGN

TYPICAL SIGN APPURTENANCES

SHIELDS	CODE NO.	SHIELD DIM. NO.	SHIELD DIM. HORIZ. VERT.	NUMERICAL SIZE	LEGEND SIZE	DESIGN
						F. H. W. A. COLORS and TYPE IV RETROREFLECTIVE SHEETING
	I-5	36"	36"	18"	16/12	F. H. W. A. DESIGN. COLORS and TYPE IV RETROREFLECTIVE SHEETING
	I-6	45"	36"	13.33/10		
	I-2	24"	24"	12"	10.67/8	
	U-5	36"	36"	18"	16/12	F. H. W. A. DESIGN. COLORS and TYPE IV RETROREFLECTIVE SHEETING
	U-7	54"	36"	13.33/10		
	U-2	24"	24"	12"	10.67/8	
	U-4	36"	24"	12"	8/6	COPY - BLACK PLAIN WITHOUT BORDER BACKGROUND - SILVER TYPE IV RETROREFLECTIVE SHEETING CONN. D.O.T. DESIGN
	S-5	36"	36"	18"	16/12	
	S-6	45"	36"	13.33/10		
	S-7	54"	36"	10.67/8		
	S-2	24"	24"	12"	8/6	
	S-3	30"	24"			
	S-4	36"	24"			

SHIELDS

SHIELD USES

- SHIELDS - 2 & 5 - 1 & 2 DIGIT NUMBER
- SHIELDS - 3 & 6 - 3 DIGIT NUMBER (ONE OF WHICH MUST BE A 1)
- SHIELDS - 4 & 7 - 3 DIGIT NUMBER (NONE BEING A 1)

ARROWS	CODE NO.	D I M E N S I O N S						LEGEND SIZE	ARROW DIM AT 60° ANGLE
		ARROW SIZE H	ARROW SIZE V	B	C	D	R		
	E-3	15 1/8"	24 1/4"	11 9/16"	3 3/4"	15 1/16"	13 1/16"	8/6	15 1/2" 22 3/8"
	E-4	18 1/4"	29 1/4"	14"	4 1/2"	1 1/2"	3/4"	10.67/8 13.33/10	18 1/2" 26 3/4"
	E-5	22 1/4"	35 5/8"	17"	5 3/8"	1 3/4"	1"	16/12 & UP	22 5/8" 32 5/8"
	C-6	32"	22"	16"	6 1/2"	3"	1"	ALL	

ARROWS

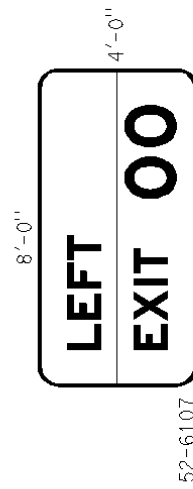
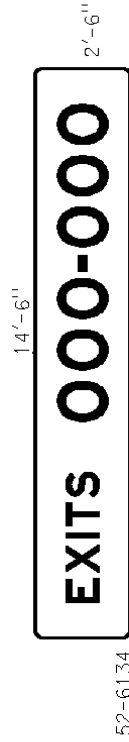
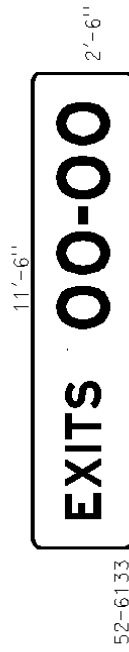
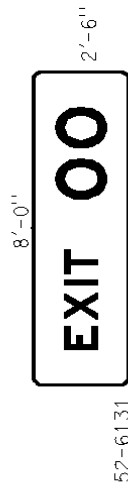


LOC. - ZIP - STD SHTS
FILENAME: SHLARRAP.DGN

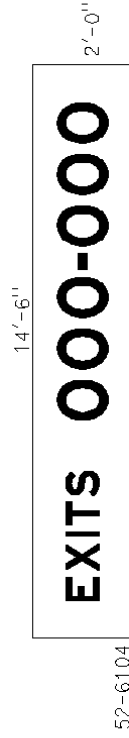
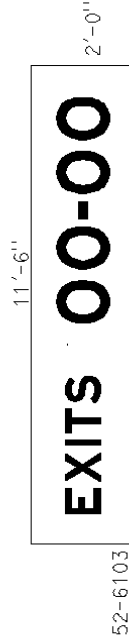
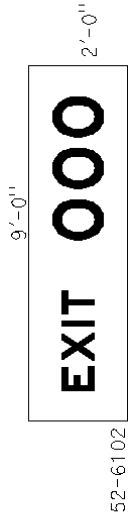
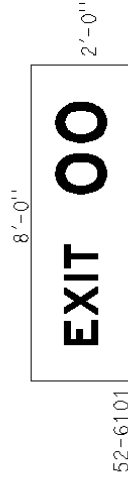
TYPICAL SIGN APPURTENANCES

EXIT CROWN PANELS

FOR SIGNS MOUNTED ON NEW SUPPORTS
EXIT CROWNS SHALL HAVE BORDERS.



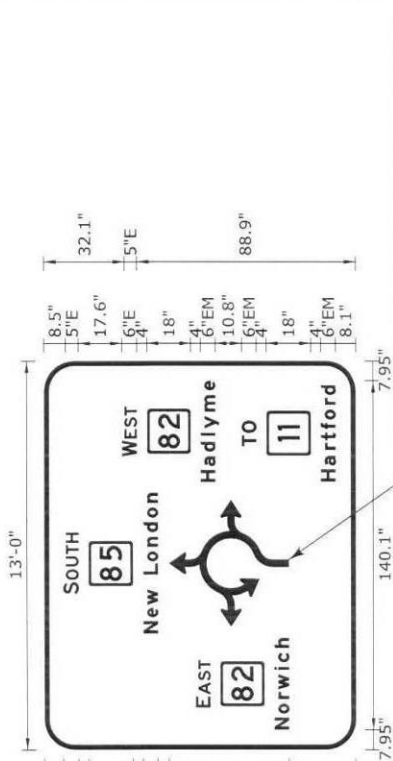
FOR SIGNS MOUNTED ON EXISTING SUPPORTS
EXIT CROWNS WILL NOT HAVE BORDERS.



BACKGROUND - TYPE IV RETROREFLECTIVE SHEETING TO
MATCH ADJACENT BACKGROUND COLOR OF SIGN.
COPY - TYPE IV RETROREFLECTIVE SHEETING.
SIGN WIDTH TO BE 6" WIDER THAN EXIT CROWN WIDTH.

SIGN NUMBER	52-4684
SIGN PANEL	136.5
EXIT CROWN	--
TOTAL (Sq.Ft.)	136.5
BDR INSET/WIDTH	0" / 2"
CORNER RADIUS	12"
BACKGROUND	TYPE: IV
LEGEND/BORDER	COLOR: Green
	TYPE: IV
	COLOR: White/White

SYMBOL	ROT	X	Y	WID	HT
CT ROUTE	0	65.7	90.5	18	18
CT ROUTE	0	118.7	66.9	18	18
CT ROUTE	0	17.3	37	18	18
SHS_D1-5	0	49.2	27	49	51
CT ROUTE	0	117.9	18	18	18



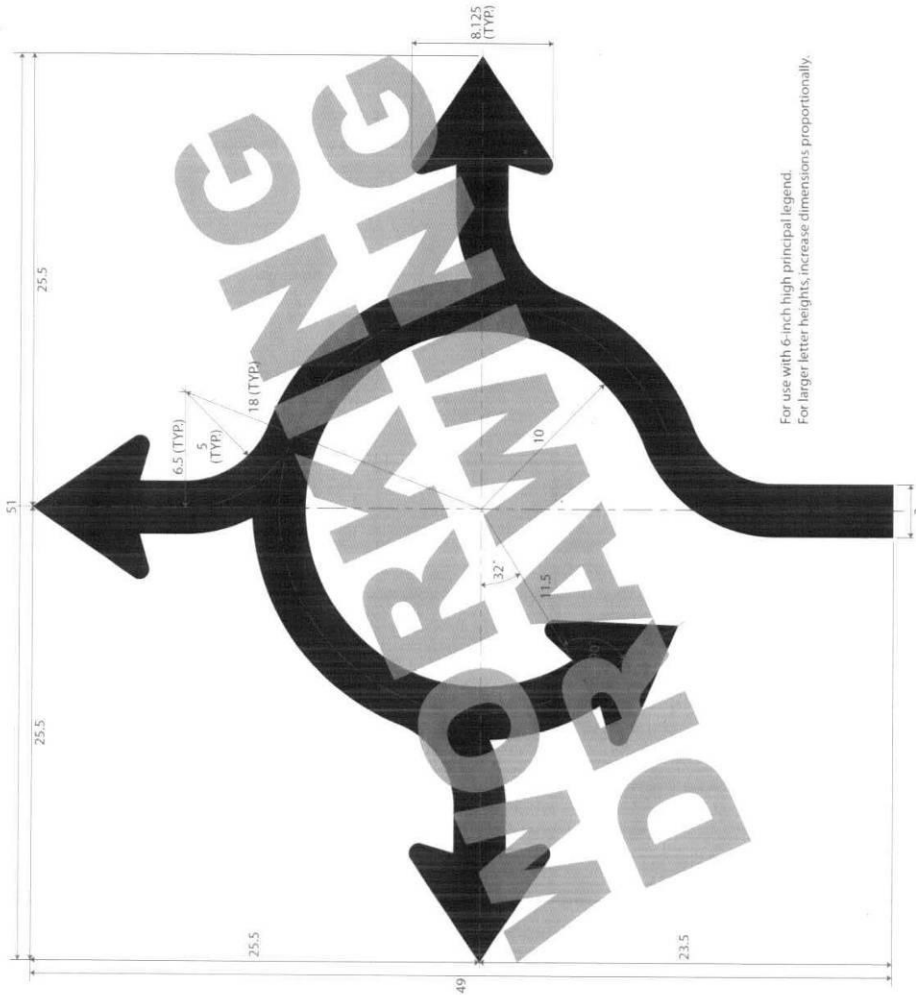
FOR CIRCULAR INTERSECTION DIRECTIONAL
ARROW DETAIL SEE DETAIL #TP-1256

REV'D / 1

DATE CREATED: 8/5/11
 DIMENSIONS ARE IN INCHES
 MATERIAL : EXTRUDED ALUMINUM
 OVERHEAD MOUNTED
 SIGN SUPPORT NO. N/A
 LOCATION : SALEM ROUTE 82 AT ROUTE 85
 PROJECT NO. 120-86 ENG : NCM DESIGNED BY : G.FASCIONE CHECKED BY :

LETTER POSITIONS (X)											LENGTH	SERIES/SIZE
S	O	U	T	H								E 2000
62.4	68.2	73.5	78.4	83							24.7	6,5
W	E	S	T									E 2000
117.7	124.9	129.4	134								20.1	6,5
N	e	w		L	o	n	d	o	n			EM 2000
46.6	52.9	58.1	64.2	70.2	75.4	81.4	87.2	93	99		56.3	6/5
E	A	S	T									E 2000
16.8	21.9	27.5	32.1								19.1	6,5
H	a	d	l	y	m	e						EM 2000
107.3	113.7	119.5	125.9	128.8	135.6	144.1					40.7	6/5
T	O											EM 2000
121.7	127										10.3	6
N	o	r	w	i	c	h						EM 2000
7.9	14.3	20.2	24	31.9	34.9	40.8					36.8	6/5
H	a	r	t	f	o	r	d					EM 2000
107.6	113.9	120.3	124.1	128.6	132.4	138.4	142.3				38.6	6/5

SYMBOL DETAIL



SIGN NUMBER	TP-1256
SIGN PANEL	
EXIT CROWN	
TOTAL (Sq.ft.)	
BDR INSET/WIDTH	
CORNER RADIUS	
BACKGROUND	TYPE:
	COLOR:
SYMBOL	TYPE: IV
	COLOR: White

CIRCULAR INTERSECTION DIRECTIONAL ARROW DETAIL

FOR USE WITH STANDARD HIGHWAY SIGN NO.D1-5
 DIMENSIONS ARE IN INCHES
 MATERIAL :
 DETAIL
 ENGINEER : NCM DESIGNED BY : GMF CHECKED BY : _____

ITEM #1220003A – PUBLIC INFORMATION SIGNS

Description: This item shall consist of furnishing and installing sign panels and sign supports of the kind, height, and type indicated in the plans or as ordered and in accordance with these specifications.

Materials: The sign supports shall be cut from Northern White Cedar or equivalent as determined by the Engineer. The sign support materials shall be as called out on the plans.

The sign panels shall be the following or an approved equal:

12” high x 18” wide FOLIA™ Embedded Graphic panel, ½” Exterior grade, with four stainless steel threaded inserts and anti-vandal screws.

Construction Methods: Locations of the signs will be generally as indicated in the plans. The Contractor shall confirm specific location of each sign with the Engineer prior to proceeding with the work.

Text to be included on the signs shall be obtained in digital format from the Department of Transportation’s Office of Environmental Planning.

The sign panels and sign supports shall be plumb, level, true, neat, rigid, and in accordance with the plans and these specifications. All exposed bolt threads shall be peened after installation.

The sign panels and sign supports shall be protected until acceptance of the project. The Contractor shall replace signs and/or refinish the sign if damaged prior to acceptance. All debris shall be cleaned up after the sign installation.

Method of Measurement: This work will be measured for payment by the actual number of square feet of sign panel completely installed and accepted in place.

Basis of Payment: This work will be paid for at the contract unit price per square foot for “Public Information Signs,” complete in place, which price shall include all materials, metal hardware, excavation, equipment, tools, and labor incidental thereto.

Pay Item	Pay Unit
Public Information Signs	S.F.

ITEM #1220011A - CONSTRUCTION SIGNS – TYPE III REFLECTIVE SHEETING

Article 12.20.01 – Description: The Contractor shall furnish construction signs with Type III reflective sheeting and their required portable supports or metal sign posts that conform to the requirements of NCHRP Report 350 (TL-3) and to the signing requirements stated in Article 9.71 “Maintenance and Protection of Traffic,” as shown on the plans and/or as directed by the Engineer.

Article 12.20.02 – Materials: Prior to using the construction signs and their portable supports, the Contractor shall submit to the Engineer a copy of the Letter of Acceptance issued by the FHWA to the manufacturer documenting that the devices (both sign and portable support tested together) conform to NCHRP Report 350 (TL-3).

Portable sign supports shall be designed and fabricated so that the signs do not blow over or become displaced by the wind from passing vehicles. Portable sign supports shall be approved by the Engineer before they are used.

Mounting height of signs on portable sign supports shall be a minimum of 1 foot and a maximum of 2 feet, measured from the pavement to the bottom of the sign.

All sign faces shall be rigid and reflectorized. Reflective sheeting shall conform to the requirements of Article M.18.09.01 (Type III). Sheet aluminum sign blanks shall conform to the requirements of Article M.18.13. Metal sign posts shall conform to the requirements of Article M.18.14. Application of reflective sheeting, legends, symbols, and borders shall conform to the requirements specified by the reflective sheeting manufacturer. Attachments shall be provided so that the signs can be firmly attached to the portable sign supports or metal posts without causing damage to the signs.

The following types of construction signs shall not be used: mesh, non-rigid, roll-up.

The following portable sign support systems or equivalent systems that meet the above requirements may be used:

- Korman Model #SS548 flexible sign stand with composite aluminum sign substrate (APOLIC)
- Traffix “Little Buster” dual spring folding sign stand with corrugated polyethylene (0.4 in. thick) sign substrate (InteCel)

Article 12.20.03 – Construction Methods: Ineffective signs, as determined by the Engineer and in accordance with the ATSSA guidelines contained in “Quality Standards for Work Zone Traffic Control Devices”, shall be replaced by the Contractor at no cost to the State.

Signs and their portable supports or metal posts that are no longer required shall be removed from the project and shall remain the property of the Contractor.

Article 12.20.04 – Method of Measurement: Construction Signs - Type III Reflective Sheeting will be measured for payment by the number of square feet of sign face. Sign supports will not be measured for payment.

Article 12.20.05 – Basis of Payment: “Construction Signs – Type III Reflective Sheeting” required and used on the project will be paid for at the Contract unit price per square foot. This price shall include the furnishing and maintenance of the signs, portable sign supports, metal sign posts and all hardware. Each sign and support or posts will be paid for once, regardless of the number of times it is used.

Pay Item	Pay Unit
Construction Signs – Type III Reflective Sheeting	S.F.

ITEM #1500006A – UTILITY ADJUSTMENT (ESTIMATED COST PLUS)

DESCRIPTION: This item shall consist of payment to Connecticut Light and Power Company (CL&P) by the Contractor, to furnish and install a complete roadway lighting system as indicated on the plans. The lighting shall be installed on existing poles and a lighting only pole supplied by the utility. The lighting system shall be as indicated on the utility and illumination plans and shall consist of luminaires, brackets, aerial cable, wood poles, guys, anchors, and where required, pole mount transformers. The Contractor is responsible to hire and coordinate with CL&P to provide the services as described in this specification and where shown on the plan.

MATERIALS: The materials for this work shall be supplied by Connecticut Light and Power Company.

CONSTRUCTION METHOD: CL&P or the utility company's authorized subcontractor will perform the services listed below. The Contractor shall coordinate all construction work with the work to be performed by the utility company.

CL&P shall furnish and install the roadway luminaires, brackets, aerial cable, wood poles, guys, anchors (where required), pole mount transformers, and make all electrical connections required to energize the lighting system as indicated on the plans

The item shall also include any modification to the existing lighting system necessary to maintain correct lighting levels on the active roadway once the utility relocations have been carried out under the initial phase.

The Contractor shall contact Connecticut Light and Power Company representatives Mr. Giuseppe ("Joe") C. Cassata at (860) 447-5746 or Mr. Martin J. Grzymkowski at 860-447-5782 60 days in advance, to coordinate the required utility company work for this installation.

All labor, material and equipment supplied by the utility company shall be on a billable basis to the Contractor.

METHOD OF MEASUREMENT: This work will be measured for payment as a lump sum at the estimated cost.

The sum of money shown on the estimate and in the itemized proposal as "Estimated Cost" for this work will be considered the price bid even though payment will be made only for actual work performed by the utility company and paid for by the Contractor. The Contractor shall furnish receipted invoices to the State clearly documenting work performed by the utility company and paid for by the Contractor. No markup for the Contractor will be considered. Any administrative costs for the Contractor should be considered in the general cost of the work. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figure will be disregarded and the original price will be used to determine the total amount bid for the contract.

BASIS OF PAYMENT: Under this item, the Contractor will be reimbursed his actual costs for work performed by CL&P, which price shall include all materials and labor as indicated above as part of the complete roadway lighting system.

PERMITS AND/OR PERMIT APPLICATIONS

Army Corps of Engineers General Permit
CT DEEP Storm Water Discharge Permit
CT DEEP Inland Wetland Permit
CT DEEP Flood Management Certification

Issue Date October 5, 2011
Issue Date September 12, 2011
Issue Date August 1, 2011
Issue Date June 20, 2011

PERMIT APPLICATION

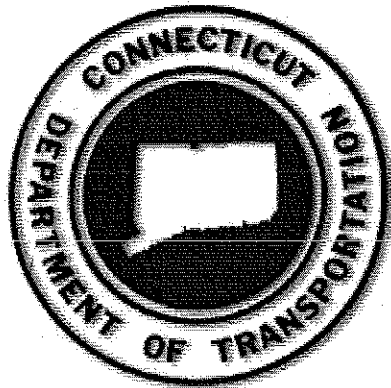
FOR

THE ARMY CORPS OF ENGINEERS

**SALEM FOUR CORNERS ROUNDABOUT
AT ROUTES 82 & 85**

SALEM, CONNECTICUT

**STATE PROJECT No. 120-86
FEDERAL AID PROJECT No. 0085(109)**



APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
(33 CFR 325)

OMB APPROVAL NO. 0710-0003

EXPIRES: 31 August 2012

Public reporting burden for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please **DO NOT RETURN** your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
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(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME: First - Thomas Middle - J Last - Maziarz Company - Connecticut Department of Transportation E-mail Address -			8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required) First - Middle - Last - Company - E-mail Address -		
6. APPLICANT'S ADDRESS: Address - 2800 Berlin Turnpike PO Box 317546 City - Newington State - CT Zip - 06131 Country - Hartford			9. AGENT'S ADDRESS Address - City - State - Zip - Country -		
7. APPLICANT'S PHONE NOS. W/AREA CODE. a. Residence b. Business c. Fax N/A 860-594-2001			10. AGENT'S PHONE NOS. W/AREA CODE a. Residence b. Business c. Fax		

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

APPLICANT'S SIGNATURE

DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions) DOT Project 120-86, Roundabout at Salem Four Corners	
13. NAME OF WATERBODY, IF KNOWN (if applicable) Harris Brook and unnamed wetlands & watercourse adjacent to Routes 82 and 85	14. PROJECT STREET ADDRESS (if applicable) Address Intersection of Routes 82 and 85 City - State - Zip -
15. LOCATION OF PROJECT Latitude: °N 41°28'35" Longitude: °W 72°15'53"	
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) State Tax Parcel ID Municipality Section - Township - Range -	
17. DIRECTIONS TO THE SITE See attached location plan	

18. Nature of Activity (Description of project, include all features)

See Attached

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

See Attached

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

See Attached

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
See Attached		

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres See Attached
Or
Liner Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

See Attached

24. Is Any Portion of the Work Already Complete? Yes No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list).

Address - See Attached

City - State - Zip -

26. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
CTDEP	Inland Wetland and Watercourse			TBD	
CTDEP	FMC			TBD	

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

 3-21-11
SIGNATURE OF APPLICANT DATE

SIGNATURE OF AGENT DATE

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

Block 18. Nature of Activity

The project involves the replacement of the existing signalized intersection with a modern roundabout at the intersection of Routes 82 and 85 in Salem, Connecticut. This action is expected to significantly reduce the number of head-on turning accidents at the intersection as well as at the driveway to a gas station located on Route 85 immediately south of Route 82. The proposed roundabout consists of a single lane with auxiliary lanes on both the Route 85 northbound and the Route 82 eastbound approaches. Two lane approaches on those legs are necessary to accommodate the heavy volumes of traffic to and from the nearby terminus of Route 11.

The additional lane on the Route 85 northbound approach will be carried through the entry into the circulatory roadway, but will continue only as far as the exit to Route 85 northbound. The additional lane on the Route 82 eastbound approach will be a right turn lane, providing a dedicated lane for southbound traffic from Route 11 turning right onto Route 85 southbound. The majority of the circulatory roadway will consist of a single lane.

Head-on turning conflicts at the intersection will be eliminated with the roundabout configuration. At the gas station driveway, the head-on turning conflict problem will be alleviated in two ways due to the reduced delays associated with a roundabout compared to the existing signal; the northbound queue is not expected to extend as far south as the southern gas station driveway under normal conditions, greatly reducing the potential for turns made with restricted sightlines – the “peek-a-boo” type accidents that frequently occur today; and a southbound left turn lane on Route 85, at the driveway, will provide a safe haven for left turning vehicles.

Under the existing conditions the tractor-trailers delivering fuel to the Henny Penny gas station have no alternative but to back out of the gas station to exit, upon completing their fuel delivery. It is proposed to reconstruct Henny Penny’s driveway to provide adequate room for the tractor trailer to turn around within the parking lot and driveway

This project primarily involves adjustments to existing roadway stormwater drainage systems. Drainage system will be adjusted and new catch basins will be installed due to roadway widening and installed raised median islands. Approximately 130 ft of an unnamed watercourse that flows through the Henny Penny property on the southeast corner of the intersection will need to be relocated due to roadway widening and grading.

This project will involve work on a portion of Route 82 within the FEMA Flood Zone Boundary for Harris brook. This work will involve raising the intersection by 2 feet. This will raise the intersection out of the floodplain. There will be no any adverse impact to the floodplain as a result of the proposed improvements.

Block 19. Project Purpose

The primary purpose of this project is to address safety at the intersection of Route 82 and Route 85. With the termination of the Route 11 expressway at Route 82 (one mile west of the intersection), Route 85 provides the primary connection between Route 11 in Salem and I-95 in Waterford, resulting in heavy traffic volumes through the intersection.

The high traffic volumes contribute to a high accident frequency at the intersection. The intersections of Routes 82 and 85, and Route 85 at the Henny Penny gas station driveway on the southern approach are on the SLOSSS list. At the intersection the predominant accident patterns are head-on turning collisions between northbound Route 85 vehicles turning left onto Route 82 and southbound Route 85 traffic. At the driveway, various types of accidents exist between Route 85 southbound traffic turning left into the gas station and Route 85 northbound traffic.

Construction is planned to start in the spring of 2012 and is expected to take one year.

Block 20. Reason for Discharge

The proposed roadway improvements will require the placement of fill or drainage appurtenances in wetlands at several locations along the project. There are 4 wetland sites that will be affected by the proposed construction (see attached plans). Roadway construction involves placing clean fill material along the existing roadway to widen embankments to accommodate the widening. Site 3 will require relocating an overflow channel of an unnamed watercourse due to the roadway widening. The existing storm drainage along the roadway will be replaced to accommodate the reconfigured intersection. Riprap will be installed at the stormwater outlets for erosion protection.

Block 21. Types of Material Being Discharged and the Amount of Each Type in Cubic Yards.

Wetland Site No.	1	2	3	4	Project Total
Area (ac)	0.028	0.077	0.021	0.077	0.204
Clean Fill (cy)	43	110	15	199	324
Exc. (cy)	91	122	3	3	25
Riprap (cy)	2	8.8	20.3	12.1	43.2
Gran. Fill (cy)	1	3.3	10.2	6.1	20.6

Block 22. Surface Areas of Wetlands or Other Waters Filled

Site No. 1

Site No. 1 (0.028 impacted acres) , located north of the intersection on the west side of Route 85, consists of wetland area located at the toe of the existing embankments supporting Route 85. The wetlands are associated with Harris brook. Wetlands at this site contain a mix of low growing thick vegetation mixed with trees.

This site is a palustrine forested wetland associated with Harris Brook that has an overstory dominated by red maple (*Acer rubrum*). The understory is dominated by American elm (*Ulmus americana*), American elder (*Sambucus canadensis*), common winterberry (*Ilex verticillata*), arrowwood (*Viburnum dentatum*), highbush blueberry (*Vaccinium corymbosum*), swamp dogwood (*Cornus amomum*) and the invasive species Oriental bittersweet (*Celastrus orbiculatus*), and the herbaceous layer includes sensitive fern (*Onoclea sensibilis*) and goldenrod (*Solidago spp.*). The sliver of wetland that would be impacted by the project is located at the toe of the existing fill slope for Route 85 and also includes the drier species black cherry (*Prunus serotina*). These proposed impacts total 1231 s.f and are associated with an extension of the fill slope to accommodate the proposed roadway widening at this site.

A portion of wetland site 1 will be filled with a clean material by extension of the side slopes to facilitate roadway widening. There will also be a new 12" drainage outlet constructed with outlet protection in this site. This system will only contain one catch basin. It has also been determined that insitu soils along the left shoulder (Sta: 417+00 to 419+00) are unstable and will be replaced with free draining material.

Site No. 2

Site No. 2 (0.077 impacted acres) consists of a wetland area located at the toe of the existing embankments supporting Route 82 on both sides of the roadway. The wetlands are associated with Harris brook. Wetlands at this site contain a mix of low growing thick vegetation mixed with trees. There is currently a 24" x 42" pipe arch outlet at this site on the south side of Route 82 that discharges roadway runoff as well as flow from an unnamed watercourse. The unnamed watercourse gets captured at the Henny Penny gas station. There is no evidence of a defined channel at this outlet.

The western portion of the sliver of wetland proposed to be impact on the south side of Site 2 is much like that of the north side of Site 2 and Site 1. The eastern portion of this wetland immediately adjacent to the existing culvert outlet is still well vegetated, however, it appears that the vegetation is cut back periodically. This is presumably done to maintain the culvert outlet. Vegetation in the palustrine forested wetland adjacent to the maintained area includes red maple, American elm, black cherry, American elder, winterberry, arrowwood, summersweet (*Clethra alnifolia*) common spicebush (*Lindera benzoin*), specked alder (*Alnus incana*) and black chokeberry (*Aronia melanocarpa*). At and around the culvert, the vegetation is entirely shrubs and herbaceous and consists

mainly of American elder and pasture rose in the shrub layer, grape (*Vitis sp.*) and the invasive Oriental bittersweet in the liana, and sedges in the herbaceous layer.

Impacts to wetland site 2 will include construction of two new culvert ends and fill due to roadway widening. Currently this location consists of only one outlet on the south side of Route 82 that combines runoff from the roadway and the stream flow from an unnamed channel and associated overflow channel which drain under the road from the Henny Penny property. The proposed design will include replacing the existing outlet with two new drainage systems that will be working independently of each other. One system will convey the roadway runoff and the other system will convey the unnamed watercourse. It has also been determined that insitu soils along the shoulders (Sta: 104+75 RT to Sta: 107+75 RT and Sta: 106+75 LT to Sta: 107+75 LT) are unstable and will be over excavated and replaced with additional subbase.

Site No. 3

Wetland site 3 (0.021 impacted acres) consists of a wetland associated with an unnamed watercourse. This watercourse is located at the top of an embankment adjacent to Route 82. Wetlands at this site contain a mix of low growing vegetation mixed with trees. This channel is predominantly dry, but in times of high flow it conveys the overflow from the main channel, which is also a small, unnamed watercourse. It should also be noted that the present location of the overflow channel is artificial and appears to have been designed around nearby development.

Vegetation along the channel and the new alignment that constitutes the impact area is dominated by herbaceous species and maintained shrubs and small saplings, including red maple, American elm, American elder, arrowwood, the invasive multiflora rose (*Rosa multiflora*), grape, jewelweed (*Impatiens capensis*), spiraea, goldenrod (*Solidago spp.*) and aster (*Aster sp.*)

Impacts at wetland site 3 involve relocating the small unnamed watercourse. This watercourse will need to be relocated due to impacts from roadway widening. New riprap will be installed along the length of the relocated channel.

Site No.4

Site No. 4 (.07 impacted acres) consists a of wetland area located at the toe of the existing embankments supporting Route 85 on both sides of the roadway. Wetlands at this site contain a mix of low growing thick vegetation mixed with trees. The wetland on the east side of Route 85 is a small pocket due to a roadside swale. The wetlands on the west side of 85 are associated with Harris Brook. There is currently a 15" cross culvert that outlets the roadside swale into the wetland associated with Harris brook.

The west side of this site is a palustrine wetland associated with Harris Brook and potentially with Frasier Brook, its tributary from the east. Vegetation along this sliver of wetland is modified by maintenance activities near the road and mature beyond that

point. Throughout both the maintained section and the natural section, vegetation is dominated by red maple, winterberry, summersweet, elderberry, arrowwood, silky dogwood, chokeberry and common spicebush

The swale on the east side of the site appears to be artificially created, but it has hydric soils and predominantly woody wetland vegetation immediately surrounding it, including highbush blueberry, common spicebush, winterberry and arrowwood. Also present are the upland species black cherry, red oak (*Quercus rubra*), sassafras (*Sassafras albidum*), and greenbrier (*Smilax rotundifolia*). At the toe of the swale, the wetland opens up to an herbaceous patch that appears to be exclusively phragmites (*Phragmites australis*).

A portion of wetland site 4 will be filled with a clean material by extension of the side slopes to facilitate roadway widening and the construction of drainage outlets. The existing 15" cross culvert that is located south of the intersection on Route 85 will be extended several feet and upsized to 24" to account for additional drainage needs, culvert ends will be replaced, and a new splash pad constructed for erosion protection. There will also be a new 18" drainage outlet constructed with outlet protection on the west side of this site. Wetland site 4 will include 150 and 100 foot long vegetative swales constructed at the toe of the slope.

Block 23. Description of Avoidance, Minimization, and Compensation

The location of this project made it difficult to avoid wetland impact and still achieve the operational and safety goals of the project. The wetlands associated with the project are directly adjacent to the roadway due to the roadway originally being constructed on fill. The only way to avoid impacts would be to not construct the project; however this would continue to perpetuate the existing safety concerns at the intersection. Therefore wetland impacts were unavoidable.

A number of design elements were incorporated to minimize the wetland impacts to the greatest extent possible.

- The proposed alignment was tapered into the existing alignment as quick as possible to reduce grading within the wetlands due to roadway widening.
- An R-B terminal section on the guide rail in Wetland Site 2 was used to avoid having to flare the guide rail into the wetlands.
- 2:1 side slopes and guiderail were used adjacent to wetland as opposed to using the standard 4:1 side slopes within the wetlands.
- Roadside grading and side slopes by the mitigation site were minimized to the greatest extent possible to maximize the area available for mitigation.
- Drainage outlets were placed as close to the road as possible to minimize impacts.

Wetland Mitigation

The Department of Transportation's Office of Environmental Planning has recommended using the former Bad Boyz Toyz site on the northwest corner of the intersection for mitigation at an approximate ratio of 3 to 1. This site is known to be contaminated and will be cleaned up prior to proceeding with a mitigation plan. The total site mitigation area is approximately 0.627 acres (27,300 sf).

Plantings

The plan for the restoration site is to restore it in-kind with the adjacent palustrine shrub swamp since, presumably that is what it looked and functioned like before it was originally impacted. The adjacent wetland is a very low-lying area that is often flooded, yet it has well-established vegetation with few open patches. The proposed mitigation, like the adjacent wetland, will be dominated by shrubs that can tolerate a lot of inundation, with more sparse trees planted throughout. Proposed species are red maple (*Acer rubrum*), black willow (*Salix nigra*), buttonbush (*Cephalanthus occidentalis*), American elder (*Sambucus canadensis*), black chokeberry (*Aronia melanocarpa*), silky dogwood (*Cornus amomum*), winterberry (*Ilex verticillata*), swamp azalea (*Rhododendron viscosum*), highbush blueberry (*Vaccinium corymbosum*), and arrowwood (*Viburnum dentatum*). A grading and planting plan is included with this permit application.

To account for impact to the overflow channel at Site 3, this channel will be recreated immediately adjacent to its old location. The proposed channel will be lined with riprap to continue to sustain the current overflow velocities, and the sides of the channel as well as the newly impacted roadway embankment will be planted with native woody species. These include red maple, black chokeberry, arrowwood, shadblow serviceberry (*Amelanchier canadensis*) and sweet pepperbush (*Clethra alnifolia*).

In addition to the above restoration efforts, all temporary impact areas will be replanted with appropriate native species. Plantings at Site 1 will consist of black chokeberry, American elder and arrowwood. At Site 2, plantings will consist of black chokeberry, American elder, arrowwood, and shadblow serviceberry. At Site 4, plantings will consist of red maple, shadblow serviceberry, black chokeberry, American elder, arrowwood, northern bayberry (*Myrica pensylvanica*) and sweet fern (*Comptonia peregrina*).

Educational Signing

Educational signing related to wetlands and the Eightmile River watershed are proposed along the sidewalk that runs adjacent to the mitigation area.

Block 25. Names and Addresses of Adjoining Property Owners, Lessees, etc., Whose Property Adjoins the Project Site

Name: Salem Town Center, LLC
Address: 1 New London Road
City/Town: Salem, CT 06420
Mailing address: 134 Boston Post Road Old Saybrook, CT 06475

Name: Mantis, LLC
Address: 595 Norwich Road
City/Town: Salem, CT 06420
Mailing address: *same*

Name: F&R, LLC
Address: 12 New London Road
City/Town: Salem, CT 06420
Mailing address: *same*

Name: Tina M. Claffin
Address: 23 Norwich Road
City/Town: Salem, CT 06420
Mailing address: *same*

Name: Jeffrey Eldridge
Address:
City/Town:
Mailing address: 226 SW 180th Ave. Pembroke Pines, FL 33029

Name: B & D Salem Realty, LLC
Address: 1 New London Road
City/Town: Salem, CT 06420
Mailing address: PO Box 8062 Manchester, CT 06040

Name: Linda F. Phillips
Address: 1 Hartford Rd
City/Town: Salem, CT 06420
Mailing Address: 1650 Route 85 Oakdale, CT 06370

Name: Charles F. Dimmock, Jr.
Address:
City/Town:
Mailing Address: 11 Hagen Road Salem, CT 06420

Name: Hendels Investors Corp.
Address: 2 New London Road
City/Town: Salem, CT 06420
Mailing Address: 35 Great Neck Road Waterford, CT 06385

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: DOT #120-86, Proposed roundabout at Routes 82 and 85 City/County: Salem Sampling Date: 10/18/2010
 Applicant/Owner: Connecticut Department of Transportation State: CT Sampling Point: TPW-sta 306+50
 Investigator(s): Kim Lesay, Amanda Freitas Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): roadway fill toe slope / adjacent flat, low-lying area Local relief (concave, convex, none): concave
 Slope (%): +/-0 Lat: 41.475N (decimal degrees) Long: -72.263W Datum: NAD 83
 Soil Map Unit Name: Scarboro Muck NWI classification: PFO1E
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)	
<p>The site map shows a horizontal line representing Route 85. A sampling point is marked with a circle and 'X' at the top right, with a line pointing to the text 'TPW & TPU at Sta. 306+50'. Below the route line, there are several 'X' marks and arrows indicating a transect or specific features. A north arrow points towards the top right of the map.</p>	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Water-Stained Leaves (B9) ___ High Water Table (A2) ___ Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) ___ Marl Deposits (B15) ___ Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8) ___ Other (Explain in Remarks)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>4"</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION – Use scientific names of plants.

Sampling Point: TPW-sta 306+50

<u>Tree Stratum</u> (Plot size: <u>30' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>red maple (Acer rubrum)</u>	90	Y	FAC*	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
<u>90</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>common winterberry (Ilex verticillata)</u>	75	Y	FACW*		Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>common spicebush (Lindera benzoin)</u>	15	N	FACW*		
3. <u>swamp azalea (Rhododendron viscosum)</u>	15	N	OBL*		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
<u>105</u> = Total Cover				Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.	
<u>Herb Stratum</u> (Plot size: <u>5' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>royal fern (Osmunda regalis)</u>	20	Y	OBL*		Hydrophytic Vegetation Present? Yes <u>X</u> No _____ ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>arrowwood (Viburnum dentatum)</u>	10	Y	FAC*		
3. <u>green ash (Fraxinus pennsylvanica)</u>	5	N	FACW*		
4. <u>common greenbrier (Smilax rotundifolia)</u>	Trace	N	FAC*		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
<u>35</u> = Total Cover					
<u>Woody Vine Stratum</u> (Plot size: <u>30' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
<u>0</u> = Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: TPW-sta 306+50

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4 (A)	10YR 2/1	100					mucky loam	
4-7 (A)	10YR 2/1	85	2.5Y 5/6	15	C	M	mucky loam	
7-12+ (B)	5Y 5/1	85	2.5Y 5/6	15	C	M	fine sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

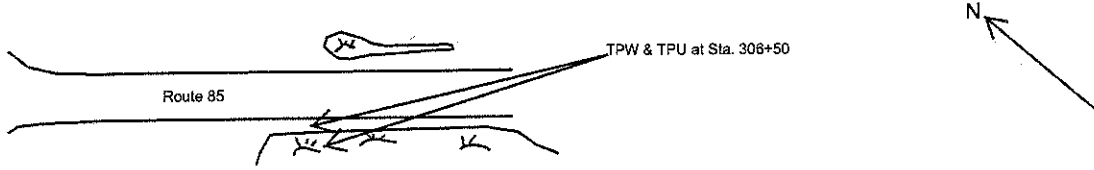
Project/Site: DOT #120-86, Proposed roundabout at Routes 82 and 85 City/County: Salem Sampling Date: 10/18/2010
 Applicant/Owner: Connecticut Department of Transportation State: CT Sampling Point: TPU-sta 306+50
 Investigator(s): Kim Lesay, Amanda Freitas Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): roadway fill toe slope / adjacent flat, low-lying area Local relief (concave, convex, none): none
 Slope (%): 20+/- Lat: 41.475N (decimal degrees) Long: -72.263W Datum: NAD 83
 Soil Map Unit Name: Canton and Charlton Soils NWI classification: PFO1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil , or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) RE: Disturbance Soils consist of the fill embankment for the roadway, but the fill embankment is not the high point in the landscape. The eastern side of Route 85 grades upward, and the natural drainage is from east to west toward the subject wetland on the west side of Route 85.	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: 	

VEGETATION – Use scientific names of plants.

Sampling Point: TPU-sta 306+50

<u>Tree Stratum</u> (Plot size: <u>30' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>red maple (Acer rubrum)</u>	30	Y	FAC*	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>30</u> = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15' radius</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>slippery elm (Ulmus rubra)</u>	15	Y	FAC*	
2. <u>black cherry (Prunus serotina)</u>	15	Y	FACU	
3. <u>common spicebush (Lindera benzoin)</u>	5	N	FACW*	
4. <u>common elder (Sambucus canadensis)</u>	5	N	FACW*	
5. <u>arrowwood (Virburnum dentatum)</u>	5	N	FAC*	
6. <u>common buttonbush (Cephalanthus occidentalis)</u>	5	N	OBL*	
7. _____	_____	_____	_____	
<u>50</u> = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>5' radius</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>poison ivy (Toxicodendron radicans)</u>	10	Y	FAC*	
2. <u>deer tongue grass (Dichanthelium clandestinum)</u>	10	Y	FAC*	
3. <u>common greenbrier (Smilax rotundifolia)</u>	10	Y	FAC*	
4. <u>meadow-sweet (Spiraea latifolia)</u>	5	N	FAC*	
5. <u>common mugwort (Artemisia vulgaris)</u>	5	N	NI	
6. <u>goldenrod (Solidago sp.)</u>	5	N	sp. unknown	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
<u>45</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>30' radius</u>)				Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: DOT #120-86, Proposed roundabout at Routes 82 and 85 City/County: Salem Sampling Date: 10/18/2010
 Applicant/Owner: Connecticut Department of Transportation State: CT Sampling Point: TPW-sta 407+60
 Investigator(s): Kim Lesay, Amanda Freitas Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): swale along toe of roadway embankment/stone wall Local relief (concave, convex, none): concave
 Slope (%): +/-0 Lat: 41.475N (decimal degrees) Long: -72.263W Datum: NAD 83
 Soil Map Unit Name: Canton and Charlton Soils NWI classification: PFO1E (not mapped)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Water-Stained Leaves (B9) ___ High Water Table (A2) ___ Aquatic Fauna (B13) ___ Saturation (A3) ___ Marl Deposits (B15) ___ Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: TPW-sta 407+60

Tree Stratum (Plot size: <u>30' radius</u>)		Absolute % Cover	Dominant Species?	Indicator Status
1.	tulip tree (<i>Liriodendron tulipifera</i>)	30	Y	FACU
2.	red oak (<i>Quercus rubra</i>)	20	Y	FACU
3.	sugar maple (<i>Acer saccharum</i>)	10	N	FACU
4.	black cherry (<i>Prunus serotina</i>)	5	N	FACU
5.				
6.				
7.				
		65	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15' radius</u>)		Absolute % Cover	Dominant Species?	Indicator Status
1.	common winterberry (<i>Ilex verticillata</i>)	20	Y	FACW*
2.	arrowwood (<i>Viburnum dentatum</i>)	20	Y	FAC*
3.	common greenbrier (<i>Smilax rotundifolia</i>)	10	N	FAC*
4.	highbush blueberry (<i>Vaccinium corymbosum</i>)	5	N	FACW*
5.	common spicebush (<i>Lindera benzoin</i>)	5	N	FACW*
6.	sassafras (<i>Sassafras albidum</i>)	Trace	N	FACU
7.	ironwood (<i>Carpinus caroliniana</i>)	Trace	N	FAC*
		60	= Total Cover	
Herb Stratum (Plot size: <u>5' radius</u>)		Absolute % Cover	Dominant Species?	Indicator Status
1.	cinnamon fern (<i>Osmunda cinnamomea</i>)	25	Y	FACW*
2.	New York fern (<i>Thelypteris noveboracensis</i>)	10	N	FAC*
3.	slippery elm (<i>Ulmus rubra</i>)	5	N	FACW*
4.	common greenbrier (<i>Smilax rotundifolia</i>)	Trace	N	FAC*
5.	poison ivy (<i>Toxicodendron radicans</i>)	Trace	N	FAC*
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		40	= Total Cover	
Woody Vine Stratum (Plot size: <u>30' radius</u>)		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
		0	= Total Cover	

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
 Total Number of Dominant Species Across All Strata: 5 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species _____ x 1 = _____
 FACW species _____ x 2 = _____
 FAC species _____ x 3 = _____
 FACU species _____ x 4 = _____
 UPL species _____ x 5 = _____
 Column Totals: _____ (A) _____ (B)
 Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
 Rapid Test for Hydrophytic Vegetation
 Dominance Test is >50%
 Prevalence Index is $\leq 3.0^1$
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:
Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: TPW-sta 407+60

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10 (A)	2.5Y 3/1	100					fine sandy loam	
10-14 (B)	2.5Y 4/2	80	7.5YR 4/6	15	C	M	fine sandy loam	
			7.5YR 4/6	5	C	PL		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	<input type="checkbox"/> Red Parent Material (TF2)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			
<input type="checkbox"/> Sandy Redox (S5)			
<input type="checkbox"/> Stripped Matrix (S6)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes X No _____

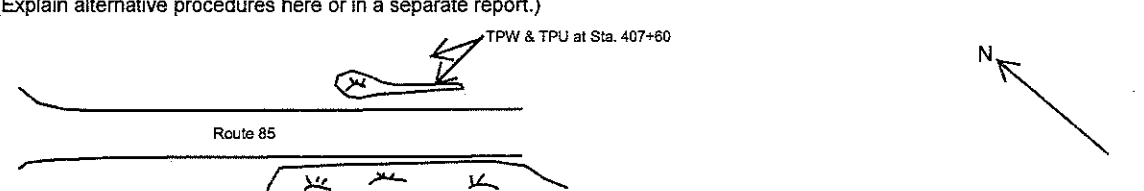
Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: DOT #120-86, Proposed roundabout at Routes 82 and 85 City/County: Salem Sampling Date: 10/18/2010
 Applicant/Owner: Connecticut Department of Transportation State: CT Sampling Point: TPU-sta 407+60
 Investigator(s): Kim Lesay, Amanda Freitas Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope beyond swale along toe of roadway embankment Local relief (concave, convex, none): concave
 Slope (%): +/-5 Lat: 41.475N (decimal degrees) Long: -72.263W Datum: NAD 83
 Soil Map Unit Name: Canton and Charlton Soils NWI classification: PFO1E (not mapped)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) <div style="text-align: center; margin-top: 10px;">  </div>	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Water-Stained Leaves (B9) ___ High Water Table (A2) ___ Aquatic Fauna (B13) ___ Saturation (A3) ___ Marl Deposits (B15) ___ Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: TPU-sta 407+60

<u>Tree Stratum</u> (Plot size: <u>30' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. tulip tree (<i>Liriodendron tulipifera</i>)	30	Y	FACU	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25</u> (A/B)
2. red oak (<i>Quercus rubra</i>)	20	Y	FACU	
3. black cherry (<i>Prunus serotina</i>)	15	N	FACU	
4. white oak (<i>Quercus alba</i>)	10	N	FACU	
5. sugar maple (<i>Acer saccharum</i>)	10	N	FACU	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>85</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15' radius</u>)				
1. black cherry (<i>Prunus serotina</i>)	20	Y	FACU	
2. choke cherry (<i>Prunus virginiana</i>)	10	Y	FACU	
3. highbush blueberry (<i>Vaccinium corymbosum</i>)	10	Y	FACW*	
4. ironwood (<i>Carpinus caroliniana</i>)	10	Y	FAC*	
5. sugar maple (<i>Acer saccharum</i>)	10	Y	FACU	
<u>60</u> = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>5' radius</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. wild sarsaparilla (<i>Aralia nudicaulis</i>)	30	Y	FACU	
2. New York fern (<i>Thelypteris noveboracensis</i>)	5	N	FAC*	
3. white oak (<i>Quercus alba</i>)	Trace	N	FACU	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
<u>35</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>30' radius</u>)				Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Hydrophytic Vegetation Present? Yes _____ No <u>X</u> _____				

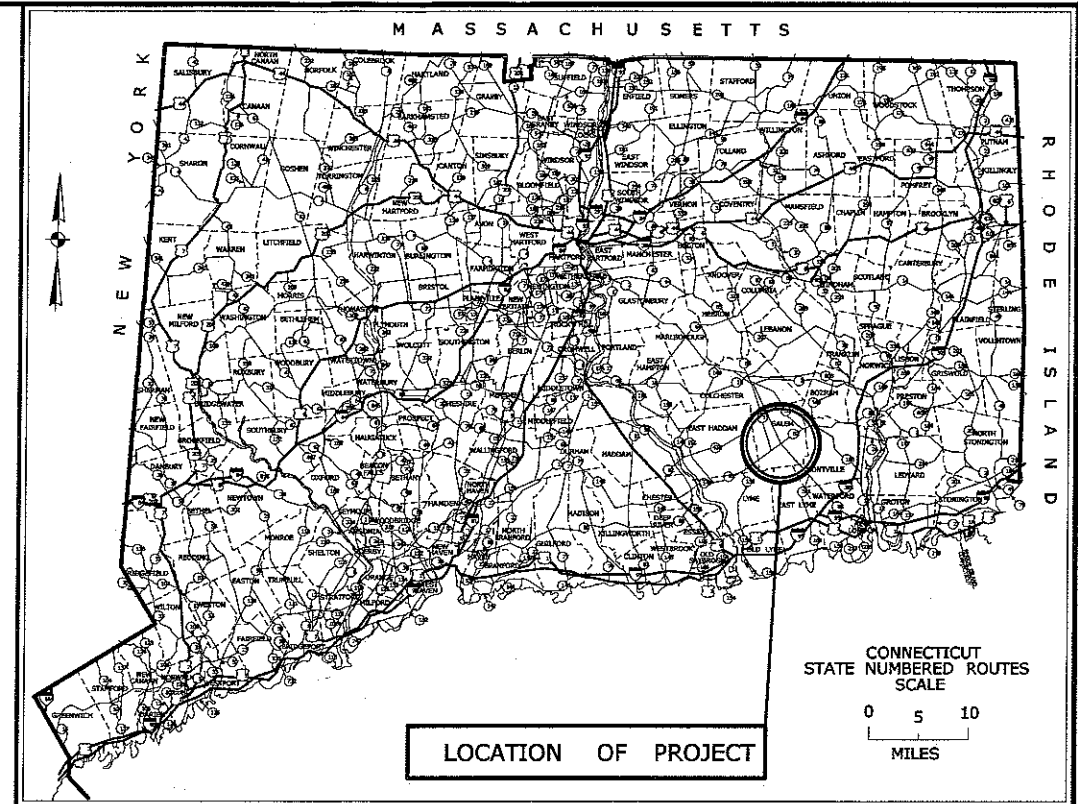
Remarks: (Include photo numbers here or on a separate sheet.)

Attachment A: Plan Sheets

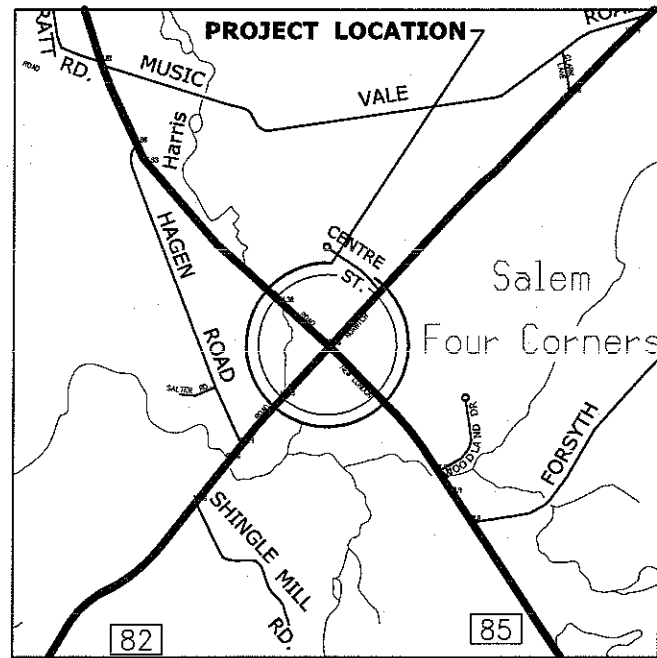
GENERAL NOTES:

1. THESE PLANS ARE INTENDED ONLY FOR EROSION AND SEDIMENTATION CONTROL PURPOSES. FOR ALL OTHER PLANIMETRIC INFORMATION REFER TO THE CONSTRUCTION, GEOMETRY, AND DRAINAGE PLANS.
2. THE CONTRACTOR SHALL PREPARE EROSION AND SEDIMENTATION CONTROL PLANS BASED ON THESE CONTRACT DRAWINGS AND THE STORMWATER POLLUTION CONTROL PLAN, IN ACCORDANCE WITH SECTION 1.10 ENVIRONMENTAL COMPLIANCE, INCLUDING BEST MANAGEMENT PRACTICES. AS SPECIFIED, THE PLANS SHALL BE CONSISTENT IN ALL RESPECTS WITH THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL, AND WITH CONNDOT'S ON-SITE MITIGATION FOR CONSTRUCTION ACTIVITIES. THE PLANS SHALL INCLUDE DETAILS OF THE PROPOSED SYSTEMS.
3. IN ALL CASES, THE CONTRACTOR SHALL IMPLEMENT STABILIZATION MEASURES AS SOON AS POSSIBLE AFTER ANY SOIL DISTURBANCE. WHERE CONSTRUCTION ACTIVITIES HAVE BEEN PERMANENTLY CEASED OR HAVE TEMPORARILY BEEN SUSPENDED FOR MORE THAN SEVEN DAYS, OR WHEN FINAL GRADES ARE REACHED IN ANY PORTION OF THE SITE, STABILIZATION PRACTICES SHALL BE IMPLEMENTED WITHIN THREE DAYS. TEMPORARY STABILIZATION MEASURES MAY INCLUDE MULCHING AND TRACKING AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD FOR "TEMPORARY SEEDING". AREAS THAT WILL REMAIN DISTURBED BUT INACTIVE FOR 30 DAYS OR MORE SHALL BE STABILIZED WITHIN THE FIRST SEVEN DAYS OF THAT PERIOD, THE CONTRACTOR SHALL COMPLY AT ALL TIMES WITH THE REQUIREMENTS OF SECTION 1.10.
4. ALL EXISTING AND PROPOSED DRAINAGE PIPES, CATCH BASINS, AND MANHOLES CARRYING DRAINAGE FROM WITHIN THE PROJECT LIMITS THAT WILL REMAIN IN USE UPON PROJECT COMPLETION SHALL BE CLEANED IN ACCORDANCE WITH SECTION 6.53.
5. SEDIMENTATION CONTROL SYSTEMS THAT MUST BE PLACED PRIOR TO ANY ADJACENT WORK ARE NOTED "PHASE I". SEDIMENT CONTROL SYSTEMS THAT MUST BE PLACED AFTER GRADING OPERATIONS ARE NOTED "PHASE II"
6. A MINIMUM OF 6", AFTER TAMPING, OF TOPSOIL SHALL BE PLACED TO FINISHED GRADE IN ALL AREAS OF TURF ESTABLISHMENT, IN ACCORDANCE WITH SECTION 9.44. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD FOR "FURNISHING AND PLACING TOPSOIL".
7. FOR A DESCRIPTION OF THE WATERCOURSES, WETLANDS AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE PERMIT APPLICATION
8. ALL WORK TO CONSTRUCT THE WATER TREATMENT FACILITY WILL BE PERFORMED IN ADVANCE OF THIS PROJECT (120-86). WORK WILL BE PERFORMED UNDER PROJECT 120-87. NO REGULATED AREAS WILL BE IMPACTED UNDER PROJECT 120-87.

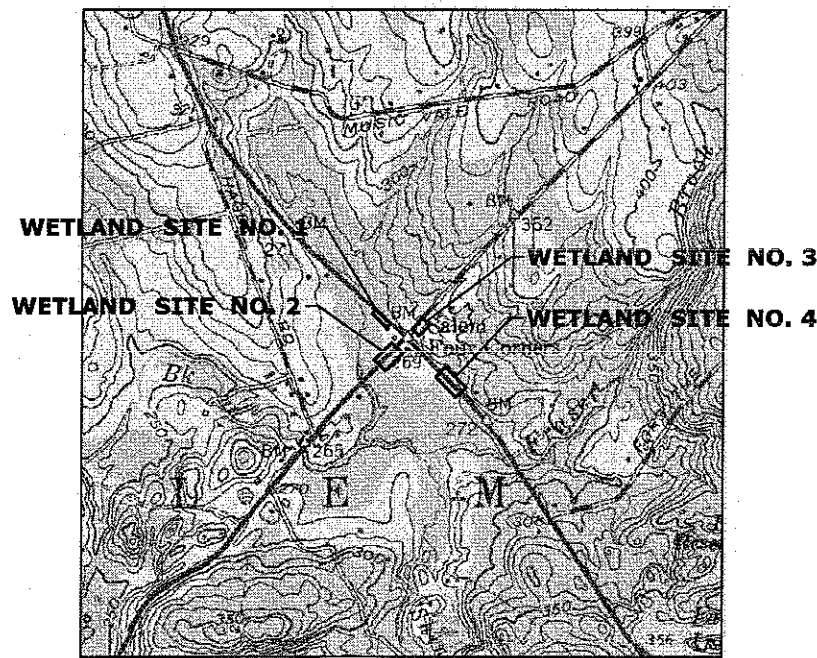
**ENVIRONMENTAL PERMIT PLANS
STATE PROJECT 120-86
ROUNDBOUT AT SALEM FOUR CORNERS
TOWN OF SALEM**



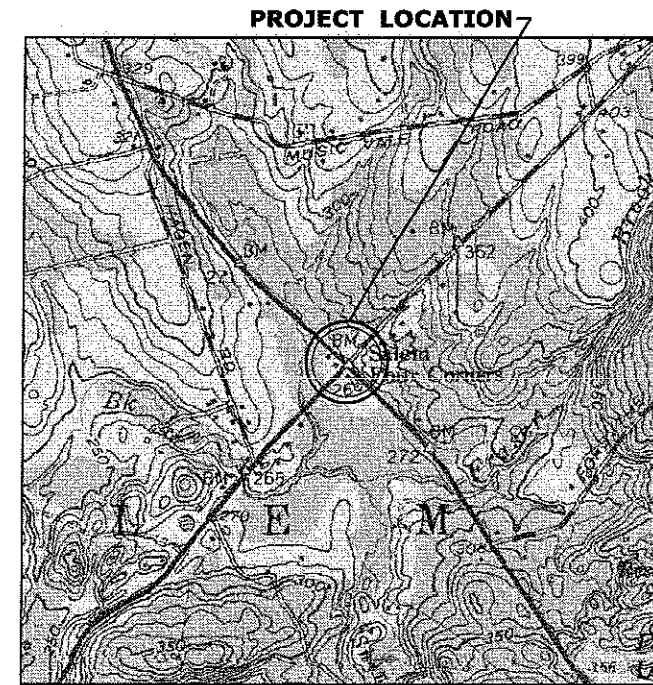
ALL ELEVATIONS ON THIS PROJECT BASED ON NGVD OF 1929
COORDINATES BASED ON CONNECTICUT COORDINATE SYSTEM NAD 1983



**LOCATION MAP
SCALE 1" = 1000'**



**INDEX SHEET OF WETLAND SITES
SCALE 1" = 1000'**



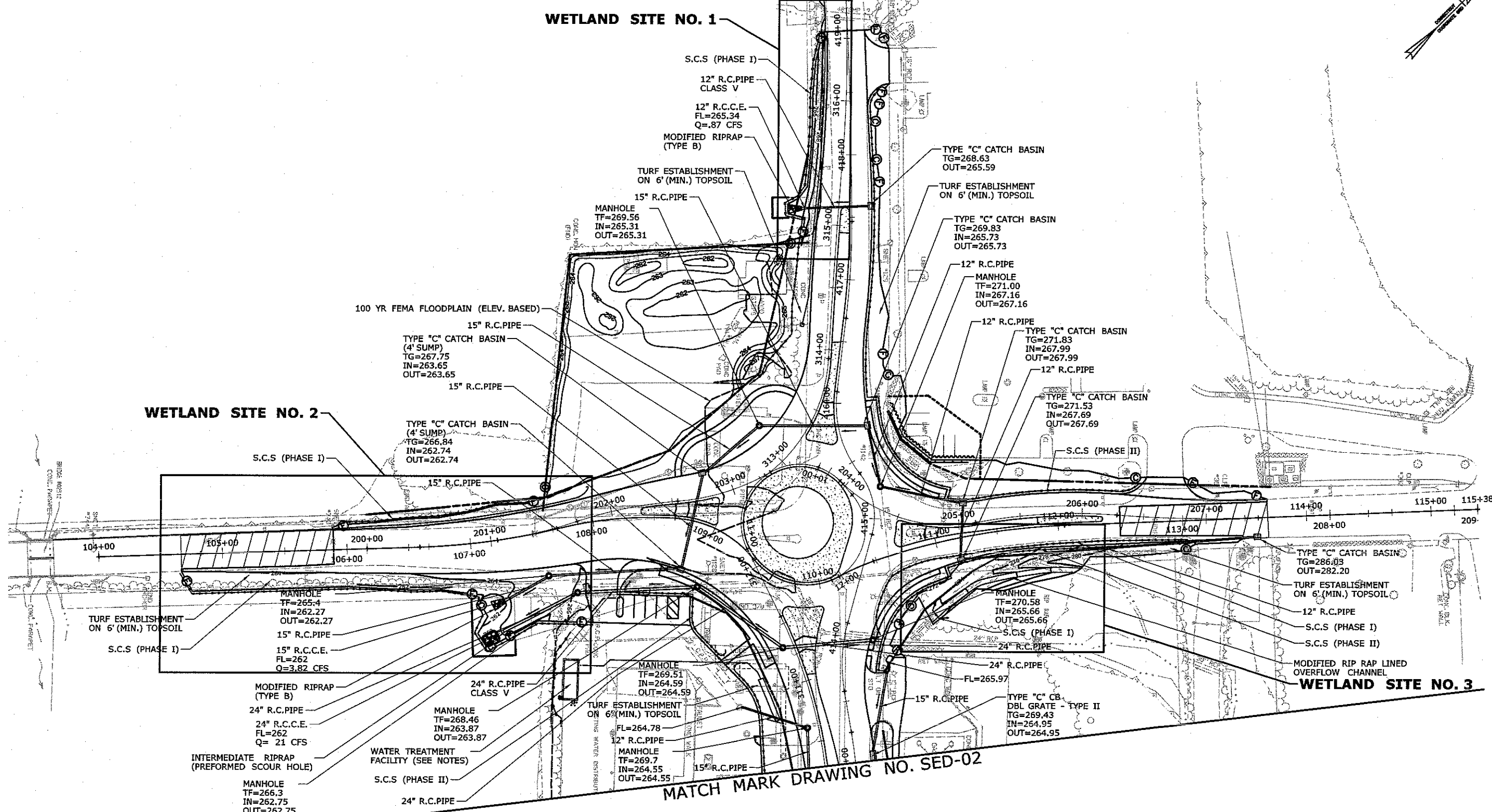
**USGS QUADRANGLE TOPOGRAPHIC MAP
USGS QUAD MAP 85
HAMBURG QUADRANGLE
7.5 MINUTE SERIES
SCALE 1" = 1000'**

DEPARTMENT OF ENVIRONMENTAL PROTECTION PLAN REVISION BLOCK					
WETLAND SITE NO.	APPLICANT NAME	ORIGINAL SUBMISSION DATE	REVISION DATE	REVISION DESCRIPTION	REVISION NUMBER

DESIGNER/DRAFTER: JNT	<p align="center">STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>	SIGNATURE/ BLOCK: OFFICE OF ENGINEERING	PROJECT TITLE: ROUNDBOUT AT SALEM FOUR CORNERS	TOWN: SALEM	PROJECT NO. 120-86
CHECKED BY: BKK		APPROVED BY: _____ DATE: _____	DRAWINGS TITLE: E&S/PERMIT PLAN	DRAWING NO. SED - 01	SHEET NO. \$\$\$
REV. DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 1/31/2011	SCALE AS NOTED	Filename: ...VW_MSH_0120_0086_E&S_Title.dgn

DEPARTMENT OF ENVIRONMENTAL PROTECTION PLAN REVISION BLOCK					
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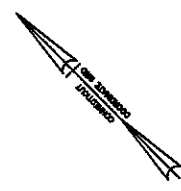
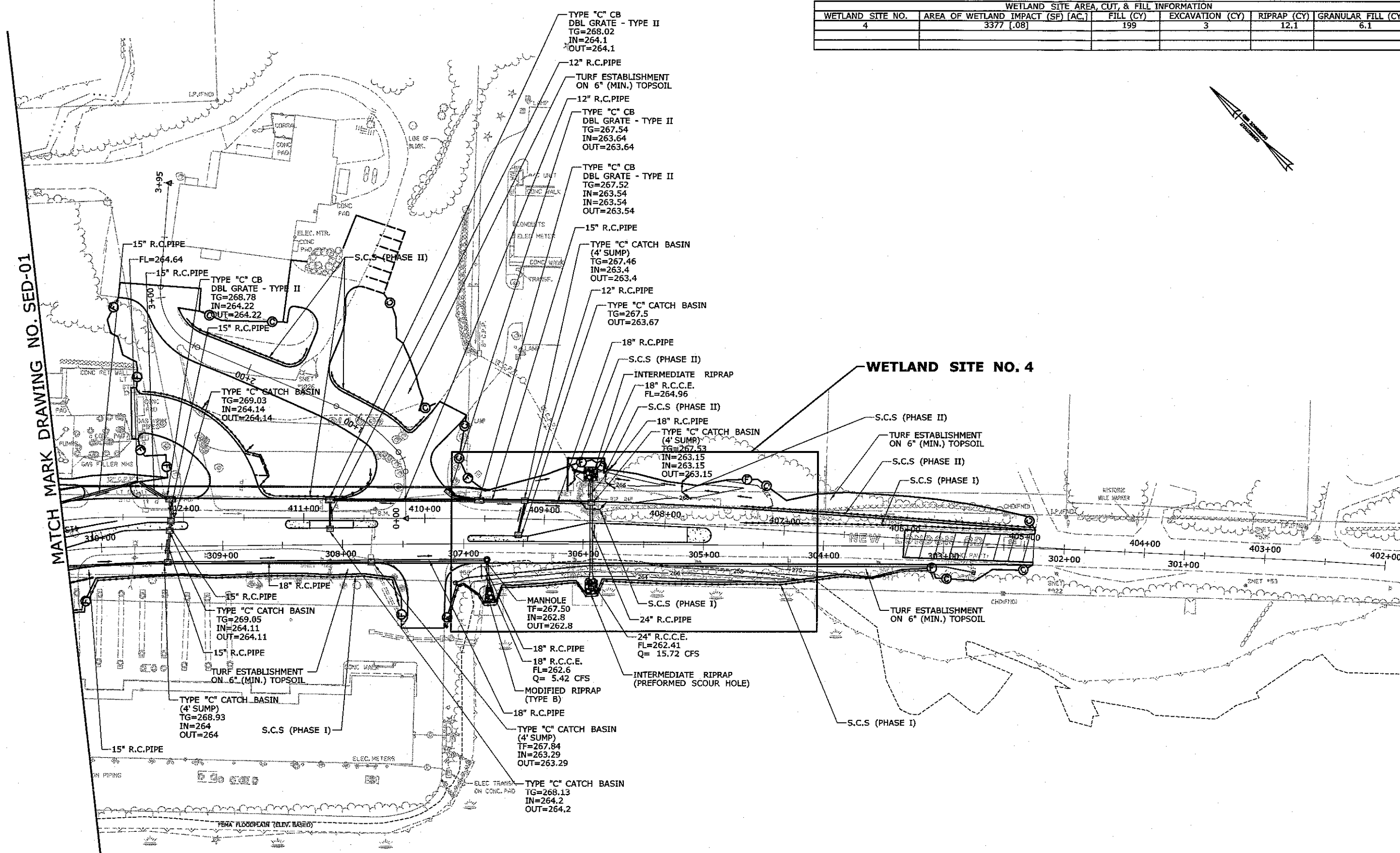
WETLAND SITE AREA, CUT, & FILL INFORMATION					
WETLAND SITE NO.	AREA OF WETLAND IMPACT (SF) [AC.]	FILL (CY)	EXCAVATION (CY)	RIPRAP (CY)	GRANULAR FILL (CY)
1	1231 [.03]	43	91	2	1
2	3353 [.08]	110	122	8.80	3.28
3	900 [.02]	15	3	20.3	10.2



THE INFORMATION INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: JNT CHECKED BY: BKK SCALE IN FEET SCALE 1"=40'	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: OFFICE OF ENGINEERING APPROVED BY: _____ DATE: _____	PROJECT TITLE: ROUNDABOUT AT SALEM FOUR CORNERS	TOWN: SALEM	PROJECT NO.: 120-86 DRAWING NO.: SED-02 SHEET NO.:
REV. DATE REVISION DESCRIPTION SHEET NO.	Plotted Date: 3/11/2011	Filename: ...VHW_MSH_0120_0086_E&S_1.dgn	DRAWING TITLE: E&S/PERMIT PLAN	SHEET NO.:		

WETLAND SITE AREA, CUT, & FILL INFORMATION					
WETLAND SITE NO.	AREA OF WETLAND IMPACT (SF) [AC.]	FILL (CY)	EXCAVATION (CY)	RIPRAP (CY)	GRANULAR FILL (CY)
4	3377 [.08]	199	3	12.1	6.1

MATCH MARK DRAWING NO. SED-01



DEPARTMENT OF ENVIRONMENTAL PROTECTION PLAN REVISION BLOCK					
WETLAND SITE NO.	APPLICANT NAME	ORIGINAL SUBMISSION DATE	REVISION DATE	REVISION DESCRIPTION	REVISION NUMBER

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

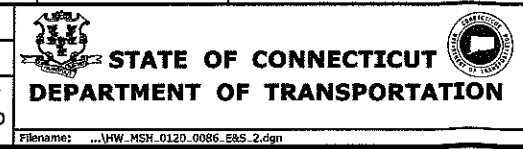
THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

DESIGNER/DRAFTER:
JNT

CHECKED BY:
BKK

SCALE IN FEET
0 40 80
SCALE 1"=40'

Plotted Date: 3/9/2011



SIGNATURE/BLOCK:
OFFICE OF ENGINEERING

APPROVED BY: _____ DATE: _____

PROJECT TITLE:
ROUNDABOUT AT SALEM FOUR CORNERS

TOWN:
SALEM

DRAWING TITLE:
E&S/PERMIT PLAN

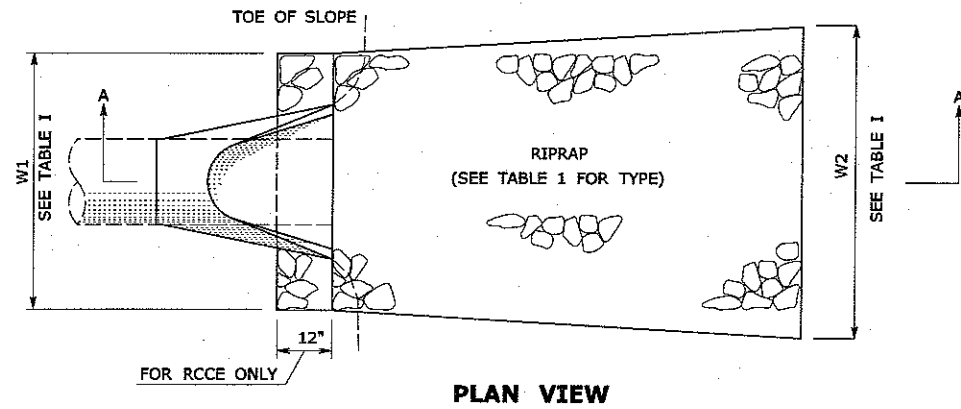
PROJECT NO.:
120-86

DRAWING NO.:
SED-03

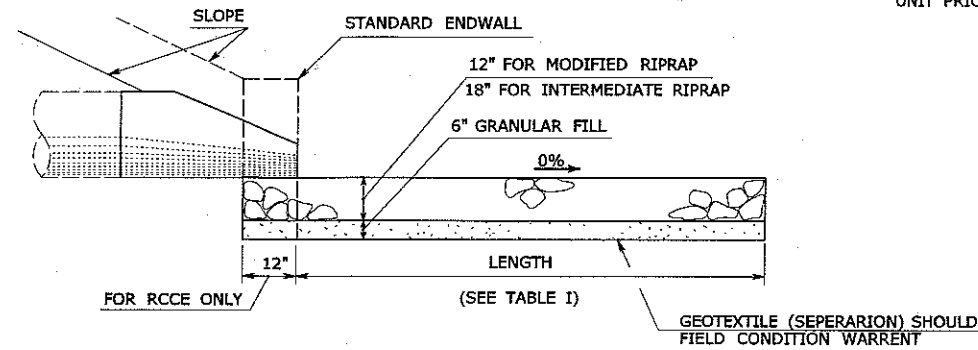
SHEET NO.:

NOTES:

1. RIPRAP APRON TO BE AS FLAT AS POSSIBLE. SIDES OF RIPRAP APRON TO BLEND WITH EXISTING CONTOURS AS POSSIBLE.
2. MODIFIED RIPRAP APRON SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICES FOR CHANNEL EXCAVATION, MODIFIED RIPRAP, AND GRANULAR FILL.
3. MODIFIED RIPRAP PREFORMED SCOUR HOLE SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICES FOR CHANNEL EXCAVATION, MODIFIED RIPRAP, AND GRANULAR FILL.
4. INTERMEDIATE RIPRAP PREFORMED SCOUR HOLE SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICES FOR CHANNEL EXCAVATION, INTERMEDIATE RIPRAP, AND GRANULAR FILL.



PLAN VIEW



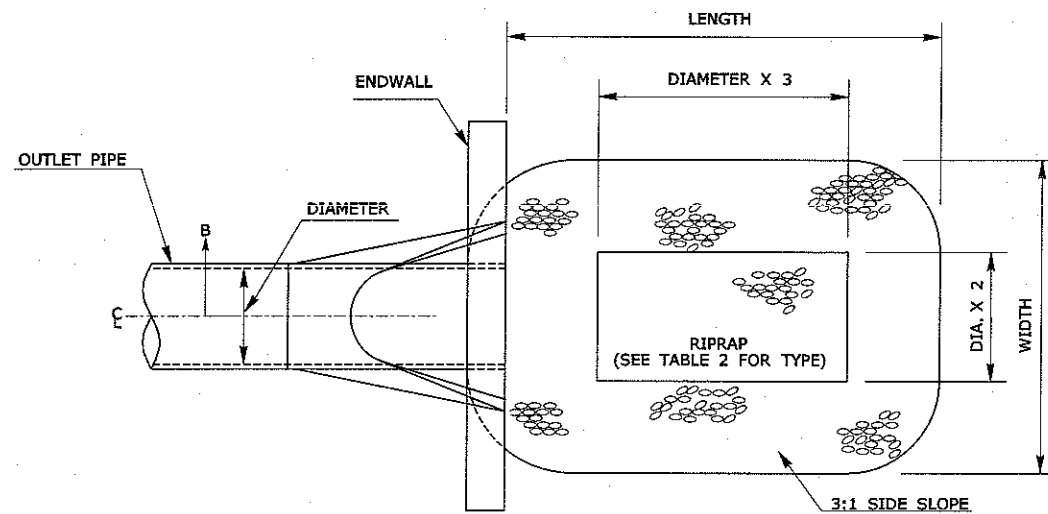
SECTION A-A

TABLE 1: SPLASH PADS

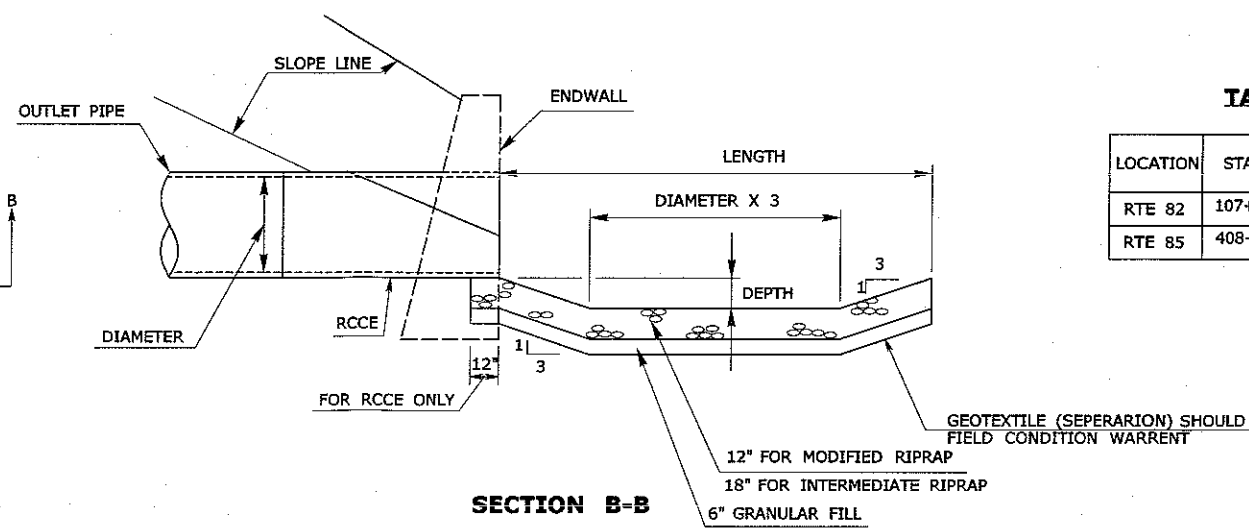
LOCATION	STATION	TYPE	LENGTH	WIDTH		RIP RAP TYPE
				W1	W2	
RTE 82	107+11 RT	B	10'	3.75'	7.75'	MODIFIED
RTE 85	406+48 LT	B	12'	4.5'	9.3'	MODIFIED
RTE 85	417+59 LT	B	10'	3'	7'	MODIFIED

RIPRAP APRON

SEE TABLE 1 FOR LOCATIONS AND DIMENTIONS



PLAN VIEW



SECTION B-B

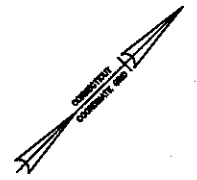
TABLE 2: RIP RAP SCOUR HOLE

LOCATION	STATION	TYPE	LENGTH	WIDTH	DEPTH	RIP RAP TYPE
RTE 82	107+11 RT	1	12'	10'	1'	INTERMEDIATE
RTE 85	408+60 LT	1	12'	10'	1'	MODIFIED

PREFORMED SCOUR HOLE

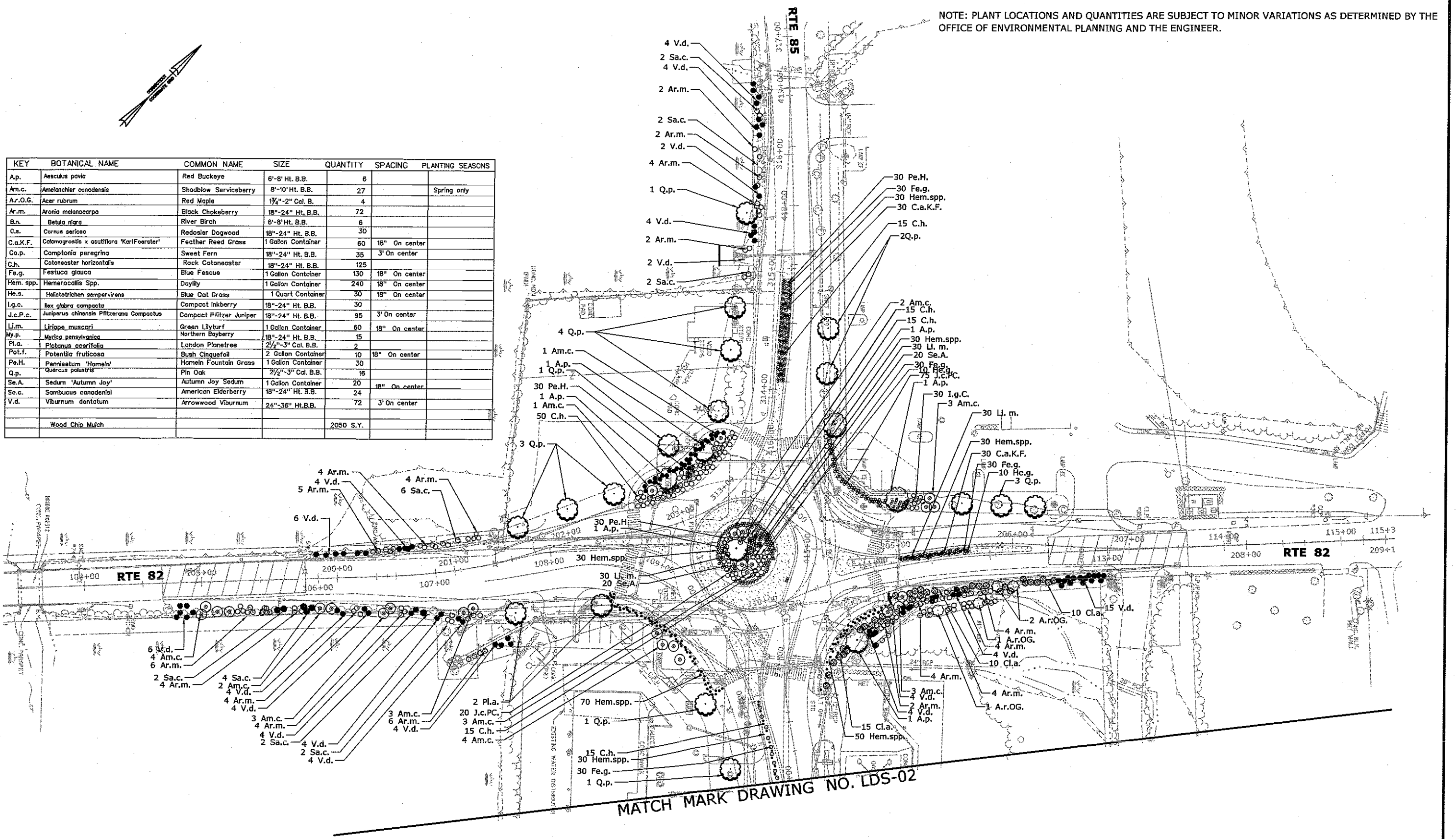
SEE TABLE 2 FOR LOCATIONS AND DIMENTIONS

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: JNT CHECKED BY: BKK NOT TO SCALE	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: OFFICE OF ENGINEERING APPROVED BY: _____ DATE: _____	PROJECT TITLE: ROUNDABOUT AT SALEM FOUR CORNERS	TOWN: SALEM	PROJECT NO. 120-86 DRAWING NO. MDS- SHEET NO.
REV. NO. REVISION DESCRIPTION SHEET NO. Plotted Date: 1/31/2011	FILENAME: ...\\VW.MDS.sheet022 (ripap).dgn	DRAWING TITLE: RIPRAP DETAILS				



NOTE: PLANT LOCATIONS AND QUANTITIES ARE SUBJECT TO MINOR VARIATIONS AS DETERMINED BY THE OFFICE OF ENVIRONMENTAL PLANNING AND THE ENGINEER.

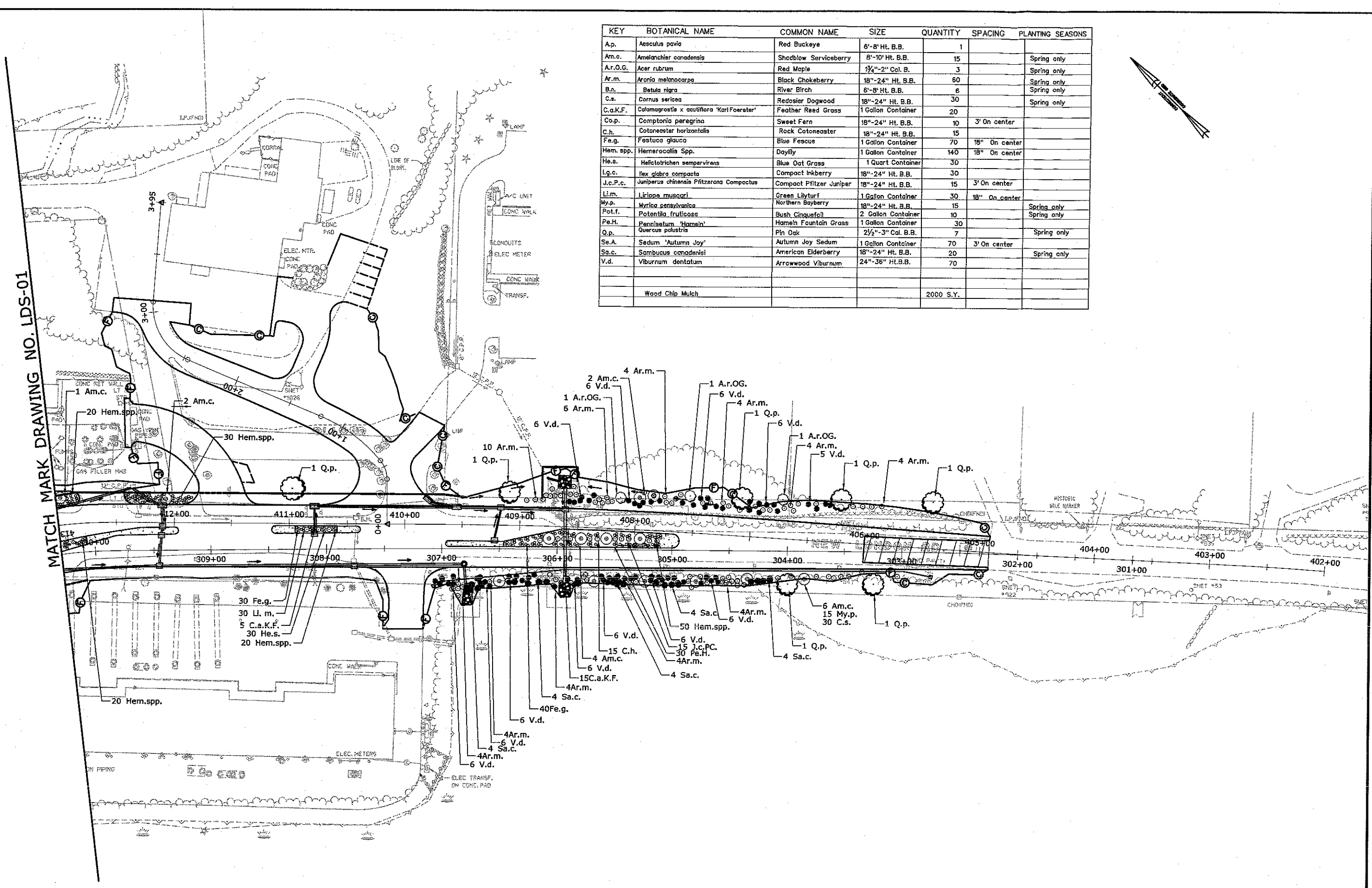
KEY	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY	SPACING	PLANTING SEASONS
A.p.	<i>Aesculus pavia</i>	Red Buckeye	6'-8" Ht. B.B.	6		
Am.c.	<i>Amelanchier canadensis</i>	Shadblow Serviceberry	8'-10" Ht. B.B.	27		Spring only
Ar.O.G.	<i>Acer rubrum</i>	Red Maple	1 3/4"-2" Cal. B.	4		
Ar.m.	<i>Aronia melanocarpa</i>	Black Chokeberry	18"-24" Ht. B.B.	72		
B.n.	<i>Betula nigra</i>	River Birch	8'-8" Ht. B.B.	6		
C.s.	<i>Cornus sericea</i>	Redosier Dogwood	18"-24" Ht. B.B.	30		
C.a.K.F.	<i>Calamagrostis x acutiflora</i> 'Karl Foerster'	Feather Reed Grass	1 Gallon Container	60	18" On center	
Co.p.	<i>Comptonia peregrina</i>	Sweet Fern	18"-24" Ht. B.B.	35	3' On center	
C.h.	<i>Cotoneaster horizontalis</i>	Rock Cotoneaster	18"-24" Ht. B.B.	125		
Fe.g.	<i>Festuca glauca</i>	Blue Fescue	1 Gallon Container	130	18" On center	
Hem.spp.	<i>Hemerocallis</i> Spp.	Daylily	1 Gallon Container	240	18" On center	
He.s.	<i>Helliotrichon sempervirens</i>	Blue Oat Grass	1 Quart Container	30	18" On center	
I.g.c.	<i>Ilex glabra compacta</i>	Compact Inkberry	18"-24" Ht. B.B.	30		
J.c.P.c.	<i>Juniperus chinensis Pfitzerana Compactus</i>	Compact Pfitzer Juniper	18"-24" Ht. B.B.	95	3' On center	
L.i.m.	<i>Liriodendron muscari</i>	Green Lilyturf	1 Gallon Container	60	18" On center	
My.p.	<i>Myrica pensylvanica</i>	Northern Bayberry	18"-24" Ht. B.B.	15		
Pl.a.	<i>Platanus acerifolia</i>	London Planetree	2 1/2"-3" Cal. B.B.	2		
Pot.f.	<i>Potentilla fruticosa</i>	Bush Cinquefoil	2 Gallon Container	10	18" On center	
Pe.H.	<i>Panicum 'Hamel'</i>	Hamel Fountain Grass	1 Gallon Container	30		
Q.p.	<i>Quercus palustris</i>	Pin Oak	2 1/2"-3" Cal. B.B.	18		
Se.A.	<i>Sedum 'Autumn Joy'</i>	Autumn Joy Sedum	1 Gallon Container	20	18" On center	
Sa.c.	<i>Sambucus canadensis</i>	American Elderberry	18"-24" Ht. B.B.	24		
V.d.	<i>Viburnum dentatum</i>	Arrowwood Viburnum	24"-36" Ht. B.B.	72	3' On center	
	Wood Chip Mulch			2050 S.Y.		



MATCH MARK DRAWING NO. LDS-02

REV. DATE REVISION DESCRIPTION SHEET NO.	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: D. Barnes/M. Rylander	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: OFFICE OF ENGINEERING	PROJECT TITLE: ROUNDABOUT AT SALEM FOUR CORNERS	TOWN: SALEM	PROJECT NO. 120-86
		CHECKED BY: D. Barnes		APPROVED BY: _____ DATE: _____		DRAWING TITLE: LANDSCAPE DESIGN SHEET	DRAWING NO. LDS-01
PLOTTED DATE: 3/9/2011	SCALE IN FEET SCALE 1"=40'	FILENAME: ...YHW_MSH_0120_0086_LDS_1.dgn					SHEET NO.

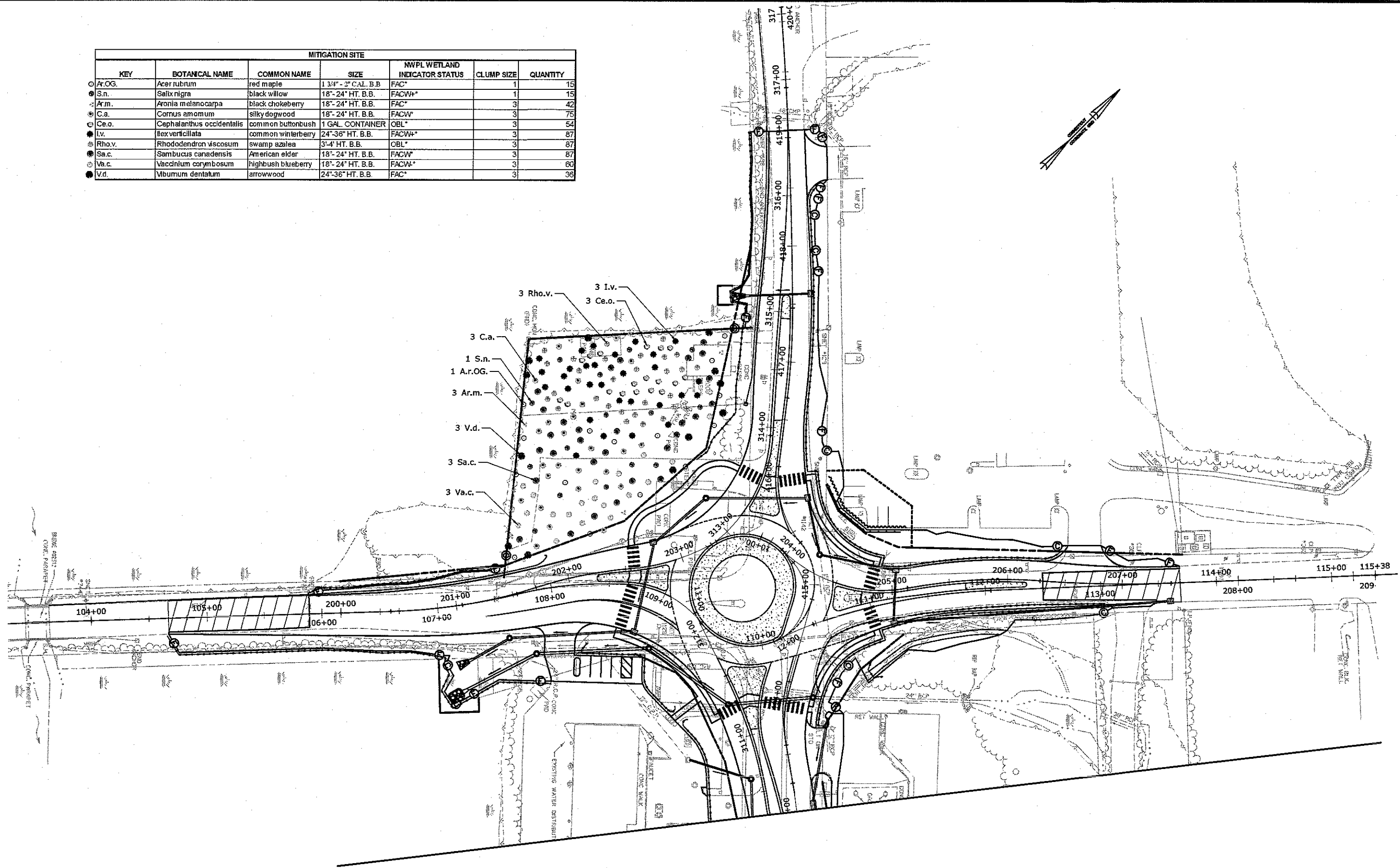
MATCH MARK DRAWING NO. LDS-01



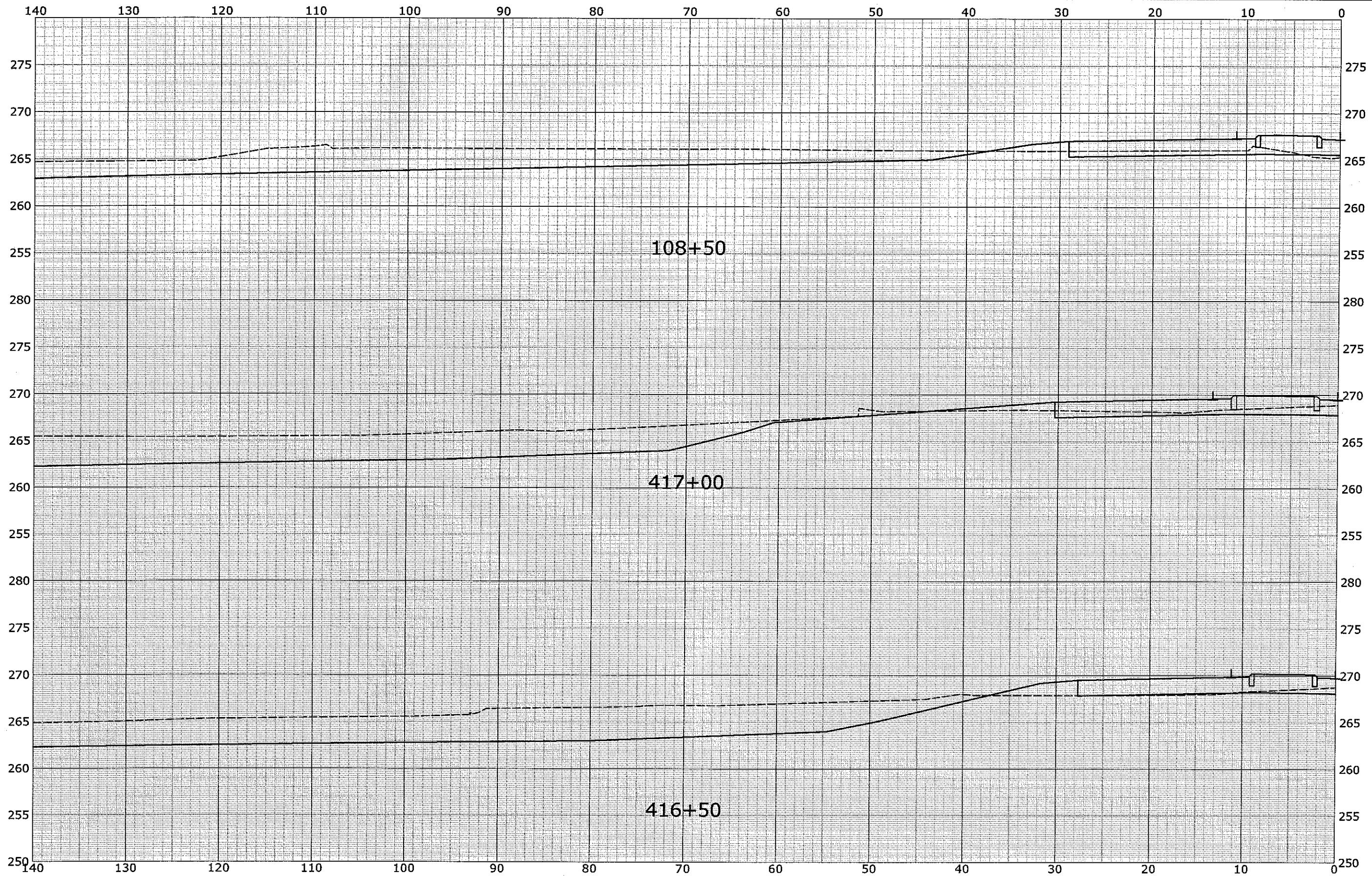
KEY	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY	SPACING	PLANTING SEASONS
A.p.	<i>Aesculus pavia</i>	Red Buckeye	6'-8" Ht. B.B.	1		
Am.c.	<i>Amelanchier canadensis</i>	Shadblow Serviceberry	8'-10" Ht. B.B.	15		Spring only
A.r.O.G.	<i>Acer rubrum</i>	Red Maple	17 1/2"-2" Cal. B.	3		Spring only
Ar.m.	<i>Aronia melanocarpa</i>	Black Chokeberry	18"-24" Ht. B.B.	60		Spring only
B.n.	<i>Betula nigra</i>	River Birch	6'-8" Ht. B.B.	6		Spring only
C.s.	<i>Cornus sericea</i>	Redosier Dogwood	18"-24" Ht. B.B.	30		Spring only
C.a.K.F.	<i>Calamagrostis x acutiflora 'Karl Foerster'</i>	Feather Reed Grass	1 Gallon Container	20		
Co.p.	<i>Comptonia peregrina</i>	Sweet Fern	18"-24" Ht. B.B.	10	3' On center	
C.h.	<i>Cotoneaster horizontalis</i>	Rock Cotoneaster	18"-24" Ht. B.B.	15		
Fe.g.	<i>Festuca glauca</i>	Blue Fescue	1 Gallon Container	70	18" On center	
Hem.spp.	<i>Hemerocallis Spp.</i>	Daylily	1 Gallon Container	140	18" On center	
He.s.	<i>Helictotrichon sempervirens</i>	Blue Oat Grass	1 Quart Container	30		
J.c.P.c.	<i>Juniperus chinensis Pfitzerana Compactus</i>	Compact Pfitzer Juniper	18"-24" Ht. B.B.	15	3' On center	
Li.m.	<i>Liriope muscari</i>	Green Lilyturf	1 Gallon Container	30	18" On center	
My.p.	<i>Myrica pensylvanica</i>	Northern Bayberry	18"-24" Ht. B.B.	15		Spring only
Pot.f.	<i>Potentilla fruticosa</i>	Bush Cinquefoil	2 Gallon Container	10		Spring only
Pe.H.	<i>Pennisetum 'Hameln'</i>	Hameln Fountain Grass	1 Gallon Container	30		
Q.p.	<i>Quercus palustris</i>	Pin Oak	2 1/2"-3" Cal. B.B.	7		Spring only
Se.A.	<i>Sedum 'Autumn Joy'</i>	Autumn Joy Sedum	1 Gallon Container	70	3' On center	
Sa.c.	<i>Sambucus canadensis</i>	American Elderberry	18"-24" Ht. B.B.	20		Spring only
V.d.	<i>Viburnum dentatum</i>	Arrowwood Viburnum	24"-36" Ht. B.B.	70		
		Wood Chip Mulch		2000 S.Y.		

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: D. BARNES CHECKED BY: R. ZBROZEK SCALE IN FEET 0 40 80 SCALE 1"=40' Plotted Date: 3/9/2011	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION FILENAME: ...JHW_MSH_0120_0086_LDS_2.dgn	SIGNATURE/BLOCK: OFFICE OF ENGINEERING APPROVED BY: _____ DATE: _____	PROJECT TITLE: ROUNDBOUT AT SALEM FOUR CORNERS	TOWN: SALEM	PROJECT NO. 120-86 DRAWING NO. LDS-02 SHEET NO.
REV. DATE REVISION DESCRIPTION SHEET NO.						

MITIGATION SITE						
KEY	BOTANICAL NAME	COMMON NAME	SIZE	NWPL WETLAND INDICATOR STATUS	CLUMP SIZE	QUANTITY
○ Ar.OG.	<i>Acer rubrum</i>	red maple	1 3/4" - 2" CAL. B.B.	FAC*	1	15
● S.n.	<i>Salix nigra</i>	black willow	18" - 24" HT. B.B.	FACWH*	1	15
⊖ Ar.m.	<i>Aronia melanocarpa</i>	black chokeberry	18" - 24" HT. B.B.	FAC*	3	42
⊕ C.a.	<i>Cornus amomum</i>	silky dogwood	18" - 24" HT. B.B.	FACWF*	3	75
⊙ Ce.o.	<i>Cephalanthus occidentalis</i>	common buttonbush	1 GAL. CONTAINER	OBL*	3	54
● Lv.	<i>Ilex verticillata</i>	common winterberry	24"-36" HT. B.B.	FACWH*	3	87
⊕ Rho.v.	<i>Rhododendron viscosum</i>	swamp azalea	3'-4" HT. B.B.	OBL*	3	87
● Sa.c.	<i>Sambucus canadensis</i>	American elder	18" - 24" HT. B.B.	FACWF*	3	87
● Va.c.	<i>Vaccinium corymbosum</i>	highbush blueberry	18" - 24" HT. B.B.	FACWF*	3	60
● V.d.	<i>Viburnum dentatum</i>	arrowwood	24"-36" HT. B.B.	FAC*	3	36



THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: AJM CHECKED BY: KCL SCALE IN FEET SCALE 1"=40' Plotted Date: 3/9/2011	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION Filename: ...\\HW_MSH_0120_0086_WET_LDS_1.dgn	SIGNATURE/ BLOCK: OFFICE OF ENGINEERING APPROVED BY: _____ DATE: _____	PROJECT TITLE: ROUNDABOUT AT SALEM FOUR CORNERS	TOWN: SALEM	PROJECT NO. 120-86 DRAWING NO. MLDS-01 SHEET NO.
REV. DATE REVISION DESCRIPTION SHEET NO.	MITIGATION LANDSCAPE DESIGN PLAN					

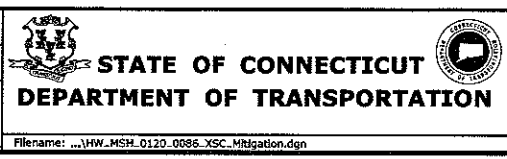


STA. 416+50 TO STA. 417+00 AND 108+50

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/DRAFTER:
JNT
CHECKED BY:
BKK
SCALE IN FEET
0 5 10
SCALE 1" = 5'



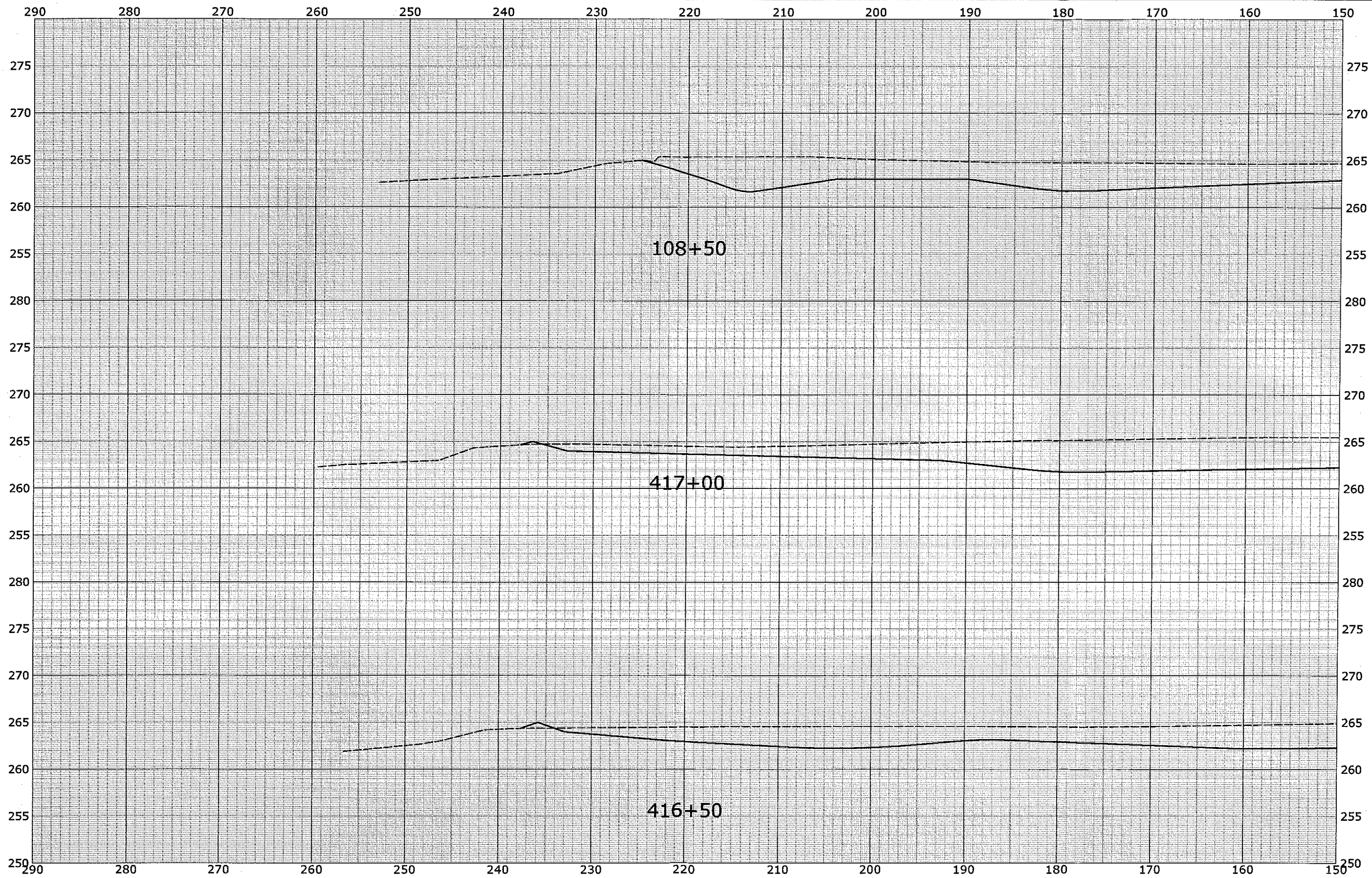
SIGNATURE/
BLOCK:
OFFICE OF ENGINEERING
APPROVED BY: _____ DATE: _____

PROJECT TITLE:
ROUNDABOUT AT SALEM FOUR CORNERS

TOWN:
SALEM
DRAWING TITLE:
MITIGATION SITE CROSS SECTION

PROJECT NO.
120-86
DRAWING NO.
SED-04
SHEET NO.
\$\$\$

Filename: ...VHW_MSH_0120_0086_XSC_Mitigation.dgn



STA. 416+50 TO STA. 417+00 AND 108+50

		THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: JNT CHECKED BY: BKK SCALE IN FEET SCALE 1" = 5'	 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: OFFICE OF ENGINEERING APPROVED BY: _____ DATE: _____	PROJECT TITLE: ROUNDSBOUT AT SALEM FOUR CORNERS	TOWN: SALEM	PROJECT NO. 120-86 DRAWING NO. SED-05 SHEET NO. \$\$	
REV. DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 1/31/2011	Filename: ...\\HW_MSH_0120_0085_XSC_Mitigation.dgn					

Attachment B: Photographs of the Project Area



Wetland Site 1: Looking North down Rte 85



Wetland Site 1: Looking West from Rte 85



Wetland Site 2(South Side of Rte 82): Looking West down Rte 82



Wetland Site 2(South Side of Rte 82): Looking South from Rte 82
Location of Existing Outlet



Wetland Site 2(North Side of Rte 82): Looking West down Rte 82



Wetland Site 2(North Side of Rte 82): Looking North from Rte 82



Wetland Site 3: Looking East down Rte 82
Overflow Channel



Wetland Site 3: Overflow Channel



Wetland Site 3: Overflow Channel Inlet



Wetland Site 4(South Side of Rte 85): Looking South down Rte 85



Wetland Site 4 (South Side of Rte 85): Looking South from Rte 85



Wetland Site 4 (South Side of Rte 85): Looking South from Plaza parking Lot



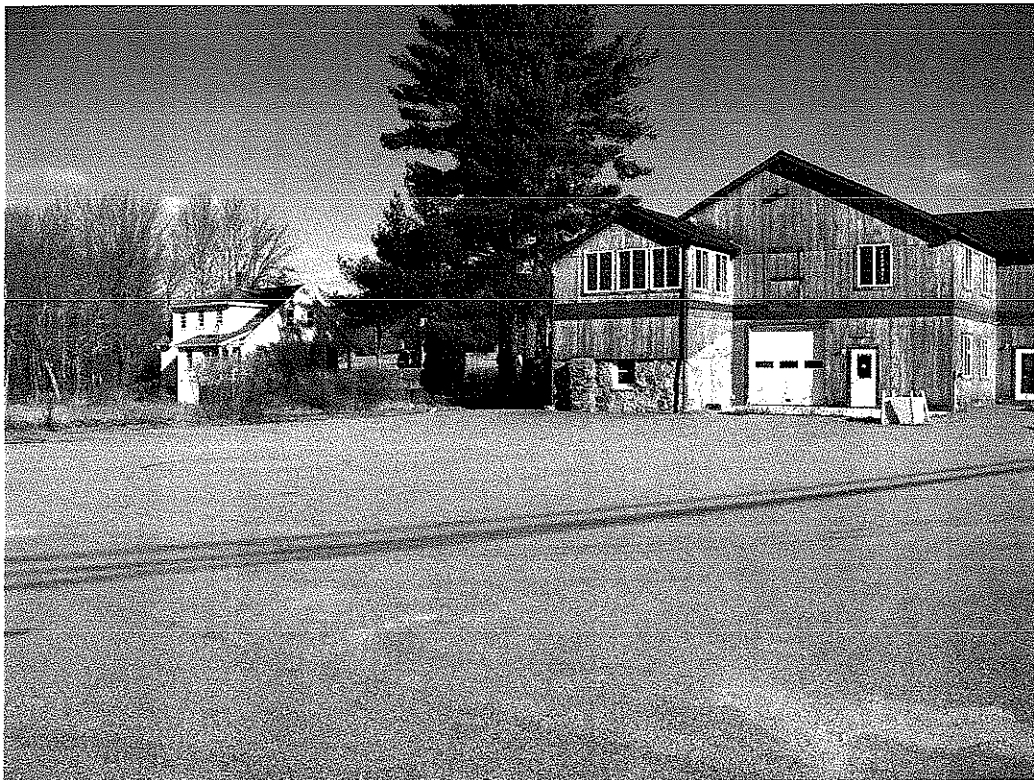
Wetland Site 4 (North Side of Rte 85): Looking North from Rte 85



Wetland Site 4 (North Side of Rte 85): Looking South towards Rte 85



Mitigation Site



Mitigation Site



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

October 5, 2011

Regulatory Division
CENAE-R-PEB
Permit Number: **NAE-2011-601**

Attn: Mr. Mark Alexander
Connecticut Department of Transportation
2800 Berlin Turnpike
P.O. Box 317546
Newington, CT 06131-7546

Dear Mr. Alexander:

We have reviewed your application to fill approximately 0.204 acres of wetlands areas (4 sites) in association with construction of intersection improvements (roundabout) at Salem Four Corners (Route 82/85 intersection) in Salem, Connecticut. The roundabout will replace the existing signalized intersection at Salem Four Corners. The project includes approximately 0.63 acres of onsite wetlands creation/restoration area adjacent to an existing shrub swamp system at the northwest quadrant of the Route 82/Route 85 intersection project area. The work is described and shown on the enclosed plan sheets entitled "ROUNDABOUT AT SALEM FOUR CORNERS", on nine (9) sheets, all sheets dated "March 11, 2011".

Based on the information you have provided, we have determined that the proposed activity, which includes a discharge of dredged or fill material in waters or wetlands, will have only minimal individual or cumulative impacts on waters of the United States, including wetlands. Therefore, this work is authorized under the attached Federal permit known as the Connecticut General Permit (GP). This work must be performed in accordance with the terms and conditions of the GP and also in compliance with the following special condition:

The permittee shall provide wetlands creation/restoration as described and shown on the attached sheets (labeled DRAWING NO. MLDS-01, SED-04 and SED-05) entitled "ROUNDABOUT AT SALEM FOUR CORNERS", dated "March 11, 2011".

You are responsible for complying with all of the GP's requirements. Please review the attached GP carefully, in particular the GP conditions, to be sure you understand its requirements. You should ensure that whoever does the work also fully understands these requirements and that a copy of the permit document and this authorization letter are at the project site throughout the time the work is being performed.

The Connecticut Department of Energy & Environmental Protection (DEEP) has issued a Water Quality Certification (WQC) for this project, as required under Section 401 of the Clean Water Act, based on their review of the project.

This authorization expires on July 15, 2016, unless the GP is modified, suspended, or revoked before then. You must commence or be under contract to commence the work authorized herein by that expiration date and complete the work by July 15, 2017. If not, you must contact this office to determine the need for further authorization before beginning or continuing the activity. We recommend you contact us *before* this permit expires to discuss a permit reissuance.

If you change the plans or construction methods for work within our jurisdiction, please contact us immediately to discuss modification of this authorization. This office must approve any changes before you undertake them.

This authorization requires you to complete and return the enclosed Work Start Notification Form to this office at least two weeks before the anticipated starting date. You must also complete and return the enclosed Compliance Certification Form within one month following the completion of the authorized work (including any required mitigation).

This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law, as listed in Section 1 of the GP. Performing work not specifically authorized by this determination or failing to comply with any special condition(s) provided above or all the terms and conditions of the GP may subject you to the enforcement provisions of our regulations.

This authorization presumes that the work as described above and as shown on your plans noted above is in waters of the U.S. Should you desire to appeal our jurisdiction, please submit a request for an approved jurisdictional determination in writing to this office.

We continually strive to improve our customer service. In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at <http://per2.nwp.usace.army.mil/survey.html>

Please contact Susan Lee of my staff, at (978) 318-8494 if you have any questions.

Sincerely,



Robert J. DeSista
Chief, Permits & Enforcement Branch
Regulatory Division

Enclosures

Copy Furnished:
Bob Gilmore, Connecticut DEEP - IWRD, 79 Elm Street, Hartford, Connecticut 06106



**US Army Corps
of Engineers** ®
New England District

**GENERAL PERMIT
WORK-START NOTIFICATION FORM**
(Minimum Notice: Two weeks before work begins)

* MAIL TO: U.S. Army Corps of Engineers, New England District *
* Permits and Enforcement Branch *
* Regulatory Division *
* 696 Virginia Road *
* Concord, Massachusetts 01742-2751 *

Corps of Engineers Permit No. **NAE-2011-601** was issued to the **CT DOT, P.O. Box 317546, 2800 Berlin Turnpike, Newington, CT 06131-7546**. This work is located at the **Route 82/85 intersection in Salem, CT**. The permit authorized the permittee to fill approximately 0.204 acres of wetlands areas (4 sites) in association with construction of intersection improvements (roundabout) at Salem Four Corners (Route 82/85 intersection) in Salem, Connecticut. The roundabout will replace the existing signalized intersection at Salem Four Corners. The project includes approximately 0.63 acres of onsite wetlands creation/restoration area adjacent to an existing shrub swamp system at the northwest quadrant of the Route 82/Route 85 intersection project area.

The people (e.g., contractor) listed below will do the work, and they understand the permit's conditions and limitations.

PLEASE PRINT OR TYPE

Name of Person/Firm: _____

Business Address: _____

Telephone Numbers: () _____ () _____

Proposed Work Dates: Start: _____ Finish: _____

Permittee/Agent Signature: _____ **Date:** _____

Printed Name: _____ **Title:** _____

Date Permit Issued: 10/05/2011 **Date Permit Expires:** 07/15/2016

FOR USE BY THE CORPS OF ENGINEERS

PM: Susan Lee **Submittals Required:** no

Inspection Recommendation: yes



**US Army Corps
of Engineers** ®
New England District

(Minimum Notice: Permittee must sign and return notification
within one month of the completion of work.)

COMPLIANCE CERTIFICATION FORM

Permit Number: NAE-2011-601

Project Manager Susan Lee

Name of Permittee: CT DOT
2800 Berlin Turnpike
P.O. Box 317546
Newington, CT 06131-7546

Permit Issuance Date: 10/05/2011

Please sign this certification and return it to the following address upon completion of the activity and any mitigation required by the permit. You must submit this after the mitigation is complete, but not the mitigation monitoring, which requires separate submittals.

* MAIL TO: U.S. Army Corps of Engineers, New England District *
* Permits and Enforcement Branch B *
* Regulatory Division *
* 696 Virginia Road *
* Concord, Massachusetts 01742-2751 *

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit was completed in accordance with the terms and conditions of the above referenced permit, and any required mitigation was completed in accordance with the permit conditions.

Signature of Permittee

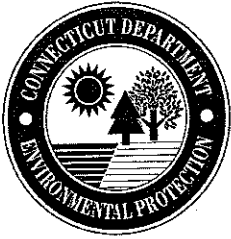
Date

Printed Name

Date of Work Completion

() _____
Telephone Number

() _____
Telephone Number



STATE OF CONNECTICUT
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 Central Permit Processing Unit
 79 Elm Street
 Hartford, CT 06106-5127

CPPU USE ONLY

App #: _____
 Doc #: _____
 Check #: _____

Permit Application Transmittal Form

Please complete this transmittal form in accordance with the instructions in order to ensure the proper handling of your application(s) and the associated fee(s). Print legibly or type.

Part I: Applicant Information:

- *If an applicant is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of State. If applicable, applicant's name shall be stated exactly as it is registered with the Secretary of State.
- If an applicant is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).

Applicant: Connecticut Department of Transportation
 Mailing Address: 171 Salem Turnpike
 City/Town: Norwich State: CT Zip Code: 06360
 Business Phone: 860-823-3204 ext.: Fax:
 Contact Person: Carl E. Nelson Phone: 860-823-3204 ext.
 E-Mail: Carl.Nelson@ct.gov
 Applicant (check one): individual *company federal gov't state agency municipality
 *If a company, list company type (e.g., corporation, limited partnership, etc.):
 Check if any co-applicants. If so, attach additional sheet(s) with the required information as supplied above.

Please provide the following information to be used for *billing purposes only*, if different:
 Company/Individual Name:
 Mailing Address:
 City/Town: State: Zip Code:
 Contact Person: Phone: ext.

Part II: Project Information

Brief Description of Project: (Example: Development of a 50 slip marina on Long Island Sound)
 Construction of a Roundabout at Routes 82 and 85
 Location (City/Town): Salem, CT

Other Project Related Permits (not included with this form):

Permit Description	Issuing Authority	Submittal Date	Issuance Date	Denial Date	Permit #
Individual	ACOE	3/16/11			
Inland Wetlands	CTDEP	3/16/11			

Part III: Individual Permit Application and Fee Information

New, Mod. or Renew	Individual Permit Applications	Initial Fees	No. of Permits Applied For	Total Initial Fees	Original + Required Copies
	AIR EMISSIONS				
	New Source Review	\$940.00			1 + 0
	Title V Operating Permits	none			1 + 0
	Title IV	none			1 + 0
	Clean Air Interstate Rule (CAIR)	none			1 + 0
	WATER DISCHARGES				
	To Groundwater	\$1300.00			1 + 1
	To Sanitary Sewer (POTW)	\$1300.00			1 + 1
	To Surface Water (NPDES)	\$1300.00			1 + 2
	INLAND WATER RESOURCES - multiple permits 1 + 6 total copies				
	Dam Construction	none			1 + 2
	Flood Management Certification	none			1 + 1
	Inland 401 Water Quality Certification	none			1 + 5
	Inland Wetlands and Watercourses	none			
	Stream Channel Encroachment Lines	★			1 + 5
	Water Diversion	★			
	OFFICE OF LONG ISLAND SOUND PROGRAMS				
	Certificate of Permission	\$375.00			1 + 3
	Coastal 401 Water Quality Certification	none			1 + 3
	Structures and Dredging/Tidal Wetlands	\$660.00			1 + 3
	WASTE MANAGEMENT				
	Aerial Pesticide Application	★			1 + 2
	Aquatic Pesticide Application	\$200.00			1 + 0
	CGS Section 22a-454 Waste Facilities	★			1 + 1
	Hazardous Waste Treatment, Storage and Disposal Facilities	★			1 + 1
	Marine Terminal License	\$125.00			1 + 0
	Stewardship	\$4000.00			1 + 1
	Solid Waste Facilities	★			1 + 1
	Waste Transportation	★			1 + 0
		Subtotal ➡			
	GENERAL PERMITS and AUTHORIZATIONS	Subtotals Page 3 ➡	1		
	Enter subtotals from Part IV, pages 3 & 4 & 5 of this form	Subtotals Page 4 ➡			
		Subtotals Page 5 ➡			
		TOTAL ➡	1	0	
	<input checked="" type="checkbox"/> Indicate whether municipal discount or state waiver applies.	Less Applicable Discount ➡		0	
		AMOUNT REMITTED ➡		0	
Check # ➡	<input type="text"/>	Check or money order should be made payable to: "Department of Environmental Protection"			

★ See fee schedule on individual application.

**Part IV: General Permit Registrations and Requests for Other Authorizations
Application and Fee Information**

<input checked="" type="checkbox"/> General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fees	Original + Required Copies
AIR EMISSIONS				
<input type="checkbox"/> Limit Potential to Emit from Major Stationary Sources of Air Pollution	\$2760.00			1 + 0
<input type="checkbox"/> Ionizing Radiation Registration	\$200.00			1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization	★★			★★
<input type="checkbox"/> Other, (please specify):				
WATER DISCHARGES				
<input type="checkbox"/> Domestic Sewage	\$500.00			1 + 0
<input type="checkbox"/> Food Processing Wastewater	\$500.00			1 + 0
<input type="checkbox"/> Groundwater Remediation Wastewater to a Sanitary Sewer	\$500.00			1 + 0
<input type="checkbox"/> Groundwater Remediation Wastewater to a Surface Water Registration Only	\$625.00			1 + 0
<input type="checkbox"/> Approval of Registration by DEP	\$1250.00			
<input type="checkbox"/> Hydrostatic Pressure Testing Wastewater Registration Only	\$625.00			1 + 0
<input type="checkbox"/> Approval of Registration by DEP (natural gas pipelines)	\$1250.00			
<input type="checkbox"/> Miscellaneous Discharges of Sewer Compatible Wastewater Flow < 5,000 gpd and fire sprinkler system testwater	\$500.00			1 + 1
<input type="checkbox"/> Flow > 5,000 gpd	\$1000.00			
<input type="checkbox"/> Non-Contact Cooling and Heat Pump Water (Minor)	\$625.00			1 + 1
<input type="checkbox"/> Photographic Processing Wastewater (Minor)	\$100.00			1 + 0
<input type="checkbox"/> Printing & Publishing Wastewater (Minor) Flow < 40 gpd	\$500.00 \$100.00			1 + 0
<input type="checkbox"/> Stormwater Associated with Commercial Activities	\$500.00			1 + 0
<input type="checkbox"/> Stormwater Associated with Industrial Activities	\$500.00			1 + 0
<input checked="" type="checkbox"/> Stormwater & Dewatering Wastewaters-Construction Activities 5 - 10 acres	\$625.00	1	0	1 + 0
<input type="checkbox"/> > 10 acres	\$1250.00			
<input type="checkbox"/> Stormwater from Small Municipal Separate Storm Sewer Systems (MS4)	\$250.00			1 + 0
<input type="checkbox"/> Swimming Pool Wastewater - Public Pools and Contractors	\$500.00			1 + 0
<input type="checkbox"/> Tumbling or Cleaning of Parts Wastewater (Minor)	\$1000.00			1 + 1
<input type="checkbox"/> Vehicle Maintenance Wastewater Registration Only	\$625.00			1 + 0
<input type="checkbox"/> Approval of Registration by DEP	\$1250.00			
<input type="checkbox"/> Water Treatment Wastewater	\$625.00			1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization - Discharge to POTW	\$1500.00			1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization - Discharge to Surface Water	\$1500.00			1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization - Discharge to Groundwater	\$1500.00			1 + 0
<input type="checkbox"/> Other, (please specify):				
Note: Carry subtotals over to Part III, page 2 of this form. Subtotal		1	0	

★★ Contact the specific permit program for this information (Contact numbers are provided in the instructions).

Part IV: General Permit Registrations and Requests for Other Authorizations (continued)

<input checked="" type="checkbox"/> General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fee	Original + Required Copies
AQUIFER PROTECTION PROGRAM				
<input type="checkbox"/> Registration for Regulated Activities	\$625.00			1 + 0
<input type="checkbox"/> Permit Application to Add a Regulated Activity	\$1250.00			1 + 0
<input type="checkbox"/> Exemption Application from Registration	\$1250.00			1 + 0
INLAND WATER RESOURCES				
<input type="checkbox"/> Dam Safety Repair and Alteration	\$1000.00			1 + 2
<input type="checkbox"/> Diversion of Water for Consumptive Use: Reauthorization Categories	\$1000.00			1 + 2
<input type="checkbox"/> Diversion of Water for Consumptive Use: Authorization Required	\$2500.00			1 + 5
<input type="checkbox"/> Diversion of Water for Consumptive Use: Filing Only	\$1500.00			1 + 4
<input type="checkbox"/> Habitat Conservation	\$1000.00			1 + 2
<input type="checkbox"/> Lake, Pond and Basin Dredging	\$1000.00			1 + 2
<input type="checkbox"/> Minor Grading	\$1000.00			1 + 2
<input type="checkbox"/> Minor Structures	\$1000.00			1 + 2
<input type="checkbox"/> Utilities and Drainage	\$1000.00			1 + 2
<input type="checkbox"/> Emergency/Temporary Authorization	★★			★★
<input type="checkbox"/> Other, (please specify):				
OFFICE OF LONG ISLAND SOUND PROGRAMS				
<input type="checkbox"/> 4/40 Docks	\$700.00			1 + 1
<input type="checkbox"/> Beach Grading	\$100.00			1 + 1
<input type="checkbox"/> Coastal Remedial Activities Required by Order	\$700.00			1 + 1
<input type="checkbox"/> Marina and Mooring Field Reconfiguration	\$700.00			1 + 1
<input type="checkbox"/> Non-harbor Moorings	\$100.00			1 + 1
<input type="checkbox"/> Osprey Platforms and Perch Poles	none			1 + 1
<input type="checkbox"/> Pump-out Facilities (no fee for Clean Vessel Act grant recipients)	\$100.00			1 + 1
<input type="checkbox"/> Removal of Derelict Structures	\$100.00			1 + 1
<input type="checkbox"/> Residential Flood Hazard Mitigation	\$100.00			1 + 1
<input type="checkbox"/> Swim Floats	\$100.00			1 + 1
<input type="checkbox"/> Emergency/Temporary Authorization	★★			★★
<input type="checkbox"/> Other, (please specify):				
Note: Carry subtotals over to Part III, page 2 of this form.		Subtotal		

★ See fee schedule on registration/application.

★★ Contact the specific permit program for this information.

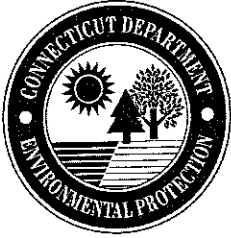
Part IV: General Permit Registrations and Requests for Other Authorizations (continued)

<input checked="" type="checkbox"/> General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fee	Original + Required Copies
WASTE MANAGEMENT				
<input type="checkbox"/> Addition of Grass Clippings at Registered Leaf Composting Facilities	\$500.00			1 + 0
<input type="checkbox"/> Asbestos Disposal Authorization	\$300.00			1 + 0
Certain Recycling Facilities				
<input type="checkbox"/> Drop-site Recycling Facility	\$200.00			1 + 0
<input type="checkbox"/> Limited Processing Recycling Facility	\$500.00			1 + 0
<input type="checkbox"/> Recyclables Transfer Facility	\$500.00			1 + 0
<input type="checkbox"/> Single Item Recycling Facility	\$500.00			1 + 0
Contaminated Soil and/or Staging Management (Staging/Transfer)				
<input type="checkbox"/> Registration Only	\$250.00			1 + 0
<input type="checkbox"/> Approval of Registration by DEP	\$1500.00			1 + 0
<input type="checkbox"/> Connecticut Solid Waste Demonstration Project	\$1000.00			1 + 0
<input type="checkbox"/> Disassembling Used Electronics	\$400.00			1 + 0
<input type="checkbox"/> Leaf Composting Facility	none			1 + 1
<input type="checkbox"/> Municipal Transfer Station	\$800.00			1 + 1
<input type="checkbox"/> One Day Collection of Certain Wastes and Household Hazardous Waste	\$1000.00			1 + 0
<input type="checkbox"/> Special Waste Authorization	\$660.00			1 + 0
<input type="checkbox"/> Storage and Distribution of Two (2) Inch Nominal Tire Chip Aggregate	\$500.00			1 + 0
<input type="checkbox"/> Storage and Processing of Asphalt Roofing Shingle Waste and/or Storage and Distribution of Ground Asphalt Aggregate	★			1 + 0
<input type="checkbox"/> Storage and Processing of Scrap Tires for Beneficial Use	\$1000.00			1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization	★★			★★
<input type="checkbox"/> Other, (please specify):				
REMEDIATION				
<input type="checkbox"/> In Situ Groundwater Remediation: Enhance Aerobic Biodegradation	★			1 + 2
Note: Carry subtotals over to Part III, page 2 of this form.		Subtotal		

★ See fee schedule on registration/application.

★★ Contact the specific permit program for this information.

In conformance with the ADA, individuals with disabilities who need information in an alternative format to allow them to benefit and/or participate in the agency's programs and services, should call 860-424-3051 or 860-418-5937, or e-mail Marcia Z. Bonitto, ADA Coordinator at Marcia.Bonitto@ct.gov.



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

Please complete this form in accordance with the general permit (DEP-PED-GP-015) in order to ensure the proper handling of your registration. Print or type unless otherwise noted. You must submit the *Permit Application Transmittal Form* (DEP-APP-001) and the registration fee along with this form.

DEP USE ONLY	
Application No.	_____
Permit No.	_____
Facility I.D.	_____

Part I: Registration Type

Enter a check mark in the appropriate box identifying the registration type.

<p>This registration is for (check one):</p> <p><input checked="" type="checkbox"/> A <i>new</i> general permit registration</p> <p><input type="checkbox"/> A <i>modification</i> of an existing general permit</p>	<p>Please identify any existing permit number in the space provided:</p> <p>Existing permit number:</p> <p>GSN</p>
--	---

Part II: Fee Information

<p><input checked="" type="checkbox"/> Registration only</p> <p><input type="checkbox"/> Registration and Plan Review</p>	<p>A registration fee of \$625.00 is to be submitted with <i>each</i> registration that you are submitting at least 30 days before the initiation of construction activities.</p> <p>All construction projects that result in the disturbance of ten or more acres require the submittal of a Stormwater Pollution Control Plan and a \$625.00 plan review fee. The plan and the fee must be submitted 30 days prior to initiation of the construction activity.</p> <p>\$625.00 registration fee + \$625.00 review fee = \$1,250.00 total fee</p> <p>For municipalities, a 50% discount applies. The registration will not be processed without the fee. The fee shall be non-refundable and shall be paid by certified check or money order payable to the Department of Environmental Protection.</p>
---	---

Part III: Registrant Information

<p>1. Fill in the name of the registrant(s) as indicated on the <i>Permit Application Transmittal Form</i> (DEP-APP-001):</p> <p>Registrant: Mr. Carl E. Nelson - District Engineer - CTDOT District 2</p> <p>Phone: 860-823-3204 ext. _____ Fax: _____</p> <p><input type="checkbox"/> Check here if there are co-registrants. If so, label and attach additional sheet(s) with the required information as supplied above.</p>
--

Part III: Registrant Information (cont.)

2. List primary contact for departmental correspondence and inquiries, if different than the registrant.

Name: **Connecticut Dept. of Transportation**

Mailing Address: **2800 Berlin Turnpike, P.O. Box 317546**

City/Town: **Newington**

State: **CT**

Zip Code: **06131-7546**

Business Phone: **860-594-2079**

ext.

Fax:

Site Phone:

Emergency Phone:

Contact Person: **Scott Bushee**

Title: **Project Manager**

Association (e.g. developer, general or site contractor, etc.):

3. List owner of the property on which the activity will take place, if different from registrant:

Name:

Mailing Address:

City/Town:

State:

Zip Code:

Business Phone:

ext.

Fax:

Contact Person:

Title:

4. List developer, if different from registrant or primary contact:

Name:

Mailing Address:

City/Town:

State:

Zip Code:

Business Phone:

ext.

Fax:

Contact Person:

Title:

5. Name and address of general contractor:

Name:

Mailing Address:

City/Town:

State:

Zip Code:

Business Phone:

ext.

Fax:

Site Phone:

Off-hours Phone:

Contact Person:

Title:

6. List any engineer(s) or other consultant(s) employed or retained to assist in preparing the registration and Stormwater Pollution Plan.

Check here if additional sheets are necessary, and label and attach them to this sheet.

Name: **BL Companies**

Mailing Address: **355 Research Parkway**

City/Town: **Meriden**

State: **CT**

Zip Code: **06450**

Business Phone: **203-630-1406**

ext.

Fax: **203-630-2615**

Contact Person: **Michael Fisher**

Title: **Senior Transportation Eng**

Service Provided: **Permit Review**

Part IV: Site Information

1. Site or Project Name (if any): **State Project No. 120-86**
Street Address or Description of Location: **Intersection of Routes 82 and 85**

City/Town: **Salem** State: **CT** Zip Code: **06420**
2. Brief description of construction activity: **Construction of a roundabout**
3. Start Date: **Spring 2012** Anticipated Completion Date: **Fall 2012**
4. Estimated total number of acres to be disturbed: **5.65**

Part V: Stormwater Discharge Information

1. Where does stormwater discharge to:
 Municipal Separate Storm System? Yes No (Name):
 Surface water body or wetlands? Yes No (Name): **Unnamed Wetlands**
2. Is the discharge located less than 500 feet from a tidal wetland, which is not a fresh-tidal wetland?
 Yes No
3. Name of the watershed where the site is located OR nearest waterbody to which it discharges:
Harris Brook
4. Is construction in accordance with the Guidelines established under Section 22a-329 of the Soil Erosion and Sedimentation Act? Yes No
5. Is construction in accordance with local soil erosion and sediment ordinances? Yes No
Note: A copy of this registration and the Stormwater Pollution Control Plan must be available to the town wetlands enforcement officials, wetlands commission, or their equivalent.
6. Will the construction project disturb over ten acres? Yes No
If yes, enclose a copy of the Stormwater Pollution Control Plan and plan review fee.
7. Has the construction project been reviewed for compliance with the following DEP programs?
 - a. Coastal Management Act (Section 22a-92 of the Connecticut General Statutes) Yes No
 - b. Endangered and Threatened Species (Section 26-306 of the Connecticut General Statutes)
 Yes No
 - c. State and Federal Historic Preservation statutes? Yes No


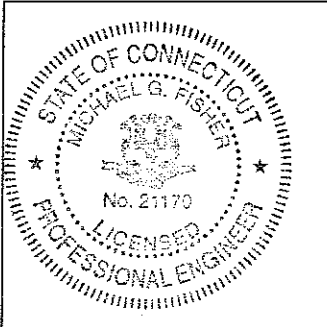
Part VI: Supporting Documents

Check the box by the attachments being submitted as verification that *all* applicable attachments have been submitted with this registration form. When submitting any supporting documents, please label the documents as indicated in this part (e.g., Attachment A, etc.) and be sure to include the registrant's name as indicated on the *Permit Application Transmittal Form*.

<input checked="" type="checkbox"/>	Attachment A:	An 8 1/2" x 11" copy of the relevant portion or a full-sized original of a USGS Quadrangle Map indicating the exact location of the facility or site. Indicate the quadrangle name on the map. (To obtain a copy of the relevant USGS Quadrangle Map, call your town hall or DEP Maps and Publications Sales at 860-424-3555.)
<input type="checkbox"/>	Attachment B:	A copy of the Stormwater Pollution Control Plan and plan review fee of \$625.00, if the construction project disturbs over 10 acres

Part VII: Environmental Professional Certification

The following certification must be signed by a professional engineer, licensed to practice in Connecticut.

<p>"I certify that I have thoroughly and completely reviewed the Stormwater Pollution Control Plan for the site. I further certify, based on such review and in my professional judgment, that the Stormwater Pollution Control Plan has been prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, and the conditions for the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities and the controls required for such Plan are appropriate for the site. I am aware that there are significant penalties for false statements in this certification, including the possibility of fine and imprisonment for knowingly making false statements."</p>	
	9/12/11
Signature of Professional Engineer	Date
Michael Fisher	21170
Name of Professional Engineer (print or type)	P. E. Number (if applicable)
Affix P. E. Stamp Here	
	

Part VIII: Registrant Certification

The registrant *and* the individual(s) responsible for actually preparing the registration must sign this part. A registration will be considered incomplete unless all required signatures are provided.

"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 certify that this general permit registration is on complete and accurate forms as prescribed by the commissioner without alteration of the text. I understand that a false statement made in the submitted information 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.

I also certify under penalty of law that I have read and understand all conditions of the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, that all conditions for eligibility for authorization under the general permit are met, all terms and conditions of the general permit are being met for all discharges which have been initiated and are the subject of this registration, and that a system is in place to ensure that all terms and conditions of this general permit will continue to be met for all discharges authorized by this general permit at the site. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowingly making false statements."

Signature of Registrant

Date

Carl E. Nelson

District Engineer - Dist. 1

Name of Registrant (print or type)

Title (if applicable)

Signature of Preparer (if different than above)

Date

Byong K. Kim

Project Engineer

Name of Preparer (print or type)

Title (if applicable)

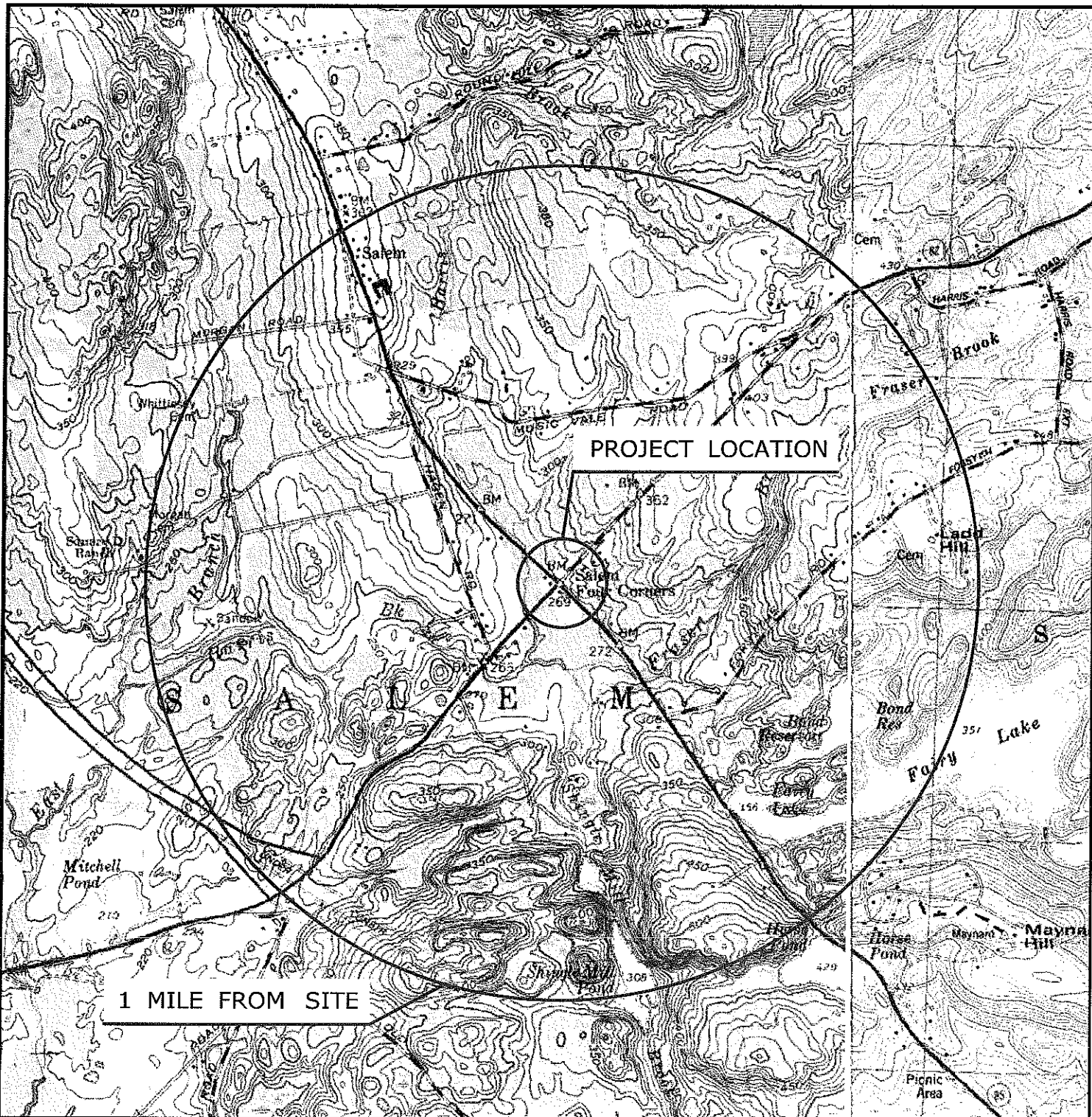
Check here if additional signatures are necessary.
If so, please reproduce this sheet and attach signed copies to this sheet.

Note: Please submit the *Permit Application Transmittal Form*, the Registration Form, Fee(s), and all Supporting Documents to:

CENTRAL PERMIT PROCESSING UNIT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

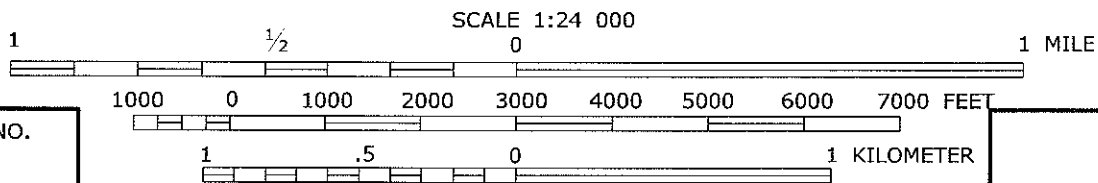
Note: If discharging to municipal separate storm sewer, send a copy of this completed registration form to the owner or operator of that system.

If discharging to a public drinking water supply watershed or aquifer area, send a copy of this completed registration form to the appropriate water company.



1 MILE FROM SITE

PROJECT LOCATION



QUADRANGLE NO.

85

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

STATE PROJECT NO.: 120 - 86

COUNTY: NEW LONDON

CITY/TOWN: SALEM

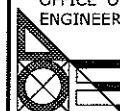
APPLICATION BY:



STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION



CONSTRUCTION OF A ROUNDABOUT
AT ROUTES 82 & 85



OFFICE OF
ENGINEERING

DATE: 10-06-2010

ATTACHMENT A

STORMWATER POLLUTION CONTROL PLAN

PROJECT No. 120-86

ROUNDBOUT AT SALEM FOUR CORNERS
ROUTES 82 AND 85
SALEM, CONNECTICUT

GENERAL REQUIREMENTS:

This Stormwater Pollution Control Plan (SPCP) for Project No. 120-86 is prepared to comply with the requirements for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities. Also to be considered a part of the SPCP are the construction plans and specifications for the project and the Connecticut Department of Transportation's "Standard Specifications for Roads, Bridges and Incidental Construction" (Form 816, 2004), including supplement thereto dated January 2011. Those documents shall supersede this report in any case of conflict between work, material, or procedures specified.

A. SITE DESCRIPTION

Project Description:

The primary purpose of this project is to address safety at the intersection of Route 82 and Route 85. With the termination of the Route 11 expressway at Route 82 (one mile west of the intersection), Route 85 provides the primary connection between Route 11 in Salem and I-95 in Waterford, resulting in heavy traffic volumes through the intersection.

The project involves the replacement of the existing signalized intersection with a modern roundabout at the intersection of Routes 82 and 85 in Salem, Connecticut. This action is expected to significantly reduce the number of head-on turning accidents at the intersection as well as at the driveway to a gas station located on Route 85 immediately south of Route 82. The proposed roundabout consists of a single lane with auxiliary lanes on both the Route 85 northbound and the Route 82 eastbound approaches. Two lane approaches on those legs are necessary to accommodate the heavy volumes of traffic to and from the nearby terminus of Route 11.

The additional lane on the Route 85 northbound approach will be carried through the entry into the circulatory roadway, but will continue only as far as the exit to Route 85 northbound. The additional lane on the Route 82 eastbound approach will be a right turn lane, providing a dedicated lane for southbound traffic from Route 11 turning right onto Route 85 southbound. The majority of the circulatory roadway will consist of a single lane.

Head-on turning conflicts at the intersection will be eliminated with the roundabout configuration. At the gas station driveway, the head-on turning conflict will be alleviated in two ways due to the reduced delays associated with a roundabout compared to the

existing signal; the northbound queue is not expected to extend as far south as the southern gas station driveway under normal conditions, greatly reducing the potential for turns made with restricted sightlines – the “peek-a-boo” type accidents that frequently occur today; and a southbound left turn lane on Route 85, at the driveway, will provide a safe haven for left turning vehicles.

Estimated Area of Site:

The “site” consists of *the area outlined by the highway right of way limit or the outermost slope limits (which ever is farther) for the project*. As defined, the project site contains approximately 6.18 acres of which approximately 5.65 acres will be disturbed by construction activities. In general practice, the goal of the inspector and the Contractor is to minimize the total area of disturbance on the site at any given time.

Estimated Drainage Area Characteristics:

- 6.18 acres: total “site”
- 3.10 acres: existing pavement area within “site”
- 3.08 acres: existing unpaved area within “site”

- 3.18 acres: proposed pavement area within “site”
- 3.00 acres: proposed unpaved area within “site”

Runoff coefficients were estimated to be 0.9 and 0.3 for paved and unpaved areas, respectively. Using these values:

The weighted average runoff coefficient for the **proposed** project will be:

$$C = \frac{(3.18 \text{ ac.} \times 0.9) + (3.00 \text{ ac.} \times 0.3)}{6.18 \text{ ac.}} = 0.61$$

The weighted average runoff coefficient for the **existing** site is estimated to be:

$$C = \frac{(3.10 \text{ ac.} \times 0.9) + (3.08 \text{ ac.} \times 0.3)}{6.18 \text{ ac.}} = 0.60$$

Stormwater Discharge Disturbed Areas		
Drainage System	Discharge Point (Roadway & Outlet Station)	Total Disturbed Area Serviced by Outlet (acres)
1	Route 82 Sta. 107+11 RT	0.75
2	Route 82 Sta. 107+11 RT	0.03
3	Route 85 Sta. 409+48 LT	0.72
4	Route 85 Sta. 408+60 LT	1.51
5	Route 85 Sta. 417+59 LT	0.17
Un-concentrated Sheet Flow	(Non-point Discharge)	3
Total		6.18

Site Map (Construction Plans):

The stormwater drainage systems are shown on the roadway construction plans, profiles and cross sections. When reviewed in conjunction with the plans, the profiles and cross sections indicate the major drainage patterns and finished slopes. Approximate limits of disturbances are shown as “slope limits” on the construction plans. Limits of inland wetlands, watercourses and ponded surface water are shown there as well. Stabilization practices and turf establishment are identified on the Erosion and Sedimentation Control plans, and in the Miscellaneous Details.

Receiving Waters:

There will be five new drainage systems which outlet within the project limits. All the proposed systems discharge towards wetland areas already receiving roadway discharges. All runoff from the project contributes flow to Harris Brook, which is the ultimate receiving water.

B. CONSTRUCTION SEQUENCING

In order to facilitate environmental protections, minimize public inconvenience and traffic disruptions, and allow for efficient utility relocations, the following construction sequence is recommended. Certain phases of construction shall not be initiated until the completion of work in a prior phase, including stabilization of disturbed areas. Thus, the total acreage of disturbed area at any one time will be limited by the phasing sequence. The actual sequence may be revised as approved by the Connecticut Department of Transportation’s District Office of Construction based on actual field conditions, traffic considerations, and the Contractor’s proposed operations while following the intent of the Stormwater Pollution Control Plan.

General Construction Sequence:

1. Hold Pre-construction Coordination Meeting.
2. Stake all slope limits and identify trees to be removed.
3. Hold tree cutting meeting in accordance with Section 2.10 – Clearing and Grubbing.
4. Install erosion controls at drainage inlets, ditches and outlets that will receive runoff from areas to be disturbed by construction. Install silt fences along the perimeter of areas to be disturbed by work as shown on the plans. **Additional silt fences may be required, as directed, to address functional swales and localized runoff patterns.** Maintain the silt fences until contributing runoff areas are stabilized and until directed by the Engineer.
5. Perform clearing and grubbing activities as shown on the plans and as determined at the tree cutting meeting.
6. Construct proposed roadway to final grade with processed aggregate. In areas where final grading cannot be achieved, temporary seeding will be placed on the slope.
7. Construct required storm drainage as shown on the stage construction plans. Set erosion controls around catch basin inlets and ensure that outlet protection is in place as shown on plans prior to the discharge of any flow through the drainage systems.
8. Install pavement base and pavement structure, as shown on plans.
9. Place required depth of topsoil and perform turf establishment where shown on the plans in the time frame specified under “Stabilization Practices.”
10. Install the mitigation area’s landscape plantings.
11. Inspect and clean the drainage systems, as needed.
12. Remove all temporary erosion and sediment controls when directed by the Engineer after disturbed areas have been stabilized.
13. Perform project cleanup.

Construction Schedule:

This contract will be advertised in November 2011 with an expected start of construction in spring 2012. The anticipated duration of construction is roughly 1 construction season.

C. CONTROLS

The design of stormwater drainage systems and erosion control practices for these projects has a goal of 80% removal of total suspended solids. However, the effectiveness of the various practices utilized is not easily quantified. This is due in part to the many unknown site-specific variables such as storm intensity and duration, soil types, pollutant types and characteristics, and maintenance conditions. Additionally, even for a given set of field conditions, there is scant empirical data available on the removal efficiencies of the various pollution control measures. There are no known objective, standardized state or federal tests identifying total suspended solids removal efficiencies of the various structural practices, for example.

Therefore, the design of this project relies on the combined effects of several erosion and sediment control measures to provide effective overall pollution control. Under optimal conditions, the methods used may attain and even exceed the 80% goal for total suspended solids removal. The project Contractor and inspector must keep these goals in mind when installing, inspecting and maintaining the proposed practices, measures and design features for preventing stormwater pollution.

The location for each stabilization and structural practice along with details for installation are shown in the construction plan set and in the specifications for the project. Additional measures that may be required are contained in the State of Connecticut Department of Transportation's "Standard Specifications for Roads, Bridges and Incidental Construction" (Form 816, 2004), Environmental Planning Division's "On-site Mitigation for Construction Activities" (1994), and the Department of Environmental Protection's "2002 Connecticut Guidelines for Soil Erosion and Sediment Control". These documents address the warrants, installation, schedule for implementation, maintenance, inspection and expected results for the chosen methods.

The following stabilization and structural practices are proposed for this project. (The practices discussed may not be identified by the identical name or description as a contract pay item or on the detailed estimate sheets for the projects.)

1. Stabilization Practices

In all cases, the Contractor shall implement stabilization measures as soon as possible after any soil disturbance. Where construction activities have been permanently ceased or have temporarily been suspended for more than seven days, or when final grades are reached in any portion of the site, stabilization practices shall be implemented within three days. Such stabilization may consist of mulching and tracking. Areas that will remain disturbed but inactive for 30 days or more shall be temporarily seeded (turf establishment) in accordance with Best Management Practices and Section 2.10 – Water Pollution Control (Soil Erosion).

a. Interim Stabilization Practices

- Temporary seeding (Turf Establishment and/or a separate Temporary Seeding item)
- Mulching and tracking (Temporary Slope Protection)
- Staked hay bale siltation barrier
- Geotextile silt fence barrier
- Catch basin inlet protection
- Dust control (water, calcium chloride and/or sweeping)

b. Permanent Stabilization Practices

- Topsoiling
- Permanent seeding (Turf Establishment)
- Landscape planting and wood chip mulching

- Overland sheet flow (minimum use of curbing to avoid concentrating runoff)

In addition, swales will be constructed in two locations within the project as a means of filtration prior to collecting stormwater in catch basins.

2. Structural Practices

Various structural practices are proposed for use throughout the project to divert flows away from exposed soils, store flows, collect sediment, or otherwise limit runoff and the discharge of pollutants.

The following features are included to improve the quality of stormwater runoff prior to its discharge to surface water:

- Catch basin sumps (2-foot standard and deeper 4-foot sumps where called for) to help trap sediments and contaminants.
- Riprap stabilization aprons and scour holes.
- Curbing was eliminated wherever possible to promote sheet flow.
- Grass Swales are used wherever possible to help filter out contaminants from runoff.

The use of overland sheet flow (areas without curbing) and grass swales as a vegetative filter is a common and recommended method to pretreat runoff from highways. Through the project these design features are used wherever possible. Various studies have demonstrated that a good stand of vegetative cover will slow flow velocities and can provide pollutant reduction through filtration, sediment deposition, and infiltration and in some cases biological assimilation. In certain storm events high removal efficiency can be obtained for particulates, heavy metals, and organics.

Catch basin sumps are useful to remove coarse sediments, trash and some pollutants from storm runoff waters. Sand fractions of the sediment load carry with it a significant percentage of potential pollutants, in the form of oxygen demand, nutrients for algae, heavy metals, and pesticides. Where specified on the plans the last two basins will have a deeper sump (4-foot instead of 2-foot). These catch basins will have a capacity of 80 cubic feet of sump storage and settling area (48 cubic feet with older style masonry block basins), per basin. Riprap aprons are also to be placed at pipe outlets for energy dissipation and erosion prevention.

3. Site Maintenance/Other Controls:

The Contractor is expected to maintain the construction site in a clean, orderly state through the duration of the construction effort. One of the first steps towards preventing contamination of stormwater and other types of pollution is by implementing sound construction management practices, site cleanliness, and good common sense. These will reduce the possibility of accidental spills or soil contamination, improve response times for addressing problems, and reduce safety hazards.

Construction solid waste materials such as concrete, bituminous concrete, lumber, scrap metal and packing materials are expected to be generated during construction. Various hazardous materials and substances are also expected to be present on-site, such as concrete additives, fertilizers, fuels, and petroleum-based products, and contaminated excavated soils.

Specifications for the handling and disposal of construction wastes and material management are contained in the following: the "Standard Specifications for Roads, Bridges and Incidental Construction – Form 816", 2004; the contract Special Provisions; and the "On-Site Mitigation for Construction Activities", 1994. These documents address materials handling, handling, testing and disposal of contaminated or hazardous materials, spill control, and materials storage and clean up on this state project.

After construction, typical pollution sources on state highways are winter salt, litter, and wastes/by-products of motor vehicle use. Proper cleaning and material management practices must be adhered to after completion of this improvement to reduce the frequency and extent of routine, on going types of pollution associated with high-volume arterial highways. The Department currently has maintenance and monitoring programs to promote more effective maintenance practices

D. INSPECTION

State personnel will inspect disturbed areas of the construction activity to be stabilized, all stabilization and structural control measures, and locations where vehicles enter or exit the site. This will be done at least once every seven calendar days and within 24 hours of the end of a storm that is 0.1 inches or greater. Where sites have been temporarily or finally stabilized, such inspections should be conducted at least once every month for three months.

Disturbed areas and areas for storage of materials that are exposed to precipitation will be inspected for evidence of, or the potential for, pollutants entering drainage systems. Erosion and sedimentation control measures will be observed to ensure that they are operating correctly. Where discharge locations or points are assessable, they will be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site will be inspected for evidence of off-site tracking of sediment.

Based on the results of the inspection, the description of potential sources and pollution prevention measures identified in the Plan will be revised as appropriate as soon as practicable after such inspection. Modifications such as these will provide for a timely implementation of any changes within the time specified by the contract documents.

A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the stormwater control plan, and actions taken will be made and retained as part of the stormwater control plan for at least three years after the date of inspection.

Significant changes to the Pollution Control Plan should be reflected by preparing a formal amendment to the "Stormwater Pollution Control Plan.

Stormwater Pollution Control Plan – Certification Statement:

State Project No. 120-86: Roundabout at Salem Four Corners, Rtes. 82 and 85

GENERAL CONTRACTOR:

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

Signed: _____

Date: _____

Title: _____

Firm: _____

Address: _____

Telephone No.: _____

SUBCONTRACTOR:

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

Signed: _____

Date: _____

Title: _____

Firm: _____

Address: _____

Telephone No.: _____

Stormwater Pollution Control Plan – Certification Statement:

State Project No. 120-86: Roundabout at Salem Four Corners, Rtes. 82 and 85

SUBCONTRACTOR:

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

Signed: _____

Date: _____

Title: _____

Firm: _____

Address: _____

Telephone No.: _____

SUBCONTRACTOR:

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

Signed: _____

Date: _____

Title: _____

Firm: _____

Address: _____

Telephone No.: _____



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: Connecticut Department of Transportation
3. Site Address: Intersection of Routes 82 and 85 City/Town: Salem State: CT Zip Code: 06420
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): <input type="checkbox"/> Industrial <input type="checkbox"/> Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Capped Landfill <input type="checkbox"/> 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



Inland Water Resources Division
 Department of Environmental Protection
 79 Elm Street, 3rd Floor
 Hartford, CT 06106-5127
www.ct.gov/dep

GIS CODE #:
 For DEP Use Only

Statewide Inland Wetlands & Watercourses Activity Reporting Form

Complete, print, **sign**, and mail this form in accordance with the instructions on pages 2 and 3.

PART I: To Be Completed By The Municipal Inland Wetlands Agency Only

1. DATE ACTION WAS TAKEN (use drop-down box): Year Month
2. ACTION TAKEN (use drop-down box):
3. WAS A PUBLIC HEARING HELD? (select one only) Yes No
4. NAME OF AGENCY OFFICIAL VERIFYING AND COMPLETING THIS FORM:
 (print): _____ (signature) _____

PART II: To Be Completed By The Municipal Inland Wetlands Agency Or The Applicant

5. TOWN IN WHICH THE ACTION IS OCCURRING: **SALEM**
 Does this project cross municipal boundaries? (select one only) Yes No
 If Yes, list the other town(s) in which the action is occurring:
6. LOCATION: USGS Quad Map Name (see hyperlink): **HAMBURG**
Quad Number (see hyperlink): **85**
Subregional Drainage Basin Number (see hyperlink): **4801**
7. NAME OF APPLICANT, VIOLATOR OR PETITIONER: **CONNECTICUT DEPARTMENT OF TRANSPORTATION**
8. NAME & ADDRESS/LOCATION OF PROJECT SITE: **INTERSECTION OF ROUTES 82 & 85**
SALEM FOUR CORNERS
 Briefly describe the action/project/activity: Temporary Permanent
Construction of a Roundabout at Routes 82 and 85
9. ACTIVITY PURPOSE CODE (Use drop-down box): N
10. ACTIVITY TYPE CODE(S) (Use drop-down box) 9, 10, 1,
11. WETLAND / WATERCOURSE AREA ALTERED [must be provided in acres or linear feet as indicated]:
 Wetlands: **0.204** acres Open Water Body: **0** acres Stream: **130** linear feet
12. UPLAND REVIEW AREA ALTERED [must be provided in acres]: **0** acres
13. AREA OF WETLANDS AND / OR WATERCOURSES RESTORED, ENHANCED OR CREATED: **0.648** acres
 [must be provided in acres]

PART III: To Be Completed By The DEP

DATE RECEIVED: _____ DATE RETURNED TO DEP: _____
 FORM COMPLETED: YES NO FORM CORRECTED / COMPLETED: YES NO



STATE OF CONNECTICUT
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 Central Permit Processing Unit
 79 Elm Street
 Hartford, CT 06106-5127

CPPU USE ONLY	
App #:	_____
Doc #:	_____
Check #:	_____

Permit Application Transmittal Form

Please complete this transmittal form in accordance with the instructions in order to ensure the proper handling of your application(s) and the associated fee(s). Print legibly or type.

Part I: Applicant Information:

- *If an applicant is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of State. If applicable, applicant's name shall be stated **exactly** as it is registered with the Secretary of State.
- If an applicant is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).

Applicant: Connecticut Department of Transportation	
Mailing Address: 2800 Berlin Turnpike, P.O. Box 317546	
City/Town: Newington	State: CT Zip Code: 06131-7546
Business Phone: 860-594-2931 ext.:	Fax: 860-594-3028
Contact Person: Mark W. Alexander	Phone: 860-594-2931 ext.
E-Mail: Mark.W.Alexander@ct.gov	
Applicant (check one): <input type="checkbox"/> individual <input type="checkbox"/> *company <input type="checkbox"/> federal gov't <input checked="" type="checkbox"/> state agency <input type="checkbox"/> municipality	
*If a company, list company type (e.g., corporation, limited partnership, etc.):	
<input type="checkbox"/> Check if any co-applicants. If so, attach additional sheet(s) with the required information as supplied above.	
Please provide the following information to be used for <i>billing purposes only</i> , if different:	
Company/Individual Name:	
Mailing Address:	
City/Town:	State: Zip Code:
Contact Person:	Phone: ext.

Part II: Project Information

Brief Description of Project: (Example: Development of a 50 slip marina on Long Island Sound)					
Construction of a Roundabout at Routes 82 and 85					
Location (City/Town): Salem, CT					
Other Project Related Permits (not included with this form):					
Permit Description	Issuing Authority	Submittal Date	Issuance Date	Denial Date	Permit #
Individual	ACOE	TBD			

Part III: Individual Permit Application and Fee Information

New, Mod. or Renew	Individual Permit Applications	Initial Fees	No. of Permits Applied For	Total Initial Fees	Original + Required Copies
	AIR EMISSIONS				
	New Source Review	\$940.00			1 + 0
	Title V Operating Permits	none			1 + 0
	Title IV	none			1 + 0
	Clean Air Interstate Rule (CAIR)	none			1 + 0
	WATER DISCHARGES				
	To Groundwater	\$1300.00			1 + 1
	To Sanitary Sewer (POTW)	\$1300.00			1 + 1
	To Surface Water (NPDES)	\$1300.00			1 + 2
	INLAND WATER RESOURCES - multiple permits 1 + 6 total copies				
	Dam Construction	none			1 + 2
New	Flood Management Certification	none	1	0	1 + 1
New	Inland 401 Water Quality Certification	none	1	0	1 + 5
New	Inland Wetlands and Watercourses	none	1	0	
	Stream Channel Encroachment Lines	★			
	Water Diversion	★			1 + 5
	OFFICE OF LONG ISLAND SOUND PROGRAMS				
	Certificate of Permission	\$375.00			1 + 3
	Coastal 401 Water Quality Certification	none			1 + 3
	Structures and Dredging/Tidal Wetlands	\$660.00			1 + 3
	WASTE MANAGEMENT				
	Aerial Pesticide Application	★			1 + 2
	Aquatic Pesticide Application	\$200.00			1 + 0
	CGS Section 22a-454 Waste Facilities	★			1 + 1
	Hazardous Waste Treatment, Storage and Disposal Facilities	★			1 + 1
	Marine Terminal License	\$125.00			1 + 0
	Stewardship	\$4000.00			1 + 1
	Solid Waste Facilities	★			1 + 1
	Waste Transportation	★			1 + 0
		Subtotal ➡			
	GENERAL PERMITS and AUTHORIZATIONS	Subtotals Page 3 ➡			
	Enter subtotals from Part IV, pages 3 & 4 & 5 of this form	Subtotals Page 4 ➡			
		Subtotals Page 5 ➡			
		TOTAL ➡	3	0	
	<input checked="" type="checkbox"/> Indicate whether municipal discount or state waiver applies.	Less Applicable Discount ➡		0	
		AMOUNT REMITTED ➡		0	
Check # ➡	<input type="text"/>	Check or money order should be made payable to: "Department of Environmental Protection"			

★ See fee schedule on individual application.

**Part IV: General Permit Registrations and Requests for Other Authorizations
Application and Fee Information**

<input checked="" type="checkbox"/> General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fees	Original + Required Copies
AIR EMISSIONS				
<input type="checkbox"/> Limit Potential to Emit from Major Stationary Sources of Air Pollution	\$2760.00			1 + 0
<input type="checkbox"/> Ionizing Radiation Registration	\$200.00			1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization	★★			★★
<input type="checkbox"/> Other, (please specify):				
WATER DISCHARGES				
<input type="checkbox"/> Domestic Sewage	\$500.00			1 + 0
<input type="checkbox"/> Food Processing Wastewater	\$500.00			1 + 0
<input type="checkbox"/> Groundwater Remediation Wastewater to a Sanitary Sewer	\$500.00			1 + 0
<input type="checkbox"/> Groundwater Remediation Wastewater to a Surface Water				
<input type="checkbox"/> Registration Only	\$625.00			1 + 0
<input type="checkbox"/> Approval of Registration by DEP	\$1250.00			
<input type="checkbox"/> Hydrostatic Pressure Testing Wastewater				
<input type="checkbox"/> Registration Only	\$625.00			1 + 0
<input type="checkbox"/> Approval of Registration by DEP (natural gas pipelines)	\$1250.00			
<input type="checkbox"/> Miscellaneous Discharges of Sewer Compatible Wastewater				
<input type="checkbox"/> Flow < 5,000 gpd and fire sprinkler system testwater	\$500.00			1 + 1
<input type="checkbox"/> Flow > 5,000 gpd	\$1000.00			
<input type="checkbox"/> Non-Contact Cooling and Heat Pump Water (Minor)	\$625.00			1 + 1
<input type="checkbox"/> Photographic Processing Wastewater (Minor)	\$100.00			1 + 0
<input type="checkbox"/> Printing & Publishing Wastewater (Minor)	\$500.00			1 + 0
<input type="checkbox"/> Flow < 40 gpd	\$100.00			
<input type="checkbox"/> Stormwater Associated with Commercial Activities	\$500.00			1 + 0
<input type="checkbox"/> Stormwater Associated with Industrial Activities	\$500.00			1 + 0
<input type="checkbox"/> Stormwater & Dewatering Wastewaters-Construction Activities				
<input type="checkbox"/> 5 - 10 acres	\$625.00			1 + 0
<input type="checkbox"/> > 10 acres	\$1250.00			
<input type="checkbox"/> Stormwater from Small Municipal Separate Storm Sewer Systems (MS4)	\$250.00			1 + 0
<input type="checkbox"/> Swimming Pool Wastewater - Public Pools and Contractors	\$500.00			1 + 0
<input type="checkbox"/> Tumbling or Cleaning of Parts Wastewater (Minor)	\$1000.00			1 + 1
<input type="checkbox"/> Vehicle Maintenance Wastewater				
<input type="checkbox"/> Registration Only	\$625.00			1 + 0
<input type="checkbox"/> Approval of Registration by DEP	\$1250.00			
<input type="checkbox"/> Water Treatment Wastewater	\$625.00			1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization - Discharge to POTW	\$1500.00			1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization - Discharge to Surface Water	\$1500.00			1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization - Discharge to Groundwater	\$1500.00			1 + 0
<input type="checkbox"/> Other, (please specify):				
Note: Carry subtotals over to Part III, page 2 of this form.		Subtotal		

★★ Contact the specific permit program for this information (Contact numbers are provided in the instructions).

Part IV: General Permit Registrations and Requests for Other Authorizations (continued)

<input checked="" type="checkbox"/> General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fee	Original + Required Copies
AQUIFER PROTECTION PROGRAM				
<input type="checkbox"/> Registration for Regulated Activities	\$625.00			1 + 0
<input type="checkbox"/> Permit Application to Add a Regulated Activity	\$1250.00			1 + 0
<input type="checkbox"/> Exemption Application from Registration	\$1250.00			1 + 0
INLAND WATER RESOURCES				
<input type="checkbox"/> Dam Safety Repair and Alteration	\$1000.00			1 + 2
<input type="checkbox"/> Diversion of Water for Consumptive Use: Reauthorization Categories	\$1000.00			1 + 2
<input type="checkbox"/> Diversion of Water for Consumptive Use: Authorization Required	\$2500.00			1 + 5
<input type="checkbox"/> Diversion of Water for Consumptive Use: Filling Only	\$1500.00			1 + 4
<input type="checkbox"/> Habitat Conservation	\$1000.00			1 + 2
<input type="checkbox"/> Lake, Pond and Basin Dredging	\$1000.00			1 + 2
<input type="checkbox"/> Minor Grading	\$1000.00			1 + 2
<input type="checkbox"/> Minor Structures	\$1000.00			1 + 2
<input type="checkbox"/> Utilities and Drainage	\$1000.00			1 + 2
<input type="checkbox"/> Emergency/Temporary Authorization	★★			★★
<input type="checkbox"/> Other, (please specify):				
OFFICE OF LONG ISLAND SOUND PROGRAMS				
<input type="checkbox"/> 4/40 Docks	\$700.00			1 + 1
<input type="checkbox"/> Beach Grading	\$100.00			1 + 1
<input type="checkbox"/> Coastal Remedial Activities Required by Order	\$700.00			1 + 1
<input type="checkbox"/> Marina and Mooring Field Reconfiguration	\$700.00			1 + 1
<input type="checkbox"/> Non-harbor Moorings	\$100.00			1 + 1
<input type="checkbox"/> Osprey Platforms and Perch Poles	none			1 + 1
<input type="checkbox"/> Pump-out Facilities (no fee for Clean Vessel Act grant recipients)	\$100.00			1 + 1
<input type="checkbox"/> Removal of Derelict Structures	\$100.00			1 + 1
<input type="checkbox"/> Residential Flood Hazard Mitigation	\$100.00			1 + 1
<input type="checkbox"/> Swim Floats	\$100.00			1 + 1
<input type="checkbox"/> Emergency/Temporary Authorization	★★			★★
<input type="checkbox"/> Other, (please specify):				
Note: Carry subtotals over to Part III, page 2 of this form.		Subtotal		

★ See fee schedule on registration/application.

★★ Contact the specific permit program for this information.

Part IV: General Permit Registrations and Requests for Other Authorizations (continued)

✓ General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fee	Original + Required Copies
WASTE MANAGEMENT				
<input type="checkbox"/> Addition of Grass Clippings at Registered Leaf Composting Facilities	\$500.00			1 + 0
<input type="checkbox"/> Asbestos Disposal Authorization	\$300.00			1 + 0
Certain Recycling Facilities				
<input type="checkbox"/> Drop-site Recycling Facility	\$200.00			1 + 0
<input type="checkbox"/> Limited Processing Recycling Facility	\$500.00			1 + 0
<input type="checkbox"/> Recyclables Transfer Facility	\$500.00			1 + 0
<input type="checkbox"/> Single Item Recycling Facility	\$500.00			1 + 0
Contaminated Soil and/or Staging Management (Staging/Transfer)				
<input type="checkbox"/> Registration Only	\$250.00			1 + 0
<input type="checkbox"/> Approval of Registration by DEP	\$1500.00			1 + 0
<input type="checkbox"/> Connecticut Solid Waste Demonstration Project	\$1000.00			1 + 0
<input type="checkbox"/> Disassembling Used Electronics	\$400.00			1 + 0
<input type="checkbox"/> Leaf Composting Facility	none			1 + 1
<input type="checkbox"/> Municipal Transfer Station	\$800.00			1 + 1
<input type="checkbox"/> One Day Collection of Certain Wastes and Household Hazardous Waste	\$1000.00			1 + 0
<input type="checkbox"/> Special Waste Authorization	\$660.00			1 + 0
<input type="checkbox"/> Storage and Distribution of Two (2) Inch Nominal Tire Chip Aggregate	\$500.00			1 + 0
<input type="checkbox"/> Storage and Processing of Asphalt Roofing Shingle Waste and/or Storage and Distribution of Ground Asphalt Aggregate	★			1 + 0
<input type="checkbox"/> Storage and Processing of Scrap Tires for Beneficial Use	\$1000.00			1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization	★★			★★
<input type="checkbox"/> Other, (please specify):				
REMEDIATION				
<input type="checkbox"/> In Situ Groundwater Remediation: Enhance Aerobic Biodegradation	★			1 + 2
Note: Carry subtotals over to Part III, page 2 of this form.		Subtotal		

★ See fee schedule on registration/application.

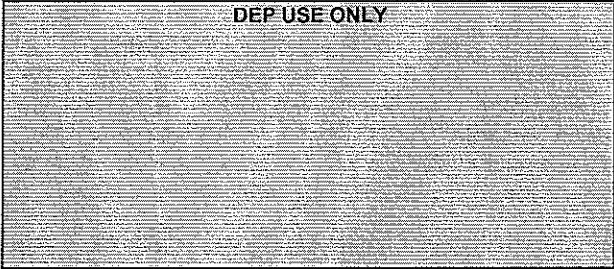
★★ Contact the specific permit program for this information.

In conformance with the ADA, individuals with disabilities who need information in an alternative format to allow them to benefit and/or participate in the agency's programs and services, should call 860-424-3051 or 860-418-5937, or e-mail Marcia Z. Bonitto, ADA Coordinator at Marcia.Bonitto@ct.gov.



Permit Application for Programs Administered by the Inland Water Resources Division

Please complete this application form in accordance with the instructions (DEP-IWRD-INST-100) in order to ensure the proper handling of your application. Print or type unless otherwise noted. You must submit the *Permit Application Transmittal Form* (DEP-APP-001) and the initial fee along with this form.



Part I: Application Type

Check the appropriate box identifying the application type.

<p>This application is for (check one):</p> <p><input checked="" type="checkbox"/> A <i>new</i> application</p> <p><input type="checkbox"/> A <i>renewal</i> of an existing permit</p> <p><input type="checkbox"/> A <i>modification</i> of an existing permit</p>	<p>Please identify any previous or existing permit/authorization/registration number in the space provided.</p> <p>Existing permit/authorization/registration number:</p> <p>Expiration Date:</p>
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Part II: Permit Type and Fee Information

Please note: effective August 21, 2003, the application fees for the programs administered by the Inland Water Resources Division have increased as listed in the following table. The fee for municipalities is 50% of the listed rates.

Type of Permit (check <i>all</i> that apply):	Fee to submit with application:
<input checked="" type="checkbox"/> Inland Wetlands & Watercourses CGS Sec. 22a-36 et seq.	none
<input type="checkbox"/> Dam Construction CGS Sec. 22a-403	none
<input checked="" type="checkbox"/> 401 Water Quality Certificate 33 U.S.C. 1341	none
<input checked="" type="checkbox"/> Flood Management Certification CGS Sec. 25-68(b) - (h)	none
Stream Channel Encroachment CGS Sec. 22a-342	
<input type="checkbox"/> No change in grade and no construction of above-ground structures	\$470.00
<input type="checkbox"/> A change in grade and no construction of above-ground structures	\$940.00
<input type="checkbox"/> A change in grade and above-ground structures or buildings	\$4,000.00
Water Diversion: Consumptive Use CGS Sec. 22a-372(e)	
<input type="checkbox"/> Withdrawal > 0.05 and < 0.5 mgd	\$2,050.00
<input type="checkbox"/> Withdrawal ≥ 0.5 and < 2.0 mgd	\$4,000.00
<input type="checkbox"/> Withdrawal ≥ 2.0 mgd	\$6,250.00
Water Diversion: Nonconsumptive Use CGS Sec. 22a-372(e)	
<input type="checkbox"/> Watershed < 0.5 sq mi	\$2,050.00
<input type="checkbox"/> Watershed ≥ 0.5 sq mi and < 2.0 sq mi	\$4,000.00
<input type="checkbox"/> Watershed ≥ 2.0 sq mi	\$6,250.00

Part III: Applicant Information

1. Fill in the name of the applicant(s) as indicated on the *Permit Application Transmittal Form* (DEP-APP-001):

Applicant: **Connecticut Department of Transportation**

Phone: **594-2001**

ext.

Fax: **594-3028**

- Check here if there are co-applicants. If so, label and attach additional sheet(s) with the required information to this sheet.

2. Applicant's interest in property at which the proposed activity is to be located:

site owner option holder lessee

easement holder operator other (specify):

3. List primary contact for departmental correspondence and inquiries, if different than the applicant.

Name: **Connecticut Department of Transportation**

Mailing Address: **2800 Berlin Turnpike, P.O.Box 317546**

City/Town: **Newington**

State: **CT**

Zip Code: **06131-7546**

Business Phone: **860-594-2931**

ext.

Fax: **860-594-3028**

Contact Person: **Mark W. Alexander**

Title: **Trans. Assist. Plan. Dir.**

4. List attorney or other representative, if applicable:

Firm Name:

Mailing Address:

City/Town:

State:

Zip Code:

Business Phone:

ext.

Fax:

Attorney:

5. Facility or Property Owner, if different than the applicant:

Name:

Mailing Address:

City/Town:

State:

Zip Code:

Business Phone:

ext.

Fax:

Contact Person:

Title:

Home address of owner (for Inland Wetlands applications only):

Mailing Address:

City/Town:

State:

Zip Code:

Home Phone:

Part III: Applicant Information (continued)

6. List any engineer(s) or other consultant(s) employed or retained to assist in preparing the application or in designing or constructing the activity. Check here if additional sheets are necessary, and label and attach them to this sheet.

Name:
Mailing Address:
City/Town: State: Zip Code:
Business Phone: ext. Fax:
Contact Person: Title:
Service Provided:

Part IV: Site Information

1. **Site Location:**

a. Name of facility, if applicable: **Salem Four Corners**
Street Address or Description of Location: **Intersection of Routes 82 & 85**

City/Town: **Salem** State: **CT** Zip Code: **06420**
Project No., if applicable: **120 - 86**

b. Tax Assessor's Reference: Map Block Lot
(Assessor's reference is not required if requester is an agency of the State of Connecticut.)

c. Latitude and Longitude of the approximate "center of the site" in degrees, minutes, and seconds:
Latitude: **N 41.47658** Longitude: **E 72.26491**
Method of determination (check one):
 GPS USGS Map Other (please specify):
If a USGS Map was used, provide the quadrangle name: **85**

d. Drainage Basin number(s) wherein the proposed activity will take place: **4801**

e. Flood Insurance Rate Map Panel Number: **0901560017A**
Date of the map referenced: **02/03/1982**

f. If applying for a SCEL permit, identify the property wherein the proposed activity will take place by indicating the following:
SCEL Map number(s):
Property Identifier:
Date of the map referenced:

2. **COASTAL BOUNDARY:** Is the activity which is the subject of this application located within the coastal boundary as delineated on DEP approved coastal boundary maps? Yes No
If yes, and this application is for a new permit or for a modification of an existing permit, you must submit a *Coastal Consistency Review Form* (DEP-APP-004) with your application as Attachment P.
Information on the coastal boundary is available at the local town hall or on the "Coastal Boundary Map"

Part IV: Site Information (continued)

3. **ENDANGERED OR THREATENED SPECIES:** Is the project site located within an area identified as a habitat for endangered, threatened or special concern species as identified on the "State and Federal Listed Species and Natural Communities Map"? Yes No Date of Map: **December 2010**

If yes, complete and submit a *Connecticut Natural Diversity Data Base (CT NDDB) Review Request Form* (DEP-APP-007) to the address specified on the form. **Please note NDDB review generally takes 4 to 6 weeks and may require additional documentation from the applicant. DEP strongly recommends that applicants complete this process before submitting the subject application.**

When submitting this application form, include copies of any correspondence to and from the NDDB, including copies of the completed *CT NDDB Review Request Form*, as Attachment K (Environmental Report) or in Attachment Q if no environmental report is required.

For more information visit the DEP website at www.ct.gov/dep/endangeredspecies (Review/Data Requests) or call the NDDB at 860-424-3011.

4. **AQUIFER PROTECTION AREAS:** Is the site located within a town required to establish Aquifer Protection Areas, as defined in section 22a-354a through 354bb of the General Statutes (CGS)?

Yes No

If yes, is the site within an area identified on a Level A or Level B map? Yes No

To view the applicable list of towns and maps visit the DEP website at www.ct.gov/dep/aquiferprotection

To speak with someone about the Aquifer Protection Areas, call 860-424-3020.

5. **CONSERVATION OR PRESERVATION RESTRICTION:** Is the property subject to a conservation or preservation restriction? Yes No

If Yes, proof of written notice of this application to the holder of such restriction or a letter from the holder of such restriction verifying that this application is in compliance with the terms of the restriction, must be submitted as Attachment Q.

6. **Other Permits:** List any previous federal, state or local permits or certificates that have already been issued for the site or for the proposed activity:

<u>Type or Nature of Permit</u>	<u>Permit No.</u>	<u>Issuing Authority</u>	<u>Date Issued</u>	<u>Expiration Date</u>	<u>Permittee Name</u>
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Part V: Supporting Documents

Please check the attachments submitted as verification that *all* applicable attachments have been submitted with this application form. When submitting any supporting documents, please label the documents as indicated in this part (e.g., Attachment A, etc.) and be sure to include the applicant's name as indicated on the *Permit Application Transmittal Form*. The specific information required in each attachment is described in the *Instructions for Completing A Permit Application for Inland Water Resources Division Activities* (DEP-IWRD-INST-100).

- Attachment A: Executive Summary
- Attachment B: An 8 1/2" x 11" copy of a United States Geological Survey (USGS) Topographic Quadrangle Map (scale: 1:24,000) with the regulated activity or project site outlined or pinpointed, as appropriate.
- Attachment C: *Documentation Form for: Inland Wetlands and Watercourses Permit, Stream Channel*

Encroachment Line Permit, and 401 Water Quality Certification (DEP-IWRD-APP-101)

Part V: Supporting Documents (continued)

- Attachment D: *Documentation Form for Water Diversion Permit* (DEP-IWRD-APP-102)
- Attachment E: *Documentation Form for a Dam Construction Permit* (DEP-IWRD-APP-103)
- Attachment F: *Documentation Form for Flood Management Certification* (DEP-IWRD-APP-104) (State Agencies Only)
- Attachment G: Plan Sheets and Drawings
- Attachment H: Engineering Documentation
 - Part 1: *Engineering Report Checklist* (DEP-IWRD-APP-105A) and an Engineering Report
 - Part 2: *Hydrologic and Hydraulic Consistency Worksheet* (DEP-IWRD-APP-105B)
 - Section I: Floodplain Management
 - Section II: Stormwater Management
 - For state agencies only:*
 - Section III: State Grants and Loans
 - Section IV: Disposal of State Land
- Attachment I: Flood Contingency Plan
- Attachment J: Soil Scientist Report (not required for Flood Management Certification)
- Attachment K: Environmental Report (not required for Flood Management Certification)
- Attachment L: Mitigation Report - wetlands and watercourses, fish and wildlife (not required for Flood Management Certification)
- Attachment M: Alternatives Assessment (not required for Flood Management Certification)
- Attachment N: *Applicant Compliance Information Form* (DEP-APP-002) (not required for Flood Management Certification or 401 Water Quality Certification Approvals)
- Attachment O: *Applicant Background Information Form* (DEP-APP-008) (not required for Flood Management Certification)
- Attachment P: *Coastal Consistency Review Form* (DEP-APP-004) (if applicable)
- Attachment Q: Other Information: any other information the applicant deems relevant or is required by DEP.

Number of Copies of Application:

Submit one original of all application forms, certifications, reports and supporting documents and the number of photocopies of all such materials as noted on the *Permit Application Transmittal Form*. When applying for more than one permit, you should submit the original and no more than six copies.

Part VI: Application Certification

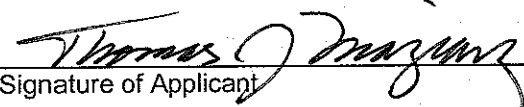
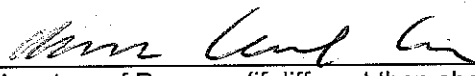
The applicant *and* all individuals responsible for actually preparing the application or supporting documentation must sign this part. An application will be considered insufficient unless **all** required signatures are provided. You must include signatures of any person preparing any report or parts thereof filed in support of this application (i.e., professional engineers, surveyors, soil scientists, biologists, environmental and other consultants, etc.).

"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 the 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 in the submitted information may be punishable as a criminal offense, in accordance with Section 22a-6 of the General Statutes, pursuant to Section 53a-157b of the General Statutes, and in accordance with any other applicable statute.

I certify that this application is on complete and accurate forms as prescribed by the commissioner without alteration of the text.

I certify that I will comply with all notice requirements as listed in Section 22a-6g of the General Statutes."

 Signature of Applicant	3-21-2011 Date
Thomas J. Maziarz Name of Applicant (print or type)	Bureau Chief Policy & Planning Title (if applicable)
 Signature of Preparer (if different than above)	3/14/11 Date
Byong K. Kim Name of Preparer (print or type)	Project Engineer Title (if applicable)
<input type="checkbox"/> Check here if additional signatures are required. If so, please reproduce this sheet and attach signed copies to this sheet.	

Reminder: After submitting this application to DEP, except in the case of a Flood Management Certification, you must publish a notice of the application immediately and submit a certified copy of this published notice to DEP. See "Notice of Permit Application" section in the instructions (DEP-IWRD-INST-100).

List the name of the newspaper the Notice of Permit Application will be published in: **The New London Day**

Note: Please submit the *Permit Application Transmittal Form*, Application Form, Fee, and all Supporting Documents to:

CENTRAL PERMIT PROCESSING UNIT
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 79 ELM STREET
 HARTFORD, CT 06106-5127

Attachment A: Executive Summary

Proposed Action

The project involves the replacement of the existing signalized intersection with a modern roundabout at the intersection of Routes 82 and 85 in Salem, Connecticut. This action is expected to significantly reduce the number of head-on turning accidents at the intersection as well as at the driveway to a gas station located on Route 85 immediately south of Route 82. The proposed roundabout consists of a single lane with auxiliary lanes on both the Route 85 northbound and the Route 82 eastbound approaches. Two lane approaches on those legs are necessary to accommodate the heavy volumes of traffic to and from the nearby terminus of Route 11.

The additional lane on the Route 85 northbound approach will be carried through the entry into the circulatory roadway, but will continue only as far as the exit to Route 85 northbound. The additional lane on the Route 82 eastbound approach will be a right turn lane, providing a dedicated lane for southbound traffic from Route 11 turning right onto Route 85 southbound. The majority of the circulatory roadway will consist of a single lane.

Head-on turning conflicts at the intersection will be eliminated with the roundabout configuration. At the gas station driveway, the head-on turning conflict will be alleviated in two ways due to the reduced delays associated with a roundabout compared to the existing signal; the northbound queue is not expected to extend as far south as the southern gas station driveway under normal conditions, greatly reducing the potential for turns made with restricted sightlines – the “peek-a-boo” type accidents that frequently occur today; and a southbound left turn lane on Route 85, at the driveway, will provide a safe haven for left turning vehicles.

Under the existing conditions the tractor-trailers delivering fuel to the Henny Penny gas station have no alternative but to back out of the gas station to exit, upon completing their fuel delivery. It is proposed to reconstruct Henny Penny’s driveway to provide adequate room for the tractor trailer to turn around within the parking lot and driveway

This project primarily involves adjustments to existing roadway stormwater drainage systems. Drainage system will be adjusted and new catch basins will be installed due to roadway widening and installed raised median islands. Approximately 130 ft of an unnamed watercourse that flows through the Henny Penny property on the southeast corner of the intersection will need to be relocated due to roadway widening and grading.

This project will involve work on a portion of Route 82 within the 100 year floodplain of Harris brook. This work will involve raising the intersection by 2 feet. This will raise the intersection out of the floodplain. There will be no adverse impact to the floodplain as a result of the proposed improvements.

Best Management Practices (BMPs)

BMPs would primarily consist of erosion and sedimentation controls during and after construction. These controls would consist of installation of filter fabric fence, hay bales, and other sedimentation control systems may also be utilized in other areas as deemed necessary by the on-site engineer. BMPs for long term water quality improvement will include the separation of stream water from the storm water, creation of grass-lined swales, and installation of outlet protection. For the existing cross culvert on route 85 outlet protection will be included as an enhancement and a long term protection from erosion.

Purpose and Need

The primary purpose of this project is to address safety at the intersection of Route 82 and Route 85. With the termination of the Route 11 expressway at Route 82 (one mile west of the intersection), Route 85 provides the primary connection between Route 11 in Salem and I-95 in Waterford, resulting in heavy traffic volumes through the intersection.

The high traffic volumes contribute to a high accident frequency at the intersections of Routes 82 and 85, and Route 85 at the Henny Penny gas station driveway on the southern approach. At the intersection the predominant accident patterns are head-on turning collisions between northbound Route 85 vehicles turning left onto Route 82 and southbound Route 85 traffic. At the driveway, various types of accidents exist between Route 85 southbound traffic turning left into the gas station and Route 85 northbound traffic.

Alternatives

Three alternatives were considered to address traffic and safety concerns at the intersection:

- No Build Alternative
- Reconfiguration of the Existing Intersection
- Construction of Roundabout at the Intersection

No Build Alternative

Under the No Build Alternative, the existing accident problems would continue to occur and get worse as traffic volumes steadily increase. Also under the No Build Alternative fuel delivery truck will continue to back out off the Henny Penny driveway located just southeast of the intersection. This creates an unsafe situation for drivers as well as a potentially environmentally hazardous situation. Fuel delivery trucks can block the intersection while backing out from the gas station driveway for up to 20 minutes at a time; this can cause a collision because an approaching driver might not be expecting that at a major intersection. A collision with a fuel truck could cause serious gasoline spills. This alternative perpetuates unsafe traffic conditions on the roadway.

Reconfiguration of the Existing Intersection

The reconfiguration of the existing intersection is not a prudent alternative since it would roughly impact the same amount of wetland as a roundabout and not address the safety problems at the intersection. A conventional 4-way signalized intersection would require additional left turn lanes on both approaches on Route 82 and the north approach of Route 85. Median islands would still be needed to control the access to the gas station to address accidents at this location and the south approach of 85 would need to be widened to match the width on the opposite approach. This widening would only address capacity. Head-on turning accidents at the intersection would not be addressed with this alternative.

Construction of Roundabout at the Intersection

Construction of a roundabout is the preferred alternative. As stated in the other alternatives this alternative will eliminate the need for fuel delivery trucks to back out onto the highway. As well as address the capacity and safety needs at the intersection. In addition to these benefits, cars traveling through roundabouts continuously flow and cars at conventional intersection stop and idle. This leads to improved air quality at roundabouts.

Wetland and Floodplain Impacts

Wetland Impacts

The proposed project would permanently impact approximately 0.188 acres (8,183 sf) of regulated wetlands including a stream relocation of 130 linear feet or 0.021 acres (900 sf) and temporarily impact 0.016 acres (678 sf) of wetlands, totaling 0.204 acres (8,861 sf) of impacts. Four different wetland impact sites have been identified.

Potential Floodplain and Floodway Impacts

A portion of the proposed project will take place within the 100-year floodplain boundary associated with Harris Brook. The brook crosses Route 85 through Bridge No. 5583, approximately 620 ft northwest from the intersection. Approximately 940 ft downstream from this crossing, the brook crosses Route 82 through Bridge No. 2512, which is located 600 ft southwest of the intersection. Both bridges are outside the limit of the project. The east approach of Route 82 and a portion of the intersection are currently within this boundary. It is proposed to raise the intersection proper out of the floodplain. No adverse effects are anticipated.

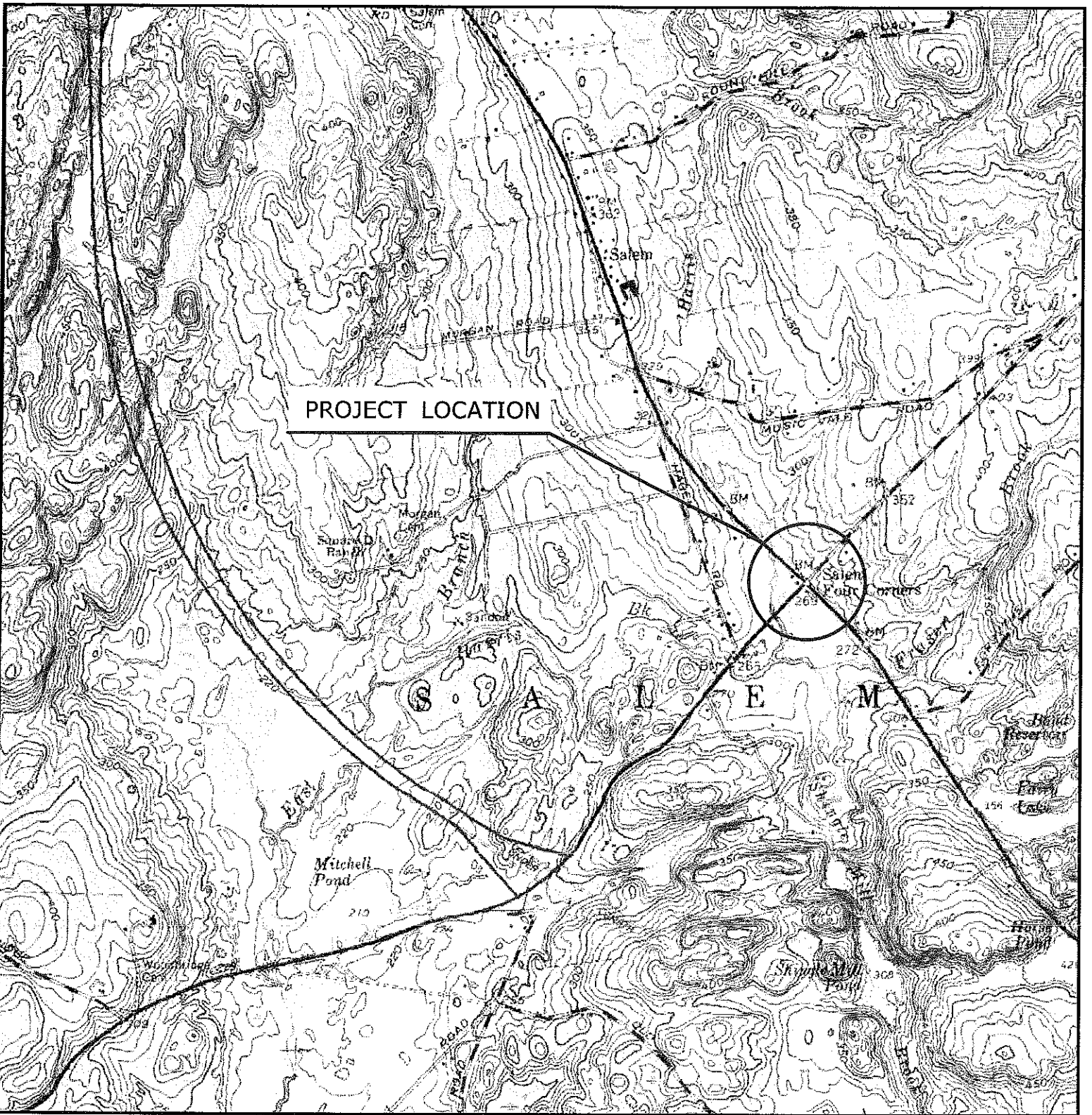
A flood contingency plan is being prepared as part of the Flood Management Certification Application. The contractor, once selected, will also submit a more detailed plan for review.

Mitigation

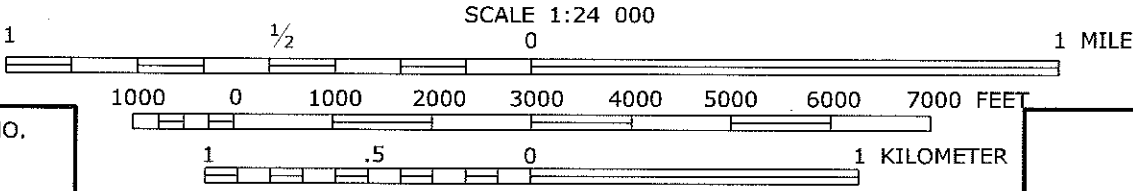
The Department of Transportation's Office of Environmental Planning has recommended using the former Bad Boyz Toyz site on the northwest corner for mitigation at an approximate ratio of 3 to 1. This site is known to be contaminated and will be cleaned up as part of the mitigation plan. The total site mitigation area is approximately 0.627 acres (27,300 sf). Native plantings and educational signage will be installed on site to create a natural habitat for local fauna within the creation site as well as provide an aesthetically pleasing view from the roadway.

Construction Schedule :

This contract will be advertised in November 2011 with an expected start of construction in spring 2012. The anticipated duration of construction is roughly 1 construction seasons.



PROJECT LOCATION



CONTOUR INTERVAL 10 FEET
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

QUADRANGLE NO.
 85

STATE PROJECT NO.: 120 - 86
 COUNTY: NEW LONDON
 CITY/TOWN: SALEM

APPLICATION BY:
STATE OF CONNECTICUT
 DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION OF A ROUNDABOUT AT
 ROUTES 82 & 85**



DATE: OCTOBER 2010

Attachment C: Documentation Form for the Following Permits:

- **Inland Wetlands and Watercourses Permit (CGS Section 22a-39)**
- **Stream Channel Encroachment Line Permit (CGS Section 22a-342 through 22a-349)**
- **401 Water Quality Certification Inland Waters (33 U.S.C. 1341)**

All applicants should review the application instructions (DEP-IWRD-INST-100). Applicants for an Inland Wetlands and Watercourses Permit should review CGS Sections 22a-36 through 22a-45 and RCSA Sections 22a-39-1 through 22a-39-15. Applicants for a Stream Channel Encroachment Line Permit should review CGS Section 22a-342. Applicants for 401 Water Quality Certification should review Section 401 of the Federal Water Pollution Control Act (33 U.S.C. 1341) and Connecticut's Water Quality Standards.

If more space is needed for your response, duplicate the form and attach additional pages to the form. If additional pages are attached, they should be numbered and titled to correspond to the specific number and title of the request for information on the application form.

1. Applicant Name: **Connecticut Department of Transportation**
(as indicated on the *Permit Application Transmittal Form*)
2. Check the permit(s) being requested in this application (check all that apply):
 - Inland Wetlands & Watercourses
 - Stream Channel Encroachment Lines
 - Water Quality Certification
3. If applying for a SCEL permit, indicate the SCEL Map number(s) wherein the proposed activity will take place, the property identifier and the date of the map referenced:
SCEL Map number(s):
Property Identifier:
Date of the map referenced:
4. Name of wetland(s) and watercourse(s) involved:
 1. **Harris Brook & associated tributary wetlands at the intesection of Routes 82 & 85**
 2. **Un-named watercourse (flows through the Henny Penny property)**

Attachment C: Documentation Form (continued)

5. Describe the purpose and need for the proposed project.

The primary purpose of this project is to address safety at the intersection of Route 82 and Route 85. With the termination of the Route 11 expressway at Route 82 (one mile west of the intersection), Route 85 provides the primary connection between Route 11 in Salem and I-95 in Waterford, resulting in heavy traffic volumes through the intersection.

The high traffic volumes contribute to a high accident frequency at the intersection. The intersection of Routes 82 and 85, and the Henny Penny gas station driveway on the southern approach are on the SLOSSS list. At the intersection, the predominant accident patterns are head-on turning collisions between northbound Route 85 vehicles turning left onto Route 82 and southbound Route 85 traffic. At the driveway, various types of accidents exist on Route 85 where southbound traffic turning left into the gas station collides with Route 85 northbound traffic.

Check here if additional sheets are necessary, and label and attach them to this sheet.

Attachment C: Documentation Form (continued)

6. *Description of the Regulated Activity:*

6a. Indicate the area, in acres and volume in cubic yards, of any fill, excavation, or other alterations of wetlands, watercourses and floodplains.

1.36 acres

See add. sheet cubic yards

6b. Describe all proposed regulated activities in and affecting wetlands, watercourses and floodplains. Include all discharges of dredged or fill material and storm waters incidental to the construction and/or operation of the proposed project.

See additional text.

Check here if additional sheets are necessary, and label and attach them to this sheet.

Attachment C:

6. Description of Regulated Activity

Section 6a

	SUMMARY OF VOLUMES	
	Earth <u>Cut</u> Volume (CY)	Earth <u>Fill</u> Volume (CY)
Route 82 (in Flood Plain)	2,238	431
Mitigation Site	2,235	0
Site1	91	43
Site 2	122	110
Site 3	3	15
Site 4	3	199
TOTAL	4,689	599

Attachment C: Additional Text

Section 6b – Description of Proposed Regulated Activity

Storm drainage systems will be replaced as a result of the roadway geometry changes associated with the construction of a modern roundabout. The proposed catch basins will be installed in a way to capture the stormwater before it gets to the circular roadway and will be discharged into existing wetland areas. The systems will primarily be all new structures with the addition of a few existing Catch basin tied into them. There will be five new outlets at two new locations. Outlet protection will be installed and upgraded as needed, based on the hydraulic computations and field investigations.

There will be new outlets on Route 85 at approximately STA: 305+93 LT and 315+12 LT. The existing cross culvert on Route 85 at STA: 408+60 will be replaced and extended to accommodate roadway widening. It will also have several new catch basins tied into it. The existing outlet on Route 82 next to the driveway to Salem Town Center will be replaced and moved approximately 50 feet from its current location due to an active well that services the Salem Town Center. The existing outlet currently conveys an unnamed watercourse that gets captured at the Henny Penny parcel and roadway drainage. It is proposed to separate the stream from the stormwater. Both will outlet about 50 feet from the current location. A Swale between Sta.407+00 RT and Sta. 408+50 RT and between 408+50 RT and 409+60 RT is proposed to provide some pre-treatment. Drainage calculations for proposed drainage systems are provided in Attachment H.

Best Management Practices (BMPs)

BMPs would primarily consist of erosion and sedimentation controls during and after construction. Before the start of construction, sedimentation control systems would be installed around all designated wetland areas within the proposed project area. Filter fabric would be installed around all staging and stockpile areas within the project, once determined. Hay bales or other sedimentation control systems may also be utilized in other areas and would be deemed necessary by the on-site engineer. Dewatering discharge receptacles would also be utilized in areas where ground water may be exposed and pumped to create dry working conditions. All storm drainage outfall work would be conducted from the upland side of the wetland area. There would be no storage of machinery or any hazardous materials within wetland areas and the 100 year floodplain. Weekly inspection of erosion and sedimentation controls would be initiated and repairs made to controls as deemed necessary.

BMPs for long-term water quality improvement include the construction of vegetated swales and installation of outlet protection. All scour holes, splash pads, and rip rap will be designed in accordance with DOT Drainage Manual.

Wetland Impacts

The proposed project would permanently impact approximately 0.188 acres (8,183 sf) of regulated wetlands including a stream relocation of 130 linear feet or 0.021 acres (900 sf) and temporarily impact 0.016 acres (678 sf) of wetlands, totaling 0.204 acres (8,861 sf) of impacts. Four separate wetland impact sites occur as a result of the proposed construction. Table 1 shows these impacted sites and the locations by station number; the station numbers correspond to the plans in Attachment G of this application.

Table 1 - Wetland Impact Summary						
Wetland Site No.		Permanent		Temporary		
#	Station		Area (SF)	Area (ac)	Area (SF)	Area (ac)
1	417+15 LT	419+25 LT	1,231	0.028	0	0
2	104+50 RT	108+00 RT	2,397	0.055	568	0.013
2	200+22 LT	201+15 LT	278	0.006	110	0.003
3	110+70 RT	112+40 RT	900	0.021	0	0
4	406+70 RT	409+80 RT	1,572	0.036	0	0
4	304+30 LT	306+84 LT	1,805	0.041	0	0
	TOTAL		8,183	0.188	678	0.016

Table 2 provides information on wetlands and watercourses that will be restored, enhanced or created. Most of the permanent impacts will occur due to the roadway widening, including the unnamed channel that flows through Henny Penny property along Route 82.

Table 2 - Wetlands and /or Watercourses Restored, Enhanced, or Created		
	Area (SF)	Area (ac)
Stream Relocation	900	0.021
Site Mitigation	27,300	0.627
TOTAL	28,200	0.648

A portion of wetland site 1, located north of the intersection on the west side of Route 85, will be filled with a clean material by extension of the side slopes to facilitate roadway widening. There will also be a new 12" drainage outlet constructed with outlet protection in this site. This system will only contain one catch basin. Also, the insitu soils along the left shoulder (Sta: 417+00 to 419+00) have been determined to be unstable and will be replaced with free draining material.

Impacts to wetland site 2, located west of the intersection on both the north and south sides of Route 82, will include construction of two new culvert ends and fill due to roadway widening. Currently this location consists of only one outlet on the south side of Route 82 that combines runoff from the roadway and the steam flow from an unnamed channel and associated overflow channel which drain under the road from the Henny Penny property. The proposed design will include replacing the existing outlet with two new drainage systems that will be working independently of each other. One system will convey the roadway runoff and the other system will convey the unnamed watercourse.

Temporary impacts at site 2 are that the insitu soils along the shoulders (Sta: 104+75 RT to Sta: 107+75 RT and Sta: 106+75 LT to Sta: 107+75 LT) have been determined to be unstable and will be over excavated and replaced with additional subbase.

Impacts to wetland site 3 involve relocating a small unnamed watercourse located on the southeast side of the intersection on the Henny Penny property. This watercourse will need to be relocated due to impacts from roadway widening. New riprap will be installed along the length of the relocated channel. This channel is predominantly dry, but in times of high flow it conveys the overflow from the main channel; a small, unnamed watercourse located to the south of the work area. It should also be noted that the present location of the overflow channel is artificial and appears to have been designed around nearby development.

Wetland site 4 is located south of the intersection on both the east and west sides of Route 85. Portions of this wetland will be filled with a clean material by extension of the side slopes to facilitate roadway widening and the construction of drainage outlets. The existing 15" cross culvert that is located south of the intersection on Route 85 will be extended several feet and upsized to 24" to account for additional drainage needs, culvert ends will be replaced, and a new splash pad constructed for erosion protection. There will also be a new 18" drainage outlet constructed with outlet protection on the west side of this site. Wetland site 4 will include 150 and 100 foot long vegetative swales constructed at the toe of the slope.

Attachment L provides details with respect to mitigation efforts.

Floodplain Impacts

A portion of the project is located within a regulated 100-year floodplain. This construction activity is part of the realignment and widening for the intersection improvements. The west approach of Route 82 is currently in the floodplain. It is proposed to raise the intersection approximately 2 feet. This will bring the intersection proper out of the floodplain. No adverse effects on the floodway are anticipated.

Attachment C: Documentation Form (continued)

7. *Description of Site* - Describe all natural and man-made features at the property at which the regulated activity is proposed to be conducted.

The site is located primarily on ConnDOT ROW lands adjacent to Routes 82 & 85 in Salem, Connecticut. The landscape of the site is characterized by mostly commercial developments with some residential areas and woodland. The wooded areas are predominantly deciduous trees with small inclusions of conifers.

The majority of the wetlands within the project area are forested. There is an unnamed watercourse that flows through the Henny Penny parcel adjacent to Route 82 that will be impacted. Harris Brook is located outside the limits of this project, but most of the wetlands are associated with the brook. The Environmental Report (Attachment K) provides more detail on existing site conditions for specific wetlands areas.

Check here if additional sheets are necessary, and label and attach them to this sheet.

8. *Disposal of Excess Material* - State the type and quantity of excess material anticipated from the project and where such material will be disposed.

Excess material is expected from this construction project since much of the former Bad Boyz Toyz property has been deemed contaminated. Contaminated material will be taken to a licensed disposal facility. Any excess material will be handled and disposed of in accordance with all applicable laws, regulations and BMPs.

Check here if a disposal plan is included as Attachment C8.

Attachment C: Documentation Form (continued)

9. Inland Wetlands and Watercourses Applications Only:

- a. Is the project located in a public water supply watershed? Yes No

If Yes, the applicant must give written notice to the water company of the filing of this application in accordance with CGS Section 22a-42f.

If Yes, include a copy of that notice as Attachment C9a.

- b. Is any portion of an inland wetland or watercourse in which the regulated activity is proposed located within 500 feet of another municipality? Yes No

If Yes, the applicant must give written notice to the inland wetlands agency of such municipality of the filing of this application in accordance with CGS Section 22a-42c.

If Yes, include a copy of that notice as Attachment C9b.

- c. Is the owner of the subject property different than the applicant? Yes No

If Yes, the owner must give written consent to the proposed activity in accordance with RCSA Section 22a-39-5.2.

If Yes, include a copy of that consent as Attachment C9c.

10. Inland Wetlands and Watercourses Applications Only:

List the names and addresses of the current owners of record of land abutting the site of the proposed regulated activity.

Name: **SALEM TOWN CENTER, LLC**

Address: **1 NEW LONDON ROAD**

City/Town: **SALEM**

State: **CT** Zip Code: **06420**

Mailing address, if different than above:

Mailing Address: **134 BOSTON POST ROAD**

City/Town: **OLD SAYBROOK**

State: **CT** Zip Code: **06475**

Name: **MANTIS, LLC**

Address: **595 NORWICH ROAD**

City/Town: **SALEM**

State: **CT** Zip Code: **06420**

Mailing address, if different than above:

Mailing Address:

City/Town:

State: Zip Code:

Name: **F & R, LLC**

Address: **12 NEW LONDON ROAD**

City/Town: **SALEM**

State: **CT** Zip Code: **06420**

Mailing address, if different than above:

Mailing Address:

City/Town:

State: Zip Code:

Check here if additional sheets are necessary, and label and attach them to this sheet.

Attachment C: Documentation Form (continued)

10. *Inland Wetlands and Watercourses Application Only:*

List the names and addresses of the current owners of record of land abutting the site of the proposed regulated activity.

Name: Tina M. Claffin
Address: 23 Norwich Road
City/Town: Salem, CT 06420
Mailing address: *same*

Name: Jeffrey Eldridge
Address:
City/Town:
Mailing address: 226 SW 180th Ave. Pembroke Pines, FL 33029

Name: B & D Salem Realty, LLC
Address: 1 New London Road
City/Town: Salem, CT 06420
Mailing address: PO Box 8062 Manchester, CT 06040

Name: Linda F. Phillips
Address: 1 Hartford Rd
City/Town: Salem, CT 06420
Mailing Address: 1650 Route 85 Oakdale, CT 06370

Name: Charles F. Dimmock, Jr.
Address:
City/Town:
Mailing Address: 11 Hagen Road Salem, CT 06420

Name: Hendels Investors Corp.
Address: 2 New London Road
City/Town: Salem, CT 06420
Mailing Address: 35 Great Neck Road Waterford, CT 06385

Attachment C: Documentation Form (continued)

11. Section 401 Water Quality Certification Applications Only:

In order to obtain a Section 401 Water Quality Certification from the DEP, you must have applied for a federal license or permit for an activity which may result in a discharge into the waters of the United States, including wetlands.

- a. Has an application for a federal license or permit been submitted to the Army Corps of Engineers or other federal agency? Yes No

If Yes, include a complete copy of the application form and plans as Attachment C11a.

- b. If the Section 401 Water Quality Certification application is for an activity authorized by an individual or programmatic general permit issued by the Army Corps of Engineers under section 404 of the federal Clean Water Act, identify such permit by name and application or file number.

Permit Name: **Individual permit**

Application or File Number: **Pending**

12. Summary of Documents submitted with Attachment C: Check each document being submitted under Attachment C as verification that all applicable documents have been submitted.

- Attachment C8: Disposal Plan
- Attachment C9a: If the project is located in a public water supply watershed, provide a copy of the written notice sent to the water company of the filing of this application in accordance with CGS Section 22a-42f.
- Attachment C9b: If any portion of an inland wetland or watercourse in which the regulated activity is proposed to be located is within 500 feet of another municipality, provide a copy of the written notice sent to the inland wetlands agency of such municipality of the filing of this application in accordance with CGS Section 22a-42c.
- Attachment C9c: If the owner of the subject property is different than the applicant, provide a copy of the owner's written consent to the proposed activity in accordance with RCSA Section 22a-39-5.2.
- Attachment C11a: *Section 401 Water Quality Certification Applications Only*: a complete copy of the application form and plans submitted to a federal agency for a federal license or permit.
- Other, please specify:

Attachment C11a – Section 401 Water Quality Certification

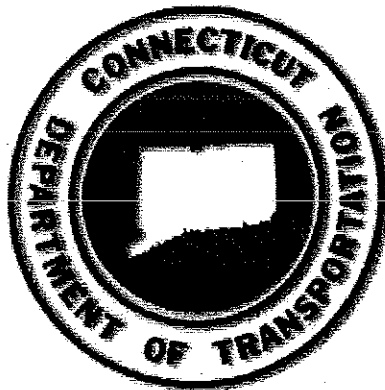
Army Corp of Engineers Programmatic General Permit, Category 2 Application

PERMIT APPLICATION
FOR
THE ARMY CORPS OF ENGINEERS

SALEM FOUR CORNERS ROUNDABOUT
AT ROUTES 82 & 85

SALEM, CONNECTICUT

STATE PROJECT NO. 120-86
FEDERAL AID PROJECT NO. 0085(109)



APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
(33 CFR 325)

OMB APPROVAL NO. 0710-0003
EXPIRES: 31 August 2012

Public reporting burden for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please **DO NOT RETURN** your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
--------------------	----------------------	------------------	------------------------------

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME: First - Thomas Middle - J Last - Maziarz Company - Connecticut Department of Transportation E-mail Address -	8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required) First - Middle - Last - Company - E-mail Address -
6. APPLICANT'S ADDRESS. Address - 2800 Berlin Turnpike PO Box 317546 City - Newington State - CT Zip - 06131 Country - Hartford	9. AGENT'S ADDRESS Address - City - State - Zip - Country -
7. APPLICANT'S PHONE NOS. W/AREA CODE a. Residence b. Business c. Fax N/A 860-594-2001	10. AGENT'S PHONE NOS. W/AREA CODE a. Residence b. Business c. Fax

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

APPLICANT'S SIGNATURE

DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions) DOT Project 120-86, Roundabout at Salem Four Corners	
13. NAME OF WATERBODY, IF KNOWN (if applicable) Harris Brook and unnamed wetlands & watercourse adjacent to Routes 82 and 85	14. PROJECT STREET ADDRESS (if applicable) Address Intersection of Routes 82 and 85 City - State - Zip -
15. LOCATION OF PROJECT Latitude: °N 41°28'35" Longitude: °W 72°15'53"	
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) State Tax Parcel ID Municipality Section - Township - Range -	
17. DIRECTIONS TO THE SITE See attached location plan	

18. Nature of Activity (Description of project, include all features)

See Attached

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

See Attached

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

See Attached

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
See Attached		

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres See Attached
Or
Liner Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

See Attached

24. Is Any Portion of the Work Already Complete? Yes No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list).

Address - See Attached

City - State - Zip -

26. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
CTDEP	Inland Wetland and Watercourse			TBD	
CTDEP	FMC			TBD	

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

Thomas J. Manning 3-21-11
SIGNATURE OF APPLICANT DATE

SIGNATURE OF AGENT DATE

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

Block 18. Nature of Activity

The project involves the replacement of the existing signalized intersection with a modern roundabout at the intersection of Routes 82 and 85 in Salem, Connecticut. This action is expected to significantly reduce the number of head-on turning accidents at the intersection as well as at the driveway to a gas station located on Route 85 immediately south of Route 82. The proposed roundabout consists of a single lane with auxiliary lanes on both the Route 85 northbound and the Route 82 eastbound approaches. Two lane approaches on those legs are necessary to accommodate the heavy volumes of traffic to and from the nearby terminus of Route 11.

The additional lane on the Route 85 northbound approach will be carried through the entry into the circulatory roadway, but will continue only as far as the exit to Route 85 northbound. The additional lane on the Route 82 eastbound approach will be a right turn lane, providing a dedicated lane for southbound traffic from Route 11 turning right onto Route 85 southbound. The majority of the circulatory roadway will consist of a single lane.

Head-on turning conflicts at the intersection will be eliminated with the roundabout configuration. At the gas station driveway, the head-on turning conflict problem will be alleviated in two ways due to the reduced delays associated with a roundabout compared to the existing signal; the northbound queue is not expected to extend as far south as the southern gas station driveway under normal conditions, greatly reducing the potential for turns made with restricted sightlines – the “peek-a-boo” type accidents that frequently occur today; and a southbound left turn lane on Route 85, at the driveway, will provide a safe haven for left turning vehicles.

Under the existing conditions the tractor-trailers delivering fuel to the Henny Penny gas station have no alternative but to back out of the gas station to exit, upon completing their fuel delivery. It is proposed to reconstruct Henny Penny’s driveway to provide adequate room for the tractor trailer to turn around within the parking lot and driveway

This project primarily involves adjustments to existing roadway stormwater drainage systems. Drainage system will be adjusted and new catch basins will be installed due to roadway widening and installed raised median islands. Approximately 130 ft of an unnamed watercourse that flows through the Henny Penny property on the southeast corner of the intersection will need to be relocated due to roadway widening and grading.

This project will involve work on a portion of Route 82 within the FEMA Flood Zone Boundary for Harris brook. This work will involve raising the intersection by 2 feet. This will raise the intersection out of the floodplain. There will be no any adverse impact to the floodplain as a result of the proposed improvements.

Block 19. Project Purpose

The primary purpose of this project is to address safety at the intersection of Route 82 and Route 85. With the termination of the Route 11 expressway at Route 82 (one mile west of the intersection), Route 85 provides the primary connection between Route 11 in Salem and I-95 in Waterford, resulting in heavy traffic volumes through the intersection.

The high traffic volumes contribute to a high accident frequency at the intersection. The intersections of Routes 82 and 85, and Route 85 at the Henny Penny gas station driveway on the southern approach are on the SLOSSS list. At the intersection the predominant accident patterns are head-on turning collisions between northbound Route 85 vehicles turning left onto Route 82 and southbound Route 85 traffic. At the driveway, various types of accidents exist between Route 85 southbound traffic turning left into the gas station and Route 85 northbound traffic.

Construction is planned to start in the spring of 2012 and is expected to take one year.

Block 20. Reason for Discharge

The proposed roadway improvements will require the placement of fill or drainage appurtenances in wetlands at several locations along the project. There are 4 wetland sites that will be affected by the proposed construction (see attached plans). Roadway construction involves placing clean fill material along the existing roadway to widen embankments to accommodate the widening. Site 3 will require relocating an overflow channel of an unnamed watercourse due to the roadway widening. The existing storm drainage along the roadway will be replaced to accommodate the reconfigured intersection. Riprap will be installed at the stormwater outlets for erosion protection.

Block 21. Types of Material Being Discharged and the Amount of Each Type in Cubic Yards.

Wetland Site No.					
	1	2	3	4	Project Total
Area (ac)	0.028	0.077	0.021	0.077	0.204
Clean Fill (cy)	43	110	15	199	324
Exc. (cy)	91	122	3	3	25
Riprap (cy)	2	8.8	20.3	12.1	43.2
Gran. Fill (cy)	1	3.3	10.2	6.1	20.6

Block 22. Surface Areas of Wetlands or Other Waters Filled

Site No. 1

Site No. 1 (0.028 impacted acres), located north of the intersection on the west side of Route 85, consists of wetland area located at the toe of the existing embankments supporting Route 85. The wetlands are associated with Harris brook. Wetlands at this site contain a mix of low growing thick vegetation mixed with trees.

This site is a palustrine forested wetland associated with Harris Brook that has an overstory dominated by red maple (*Acer rubrum*). The understory is dominated by American elm (*Ulmus americana*), American elder (*Sambucus canadensis*), common winterberry (*Ilex verticillata*), arrowwood (*Viburnum dentatum*), highbush blueberry (*Vaccinium corymbosum*), swamp dogwood (*Cornus amomum*) and the invasive species Oriental bittersweet (*Celastrus orbiculatus*), and the herbaceous layer includes sensitive fern (*Onoclea sensibilis*) and goldenrod (*Solidago spp.*). The sliver of wetland that would be impacted by the project is located at the toe of the existing fill slope for Route 85 and also includes the drier species black cherry (*Prunus serotina*). These proposed impacts total 1231 s.f and are associated with an extension of the fill slope to accommodate the proposed roadway widening at this site.

A portion of wetland site 1 will be filled with a clean material by extension of the side slopes to facilitate roadway widening. There will also be a new 12" drainage outlet constructed with outlet protection in this site. This system will only contain one catch basin. It has also been determined that insitu soils along the left shoulder (Sta: 417+00 to 419+00) are unstable and will be replaced with free draining material.

Site No. 2

Site No. 2 (0.077 impacted acres) consists of a wetland area located at the toe of the existing embankments supporting Route 82 on both sides of the roadway. The wetlands are associated with Harris brook. Wetlands at this site contain a mix of low growing thick vegetation mixed with trees. There is currently a 24" x 42" pipe arch outlet at this site on the south side of Route 82 that discharges roadway runoff as well as flow from an unnamed watercourse. The unnamed watercourse gets captured at the Henny Penny gas station. There is no evidence of a defined channel at this outlet.

The western portion of the sliver of wetland proposed to be impact on the south side of Site 2 is much like that of the north side of Site 2 and Site 1. The eastern portion of this wetland immediately adjacent to the existing culvert outlet is still well vegetated, however, it appears that the vegetation is cut back periodically. This is presumably done to maintain the culvert outlet. Vegetation in the palustrine forested wetland adjacent to the maintained area includes red maple, American elm, black cherry, American elder, winterberry, arrowwood, summersweet (*Clethra alnifolia*) common spicebush (*Lindera benzoin*), specked alder (*Alnus incana*) and black chokeberry (*Aronia melanocarpa*). At and around the culvert, the vegetation is entirely shrubs and herbaceous and consists

mainly of American elder and pasture rose in the shrub layer, grape (*Vitis sp.*) and the invasive Oriental bittersweet in the liana, and sedges in the herbaceous layer.

Impacts to wetland site 2 will include construction of two new culvert ends and fill due to roadway widening. Currently this location consists of only one outlet on the south side of Route 82 that combines runoff from the roadway and the stream flow from an unnamed channel and associated overflow channel which drain under the road from the Henny Penny property. The proposed design will include replacing the existing outlet with two new drainage systems that will be working independently of each other. One system will convey the roadway runoff and the other system will convey the unnamed watercourse. It has also been determined that insitu soils along the shoulders (Sta: 104+75 RT to Sta: 107+75 RT and Sta: 106+75 LT to Sta: 107+75 LT) are unstable and will be over excavated and replaced with additional subbase.

Site No. 3

Wetland site 3 (0.021 impacted acres) consists of a wetland associated with an unnamed watercourse. This watercourse is located at the top of an embankment adjacent to Route 82. Wetlands at this site contain a mix of low growing vegetation mixed with trees. This channel is predominantly dry, but in times of high flow it conveys the overflow from the main channel, which is also a small, unnamed watercourse. It should also be noted that the present location of the overflow channel is artificial and appears to have been designed around nearby development.

Vegetation along the channel and the new alignment that constitutes the impact area is dominated by herbaceous species and maintained shrubs and small saplings, including red maple, American elm, American elder, arrowwood, the invasive multiflora rose (*Rosa multiflora*), grape, jewelweed (*Impatiens capensis*), spiraea, goldenrod (*Solidago spp.*) and aster (*Aster sp.*)

Impacts at wetland site 3 involve relocating the small unnamed watercourse. This watercourse will need to be relocated due to impacts from roadway widening. New riprap will be installed along the length of the relocated channel.

Site No.4

Site No. 4 (.07 impacted acres) consists a of wetland area located at the toe of the existing embankments supporting Route 85 on both sides of the roadway. Wetlands at this site contain a mix of low growing thick vegetation mixed with trees. The wetland on the east side of Route 85 is a small pocket due to a roadside swale. The wetlands on the west side of 85 are associated with Harris Brook. There is currently a 15" cross culvert that outlets the roadside swale into the wetland associated with Harris brook.

The west side of this site is a palustrine wetland associated with Harris Brook and potentially with Frasier Brook, its tributary from the east. Vegetation along this sliver of wetland is modified by maintenance activities near the road and mature beyond that

point. Throughout both the maintained section and the natural section, vegetation is dominated by red maple, winterberry, summersweet, elderberry, arrowwood, silky dogwood, chokeberry and common spicebush

The swale on the east side of the site appears to be artificially created, but it has hydric soils and predominantly woody wetland vegetation immediately surrounding it, including highbush blueberry, common spicebush, winterberry and arrowwood. Also present are the upland species black cherry, red oak (*Quercus rubra*), sassafras (*Sassafras albidum*), and greenbrier (*Smilax rotundifolia*). At the toe of the swale, the wetland opens up to an herbaceous patch that appears to be exclusively phragmites (*Phragmites australis*).

A portion of wetland site 4 will be filled with a clean material by extension of the side slopes to facilitate roadway widening and the construction of drainage outlets. The existing 15" cross culvert that is located south of the intersection on Route 85 will be extended several feet and upsized to 24" to account for additional drainage needs, culvert ends will be replaced, and a new splash pad constructed for erosion protection. There will also be a new 18" drainage outlet constructed with outlet protection on the west side of this site. Wetland site 4 will include 150 and 100 foot long vegetative swales constructed at the toe of the slope.

Block 23. Description of Avoidance, Minimization, and Compensation

The location of this project made it difficult to avoid wetland impact and still achieve the operational and safety goals of the project. The wetlands associated with the project are directly adjacent to the roadway due to the roadway originally being constructed on fill. The only way to avoid impacts would be to not construct the project; however this would continue to perpetuate the existing safety concerns at the intersection. Therefore wetland impacts were unavoidable.

A number of design elements were incorporated to minimize the wetland impacts to the greatest extent possible.

- The proposed alignment was tapered into the existing alignment as quick as possible to reduce grading within the wetlands due to roadway widening.
- An R-B terminal section on the guide rail in Wetland Site 2 was used to avoid having to flare the guide rail into the wetlands.
- 2:1 side slopes and guiderail were used adjacent to wetland as opposed to using the standard 4:1 side slopes within the wetlands.
- Roadside grading and side slopes by the mitigation site were minimized to the greatest extent possible to maximize the area available for mitigation.
- Drainage outlets were placed as close to the road as possible to minimize impacts.

Wetland Mitigation

The Department of Transportation's Office of Environmental Planning has recommended using the former Bad Boyz Toyz site on the northwest corner of the intersection for mitigation at an approximate ratio of 3 to 1. This site is known to be contaminated and will be cleaned up prior to proceeding with a mitigation plan. The total site mitigation area is approximately 0.627 acres (27,300 sf).

Plantings

The plan for the restoration site is to restore it in-kind with the adjacent palustrine shrub swamp since, presumably that is what it looked and functioned like before it was originally impacted. The adjacent wetland is a very low-lying area that is often flooded, yet it has well-established vegetation with few open patches. The proposed mitigation, like the adjacent wetland, will be dominated by shrubs that can tolerate a lot of inundation, with more sparse trees planted throughout. Proposed species are red maple (*Acer rubrum*), black willow (*Salix nigra*), buttonbush (*Cephalanthus occidentalis*), American elder (*Sambucus canadensis*), black chokeberry (*Aronia melanocarpa*), silky dogwood (*Cornus amomum*), winterberry (*Ilex verticillata*), swamp azalea (*Rhododendron viscosum*), highbush blueberry (*Vaccinium corymbosum*), and arrowwood (*Viburnum dentatum*). A grading and planting plan is included with this permit application.

To account for impact to the overflow channel at Site 3, this channel will be recreated immediately adjacent to its old location. The proposed channel will be lined with riprap to continue to sustain the current overflow velocities, and the sides of the channel as well as the newly impacted roadway embankment will be planted with native woody species. These include red maple, black chokeberry, arrowwood, shadblow serviceberry (*Amelanchier canadensis*) and sweet pepperbush (*Clethra alnifolia*).

In addition to the above restoration efforts, all temporary impact areas will be replanted with appropriate native species. Plantings at Site 1 will consist of black chokeberry, American elder and arrowwood. At Site 2, plantings will consist of black chokeberry, American elder, arrowwood, and shadblow serviceberry. At Site 4, plantings will consist of red maple, shadblow serviceberry, black chokeberry, American elder, arrowwood, northern bayberry (*Myrica pensylvanica*) and sweet fern (*Comptonia peregrina*).

Educational Signing

Educational signing related to wetlands and the Eightmile River watershed are proposed along the sidewalk that runs adjacent to the mitigation area.

Block 25. Names and Addresses of Adjoining Property Owners, Lessees, etc., Whose Property Adjoins the Project Site

Name: Salem Town Center, LLC
Address: 1 New London Road
City/Town: Salem, CT 06420
Mailing address: 134 Boston Post Road Old Saybrook, CT 06475

Name: Mantis, LLC
Address: 595 Norwich Road
City/Town: Salem, CT 06420
Mailing address: *same*

Name: F&R, LLC
Address: 12 New London Road
City/Town: Salem, CT 06420
Mailing address: *same*

Name: Tina M. Claffin
Address: 23 Norwich Road
City/Town: Salem, CT 06420
Mailing address: *same*

Name: Jeffrey Eldridge
Address:
City/Town:
Mailing address: 226 SW 180th Ave. Pembroke Pines, FL 33029

Name: B & D Salem Realty, LLC
Address: 1 New London Road
City/Town: Salem, CT 06420
Mailing address: PO Box 8062 Manchester, CT 06040

Name: Linda F. Phillips
Address: 1 Hartford Rd
City/Town: Salem, CT 06420
Mailing Address: 1650 Route 85 Oakdale, CT 06370

Name: Charles F. Dimmock, Jr.
Address:
City/Town:
Mailing Address: 11 Hagen Road Salem, CT 06420

Name: Hendels Investors Corp.

Address: 2 New London Road

City/Town: Salem, CT 06420

Mailing Address: 35 Great Neck Road

Waterford, CT 06385

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: DOT #120-86, Proposed roundabout at Routes 82 and 85 City/County: Salem Sampling Date: 10/18/2010
 Applicant/Owner: Connecticut Department of Transportation State: CT Sampling Point: TPW-sta 306+50
 Investigator(s): Kim Lesay, Amanda Freitas Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): roadway fill toe slope / adjacent flat, low-lying area Local relief (concave, convex, none): concave
 Slope (%): +/-0 Lat: 41.475N (decimal degrees) Long: -72.263W Datum: NAD 83
 Soil Map Unit Name: Scarboro Muck NWI classification: PFO1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>4"</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: TPW-sta 306+50

<u>Tree Stratum</u> (Plot size: <u>30' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>red maple (Acer rubrum)</u>	90	Y	FAC*	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
<u>90</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>common winterberry (Ilex verticillata)</u>	75	Y	FACW*		Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0' <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>common spicebush (Lindera benzoin)</u>	15	N	FACW*		
3. <u>swamp azalea (Rhododendron viscosum)</u>	15	N	OBL*		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
<u>105</u> = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.	
<u>Herb Stratum</u> (Plot size: <u>5' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>royal fern (Osmunda regalis)</u>	20	Y	OBL*		Hydrophytic Vegetation Present? Yes <u>X</u> No _____
2. <u>arrowwood (Viburnum dentatum)</u>	10	Y	FAC*		
3. <u>green ash (Fraxinus pennsylvanica)</u>	5	N	FACW*		
4. <u>common greenbrier (Smilax rotundifolia)</u>	Trace	N	FAC*		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
<u>35</u> = Total Cover					
<u>Woody Vine Stratum</u> (Plot size: <u>30' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
<u>0</u> = Total Cover					

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: DOT #120-86, Proposed roundabout at Routes 82 and 85 City/County: Salem Sampling Date: 10/18/2010
 Applicant/Owner: Connecticut Department of Transportation State: CT Sampling Point: TPU-sta 306+50
 Investigator(s): Kim Lesay, Amanda Freitas Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): roadway fill toe slope / adjacent flat, low-lying area Local relief (concave, convex, none): none
 Slope (%): 20+/- Lat: 41.475N (decimal degrees) Long: -72.263W Datum: NAD 83
 Soil Map Unit Name: Canton and Charlton Soils NWI classification: PFO1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil , or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) RE: Disturbance Soils consist of the fill embankment for the roadway, but the fill embankment is not the high point in the landscape. The eastern side of Route 85 grades upward, and the natural drainage is from east to west toward the subject wetland on the west side of Route 85.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Water-Stained Leaves (B9) ___ High Water Table (A2) ___ Aquatic Fauna (B13) ___ Saturation (A3) ___ Marl Deposits (B15) ___ Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: TPU-sta 306+50

<u>Tree Stratum</u> (Plot size: <u>30' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>red maple (Acer rubrum)</u>	30	Y	FAC*	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83</u> (A/B)
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
	30	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>slippery elm (Ulmus rubra)</u>	15	Y	FAC*	Total % Cover of: _____ Multiply by: _____
2. <u>black cherry (Prunus serotina)</u>	15	Y	FACU	OBL species _____ x 1 = _____
3. <u>common spicebush (Lindera benzoin)</u>	5	N	FACW*	FACW species _____ x 2 = _____
4. <u>common elder (Sambucus canadensis)</u>	5	N	FACW*	FAC species _____ x 3 = _____
5. <u>arrowwood (Virburnum dentatum)</u>	5	N	FAC*	FACU species _____ x 4 = _____
6. <u>common buttonbush (Cephalanthus occidentalis)</u>	5	N	OBL*	UPL species _____ x 5 = _____
7. _____	_____	_____	_____	Column Totals: _____ (A) _____ (B)
	50	= Total Cover		Prevalence Index = B/A = _____
<u>Herb Stratum</u> (Plot size: <u>5' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>poison ivy (Toxicodendron radicans)</u>	10	Y	FAC*	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation
2. <u>deer tongue grass (Dichantherium clandestinum)</u>	10	Y	FAC*	<input type="checkbox"/> Dominance Test is >50%
3. <u>common greenbrier (Smilax rotundifolia)</u>	10	Y	FAC*	<input type="checkbox"/> Prevalence Index is ≤3.0 ¹
4. <u>meadow-sweet (Spiraea latifolia)</u>	5	N	FAC*	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. <u>common mugwort (Artemisia vulgaris)</u>	5	N	NI	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. <u>goldenrod (Solidago sp.)</u>	5	N	sp. unknown	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
	45	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: <u>30' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Definitions of Vegetation Strata:
1. _____	_____	_____	_____	Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
2. _____	_____	_____	_____	Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
3. _____	_____	_____	_____	Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
4. _____	_____	_____	_____	Woody vines – All woody vines greater than 3.28 ft in height.
	0	= Total Cover		
				Hydrophytic Vegetation Present? Yes <u>x</u> No _____

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: DOT #120-86, Proposed roundabout at Routes 82 and 85 City/County: Salem Sampling Date: 10/18/2010
 Applicant/Owner: Connecticut Department of Transportation State: CT Sampling Point: TPW-sta 407+60
 Investigator(s): Kim Lesay, Amanda Freitas Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): swale along toe of roadway embankment/stone wall Local relief (concave, convex, none): concave
 Slope (%): +/-0 Lat: 41.475N (decimal degrees) Long: -72.263W Datum: NAD 83
 Soil Map Unit Name: Canton and Charlton Soils NWI classification: PFO1E (not mapped)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (if no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: TPW-sta 407+60

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: <u>30' radius</u>)					
1. tulip tree (<i>Liriodendron tulipifera</i>)	30	Y	FACU	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60</u> (A/B)	
2. red oak (<i>Quercus rubra</i>)	20	Y	FACU		
3. sugar maple (<i>Acer saccharum</i>)	10	N	FACU		
4. black cherry (<i>Prunus serotina</i>)	5	N	FACU		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
	<u>65</u>	= Total Cover		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
Sapling/Shrub Stratum (Plot size: <u>15' radius</u>)					
1. common winterberry (<i>Ilex verticillata</i>)	20	Y	FACW*		
2. arrowwood (<i>Viburnum dentatum</i>)	20	Y	FAC*		
3. common greenbrier (<i>Smilax rotundifolia</i>)	10	N	FAC*		
4. highbush blueberry (<i>Vaccinium corymbosum</i>)	5	N	FACW*		
5. common spicebush (<i>Lindera benzoin</i>)	5	N	FACW*		
6. sassafras (<i>Sassafras albidum</i>)	Trace	N	FACU		
7. ironwood (<i>Carpinus caroliniana</i>)	Trace	N	FAC*		
	<u>60</u>	= Total Cover			
Herb Stratum (Plot size: <u>5' radius</u>)					
1. cinnamon fern (<i>Osmunda cinnamomea</i>)	25	Y	FACW*	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. New York fern (<i>Thelypteris noveboracensis</i>)	10	N	FAC*		
3. slippery elm (<i>Ulmus rubra</i>)	5	N	FACW*		
4. common greenbrier (<i>Smilax rotundifolia</i>)	Trace	N	FAC*		
5. poison ivy (<i>Toxicodendron radicans</i>)	Trace	N	FAC*		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
	<u>40</u>	= Total Cover			
Woody Vine Stratum (Plot size: <u>30' radius</u>)					
1. _____	_____	_____	_____	Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
				Hydrophytic Vegetation Present? Yes <u>X</u> No _____	

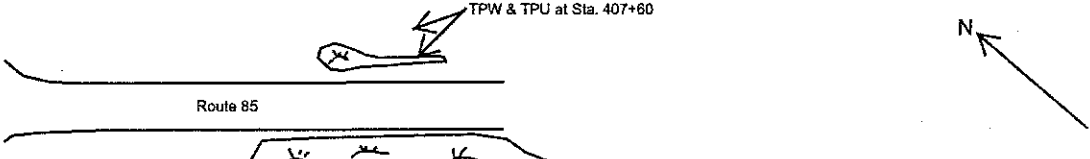
Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: DOT #120-86, Proposed roundabout at Routes 82 and 85 City/County: Salem Sampling Date: 10/18/2010
 Applicant/Owner: Connecticut Department of Transportation State: CT Sampling Point: TPU-sta 407+60
 Investigator(s): Kim Lesay, Amanda Freitas Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope beyond swale along toe of roadway embankment Local relief (concave, convex, none): concave
 Slope (%): +/-5 Lat: 41.475N (decimal degrees) Long: -72.263W Datum: NAD 83
 Soil Map Unit Name: Canton and Charlton Soils NWI classification: PFO1E (not mapped)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) <div style="text-align: center; margin-top: 10px;">  </div>	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Water-Stained Leaves (B9) ___ High Water Table (A2) ___ Aquatic Fauna (B13) ___ Saturation (A3) ___ Marl Deposits (B15) ___ Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
--	---

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: TPU-sta 407+60

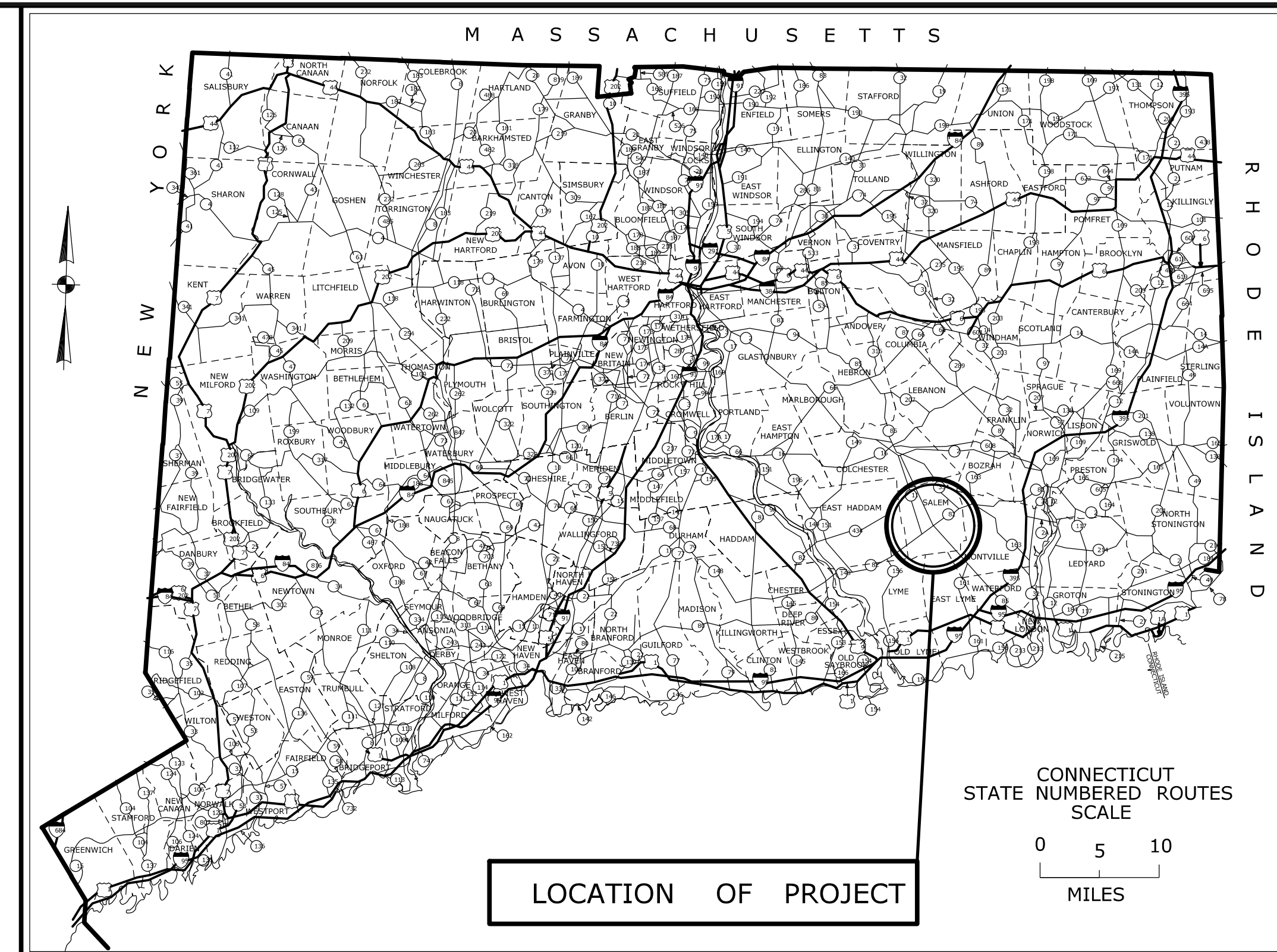
<u>Tree Stratum</u> (Plot size: <u>30' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. tulip tree (<i>Liriodendron tulipifera</i>)	30	Y	FACU	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25</u> (A/B)
2. red oak (<i>Quercus rubra</i>)	20	Y	FACU	
3. black cherry (<i>Prunus serotina</i>)	15	N	FACU	
4. white oak (<i>Quercus alba</i>)	10	N	FACU	
5. sugar maple (<i>Acer saccharum</i>)	10	N	FACU	
6. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
7. _____	_____	_____	_____	
<u>85</u> = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15' radius</u>)				
1. black cherry (<i>Prunus serotina</i>)	20	Y	FACU	
2. choke cherry (<i>Prunus virginiana</i>)	10	Y	FACU	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
3. highbush blueberry (<i>Vaccinium corymbosum</i>)	10	Y	FACW*	
4. ironwood (<i>Carpinus caroliniana</i>)	10	Y	FAC*	
5. sugar maple (<i>Acer saccharum</i>)	10	Y	FACU	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.
<u>60</u> = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>5' radius</u>)				
1. wild sarsaparilla (<i>Aralia nudicaulis</i>)	30	Y	FACU	
2. New York fern (<i>Thelypteris noveboracensis</i>)	5	N	FAC*	
3. white oak (<i>Quercus alba</i>)	Trace	N	FACU	
4. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	Remarks: (Include photo numbers here or on a separate sheet.)
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
<u>35</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>30' radius</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				

Attachment A: Plan Sheets

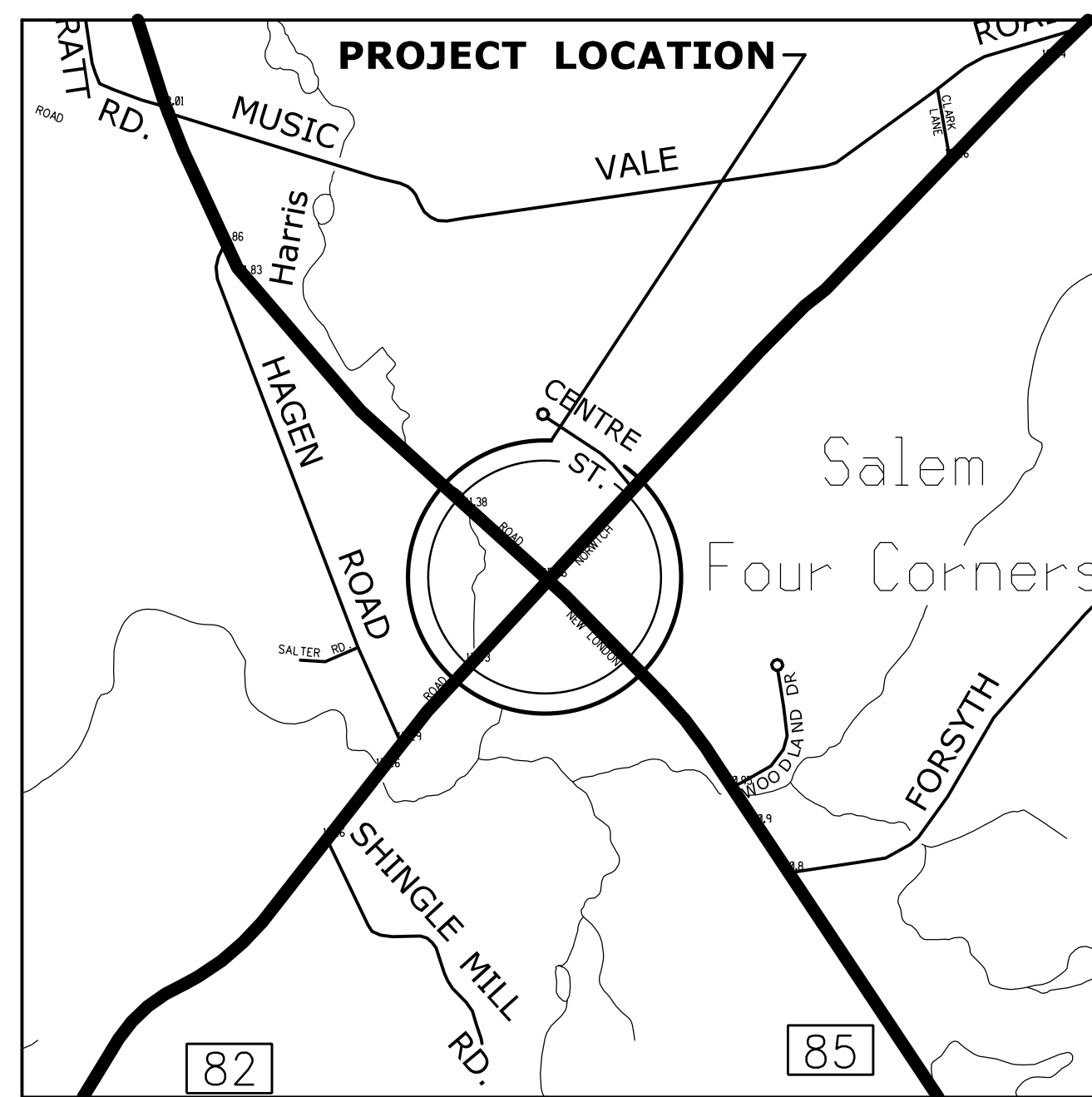
GENERAL NOTES:

1. THESE PLANS ARE INTENDED ONLY FOR EROSION AND SEDIMENTATION CONTROL PURPOSES. FOR ALL OTHER PLANIMETRIC INFORMATION REFER TO THE CONSTRUCTION, GEOMETRY, AND DRAINAGE PLANS.
2. THE CONTRACTOR SHALL PREPARE EROSION AND SEDIMENTATION CONTROL PLANS BASED ON THESE CONTRACT DRAWINGS AND THE STORMWATER POLLUTION CONTROL PLAN, IN ACCORDANCE WITH SECTION 1.10 ENVIRONMENTAL COMPLIANCE, INCLUDING BEST MANAGEMENT PRACTICES. AS SPECIFIED, THE PLANS SHALL BE CONSISTENT IN ALL RESPECTS WITH THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL, AND WITH CONNDOT'S ON-SITE MITIGATION FOR CONSTRUCTION ACTIVITIES. THE PLANS SHALL INCLUDE DETAILS OF THE PROPOSED SYSTEMS.
3. IN ALL CASES, THE CONTRACTOR SHALL IMPLEMENT STABILIZATION MEASURES AS SOON AS POSSIBLE AFTER ANY SOIL DISTURBANCE. WHERE CONSTRUCTION ACTIVITIES HAVE BEEN PERMANENTLY CEASED OR HAVE TEMPORARILY BEEN SUSPENDED FOR MORE THAN SEVEN DAYS, OR WHEN FINAL GRADES ARE REACHED IN ANY PORTION OF THE SITE, STABILIZATION PRACTICES SHALL BE IMPLEMENTED WITHIN THREE DAYS. TEMPORARY STABILIZATION MEASURES MAY INCLUDE MULCHING AND TRACKING AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD FOR "TEMPORARY SEEDING". AREAS THAT WILL REMAIN DISTURBED BUT INACTIVE FOR 30 DAYS OR MORE SHALL BE STABILIZED WITHIN THE FIRST SEVEN DAYS OF THAT PERIOD, THE CONTRACTOR SHALL COMPLY AT ALL TIMES WITH THE REQUIREMENTS OF SECTION 1.10.
4. ALL EXISTING AND PROPOSED DRAINAGE PIPES, CATCH BASINS, AND MANHOLES CARRYING DRAINAGE FROM WITHIN THE PROJECT LIMITS THAT WILL REMAIN IN USE UPON PROJECT COMPLETION SHALL BE CLEANED IN ACCORDANCE WITH SECTION 6.53.
5. SEDIMENTATION CONTROL SYSTEMS THAT MUST BE PLACED PRIOR TO ANY ADJACENT WORK ARE NOTED "PHASE I". SEDIMENT CONTROL SYSTEMS THAT MUST BE PLACED AFTER GRADING OPERATIONS ARE NOTED "PHASE II"
6. A MINIMUM OF 6", AFTER TAMPING, OF TOPSOIL SHALL BE PLACED TO FINISHED GRADE IN ALL AREAS OF TURF ESTABLISHMENT, IN ACCORDANCE WITH SECTION 9.44. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD FOR "FURNISHING AND PLACING TOPSOIL".
7. FOR A DESCRIPTION OF THE WATERCOURSES, WETLANDS AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE PERMIT APPLICATION
8. ALL WORK TO CONSTRUCT THE WATER TREATMENT FACILITY WILL BE PERFORMED IN ADVANCE OF THIS PROJECT (120-86). WORK WILL BE PERFORMED UNDER PROJECT 120-87. NO REGULATED AREAS WILL BE IMPACTED UNDER PROJECT 120-87.

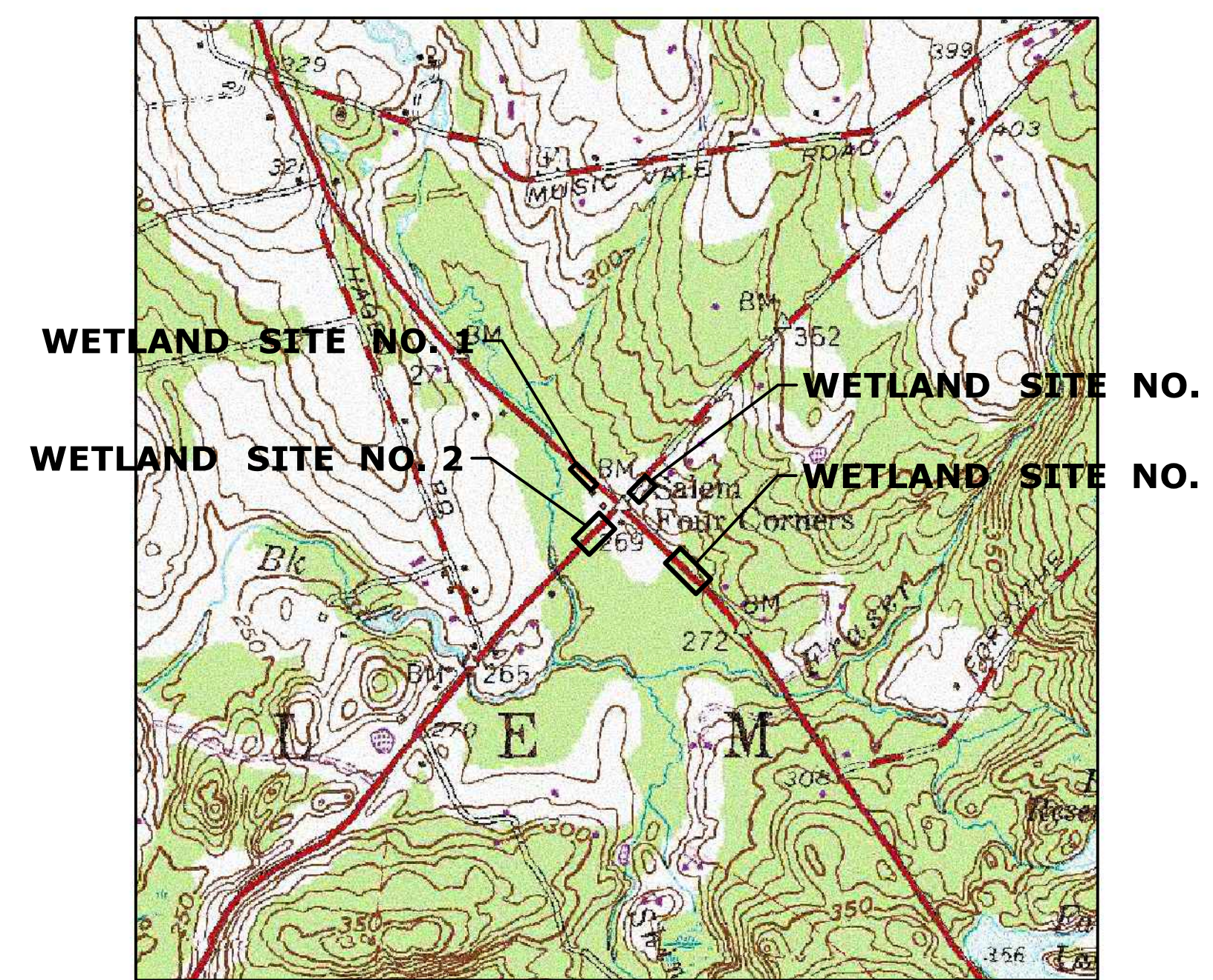
ENVIRONMENTAL PERMIT PLANS STATE PROJECT 120-86 ROUNDBOUT AT SALEM FOUR CORNERS TOWN OF SALEM



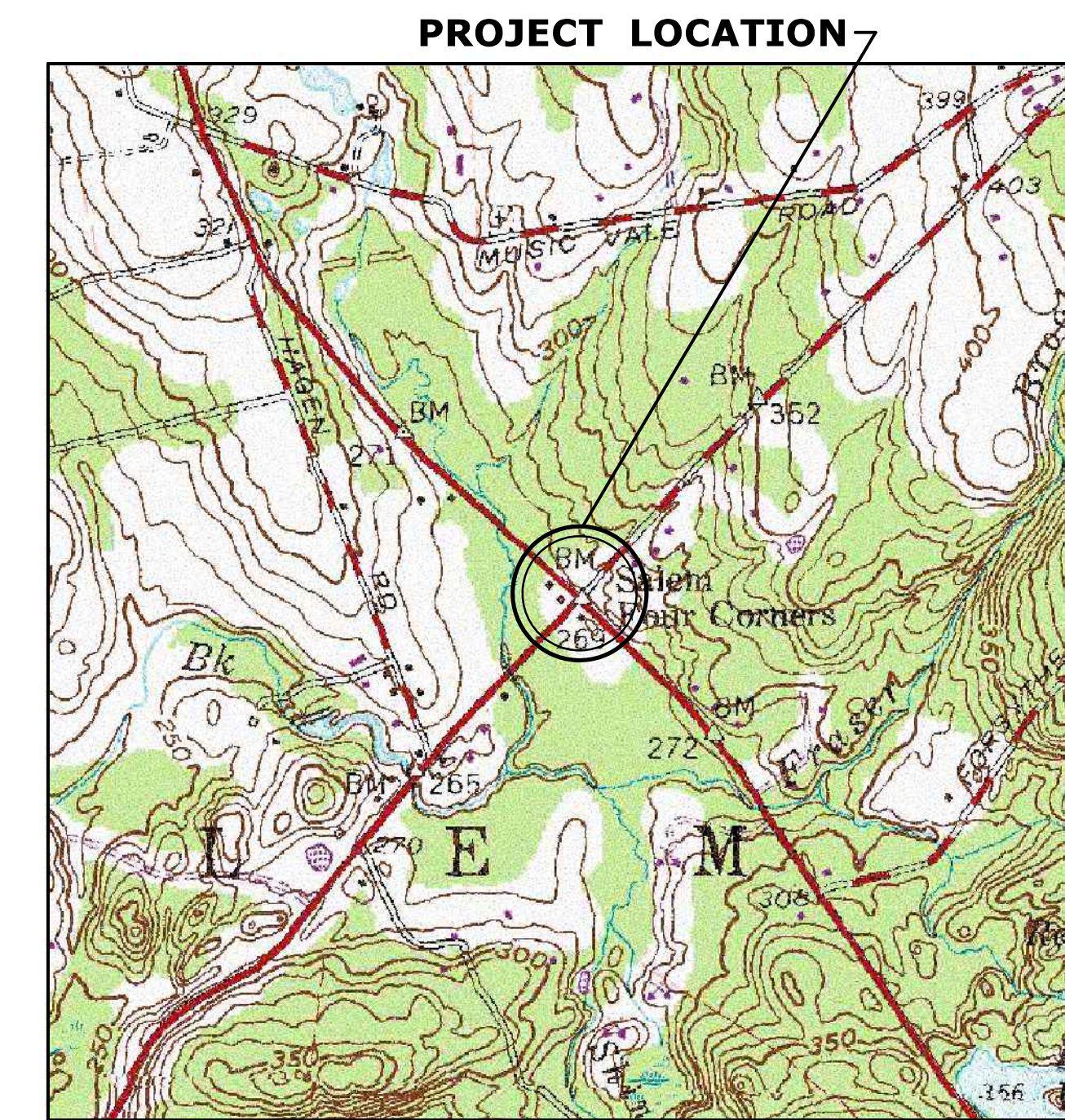
ALL ELEVATIONS ON THIS PROJECT BASED ON NGVD OF 1929
COORDINATES BASED ON CONNECTICUT COORDINATE SYSTEM NAD 1983



**LOCATION MAP
SCALE 1" = 1000'**



**INDEX SHEET OF WETLAND SITES
SCALE 1" = 1000'**



**USGS QUADRANGLE TOPOGRAPHIC MAP
USGS QUAD MAP 85
HAMBURG QUADRANGLE
7.5 MINUTE SERIES
SCALE 1" = 1000'**

DEPARTMENT OF ENVIRONMENTAL PROTECTION PLAN REVISION BLOCK					
WETLAND SITE NO.	APPLICANT NAME	ORIGINAL SUBMISSION DATE	REVISION DATE	REVISION DESCRIPTION	REVISION NUMBER

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: JNT CHECKED BY: BKK SCALE AS NOTED	 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: OFFICE OF ENGINEERING APPROVED BY: DATE:	PROJECT TITLE: ROUNDBOUT AT SALEM FOUR CORNERS	TOWN: SALEM DRAWING TITLE: E&S/PERMIT PLAN	PROJECT NO. 120-86 DRAWING NO. SED - 01 SHEET NO. \$\$\$
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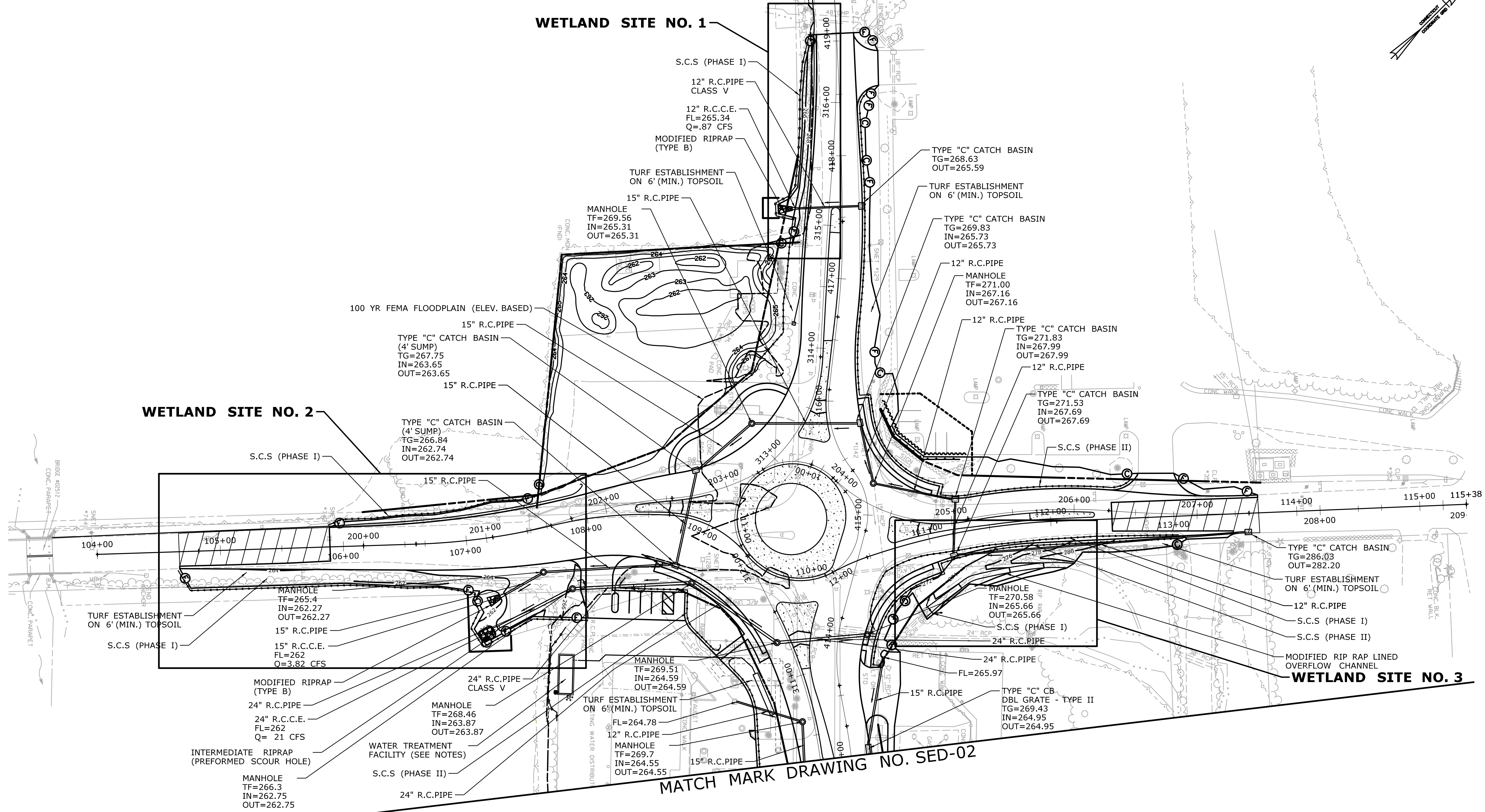
REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Plotted Date: 1/31/2011

Filename: ...JHW_MSH-0120-0086-E&S-Title.dgn

WETLAND SITE NO.	APPLICANT NAME	ORIGINAL SUBMISSION DATE	REVISION DATE	REVISION DESCRIPTION	REVISION NUMBER

WETLAND SITE AREA, CUT, & FILL INFORMATION					
WETLAND SITE NO.	AREA OF WETLAND IMPACT (SF) [AC.]	FILL (CY)	EXCAVATION (CY)	RIPRAP (CY)	GRANULAR FILL (CY)
1	1231 [.03]	43	91	2	1
2	3353 [.08]	110	122	8.80	3.28
3	900 [.02]	15	3	20.3	10.2



REV.	DATE	REVISION DESCRIPTION	SHEET NO.

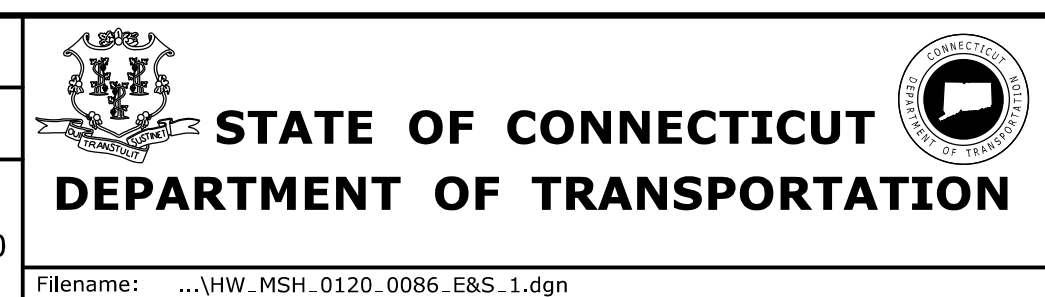
THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 3/11/2011

DESIGNER/DRAFTER:
JNT

CHECKED BY:
BKK

SCALE IN FEET
0 40 80
SCALE 1"=40'



SIGNATURE/BLOCK:
OFFICE OF ENGINEERING

APPROVED BY: DATE:

PROJECT TITLE:
ROUNDBOUT AT SALEM FOUR CORNERS

TOWN:
SALEM

DRAWING TITLE:
E&S/PERMIT PLAN

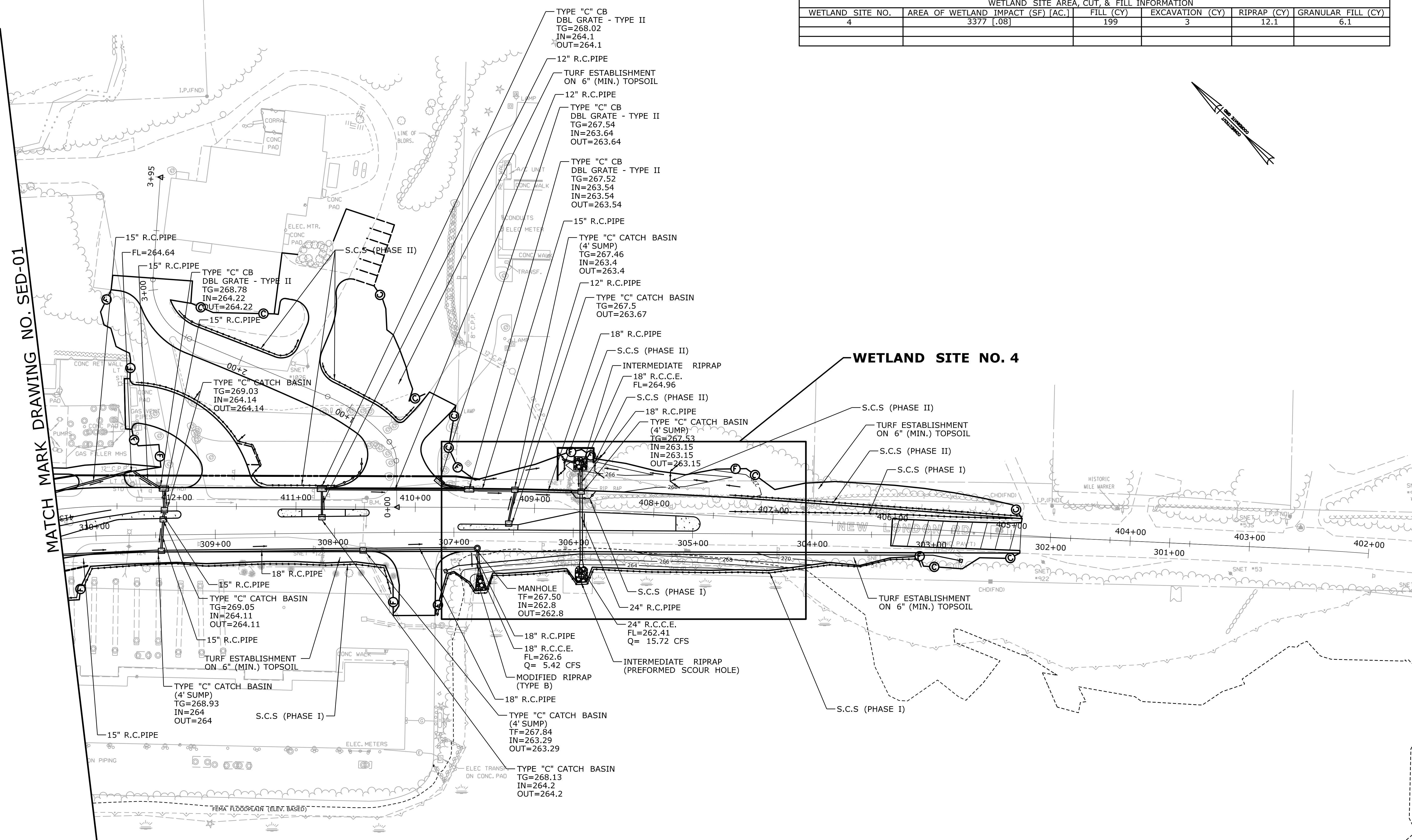
PROJECT NO.
120-86

DRAWING NO.
SED-02

SHEET NO.

WETLAND SITE AREA, CUT, & FILL INFORMATION					
WETLAND SITE NO.	AREA OF WETLAND IMPACT (SF) [AC.]	FILL (CY)	EXCAVATION (CY)	RIPRAP (CY)	GRANULAR FILL (CY)
4	3377 [.08]	199	3	12.1	6.1

MATCH MARK DRAWING NO. SED-01



DEPARTMENT OF ENVIRONMENTAL PROTECTION PLAN REVISION BLOCK					
WETLAND SITE NO.	APPLICANT NAME	ORIGINAL SUBMISSION DATE	REVISION DATE	REVISION DESCRIPTION	REVISION NUMBER

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

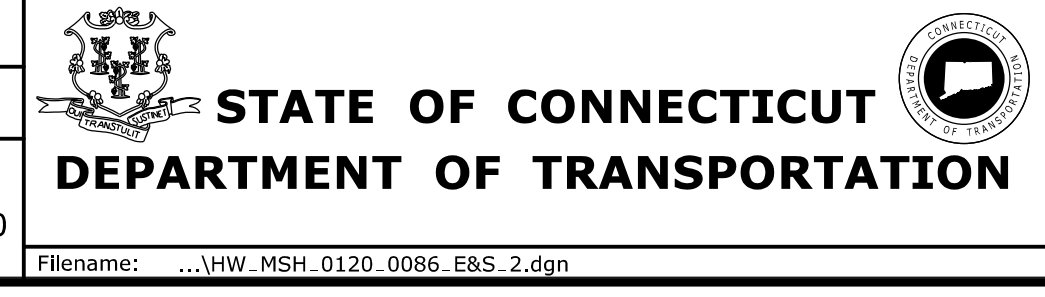
Plotted Date: 3/9/2011

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

DESIGNER/DRAFTER:
JNT

CHECKED BY:
BKK

SCALE IN FEET
0 40 80
SCALE 1"=40'



SIGNATURE/BLOCK:
OFFICE OF ENGINEERING

APPROVED BY: _____ DATE: _____

PROJECT TITLE:
ROUNDBABOUT AT SALEM FOUR CORNERS

TOWN:
SALEM

DRAWING TITLE:
E&S/PERMIT PLAN

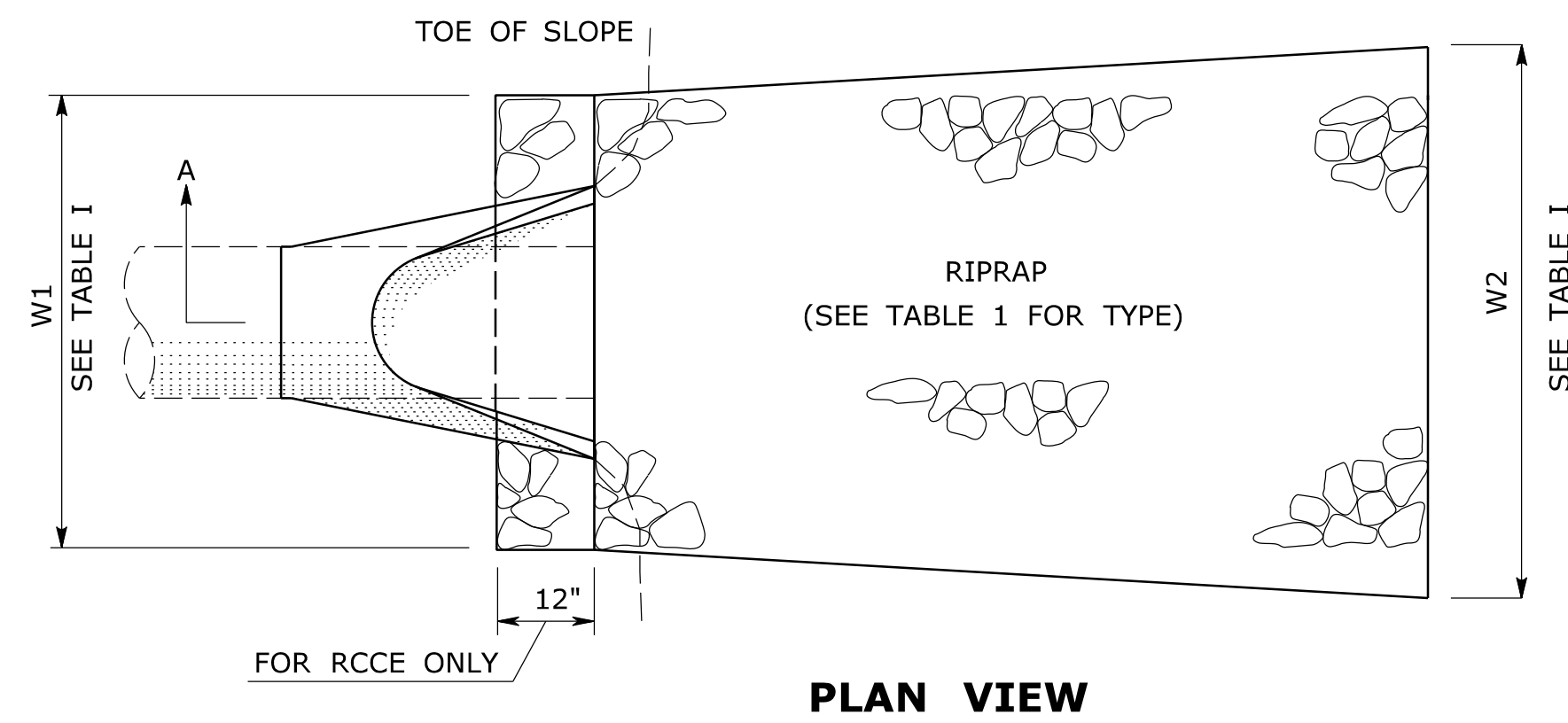
PROJECT NO.
120-86

DRAWING NO.
SED-03

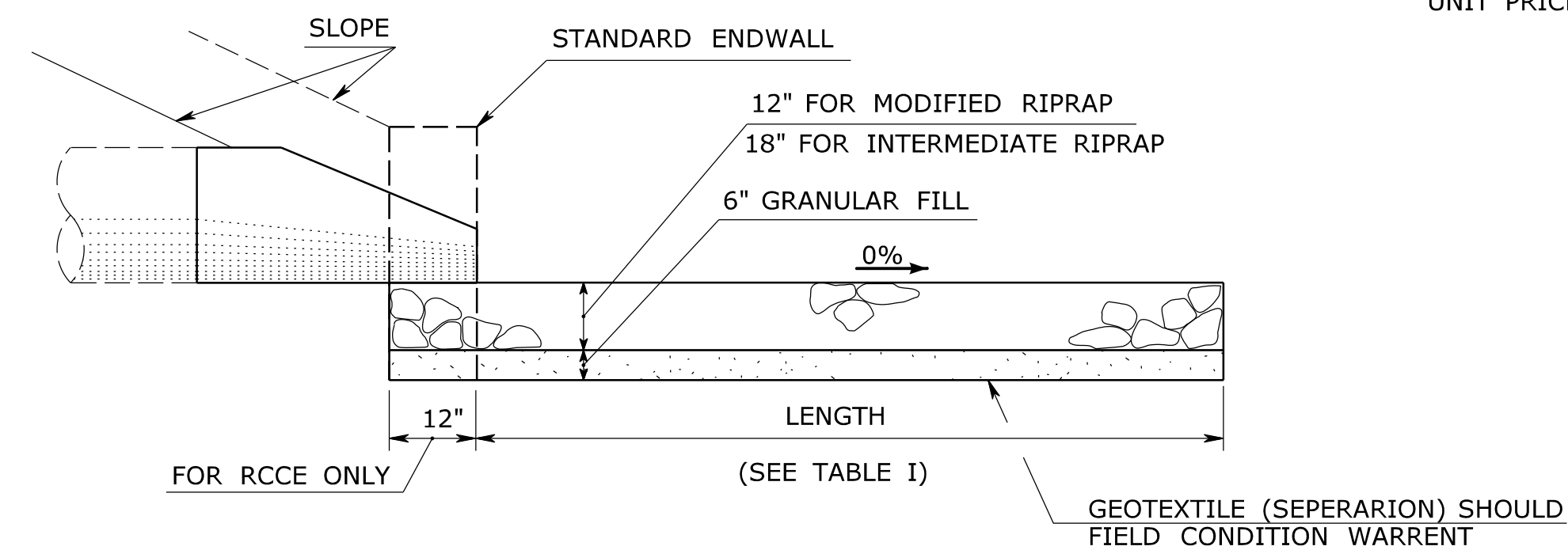
SHEET NO.

NOTES:

1. RIPRAP APRON TO BE AS FLAT AS POSSIBLE. SIDES OF RIPRAP APRON TO BLEND WITH EXISTING CONTOURS AS POSSIBLE.
2. MODIFIED RIPRAP APRON SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICES FOR CHANNEL EXCAVATION, MODIFIED RIPRAP, AND GRANULAR FILL.
3. MODIFIED RIPRAP PREFORMED SCOUR HOLE SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICES FOR CHANNEL EXCAVATION, MODIFIED RIPRAP, AND GRANULAR FILL.
4. INTERMEDIATE RIPRAP PREFORMED SCOUR HOLE SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICES FOR CHANNEL EXCAVATION, INTERMEDIATE RIPRAP, AND GRANULAR FILL.



PLAN VIEW



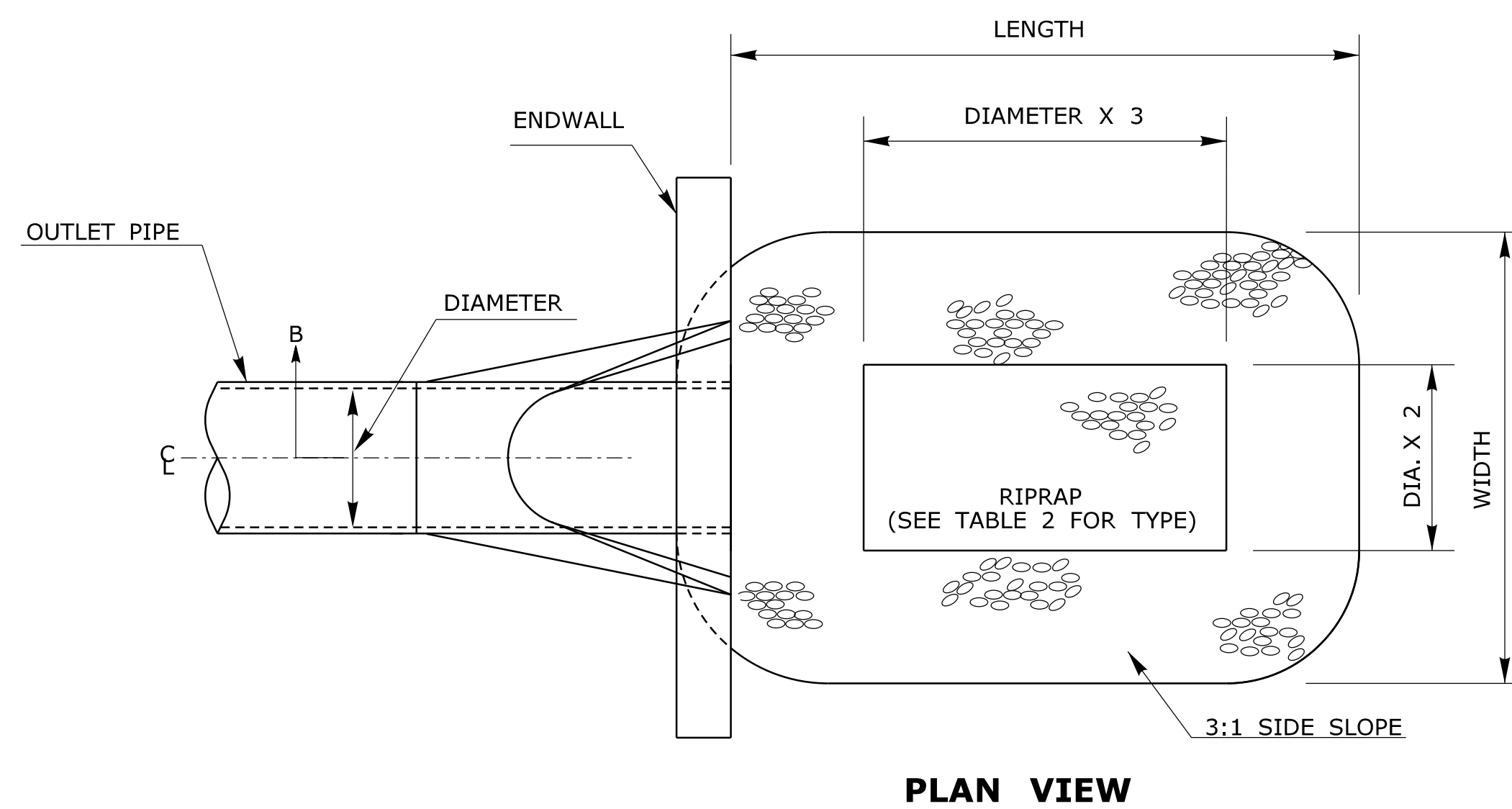
SECTION A-A

TABLE 1: SPLASH PADS

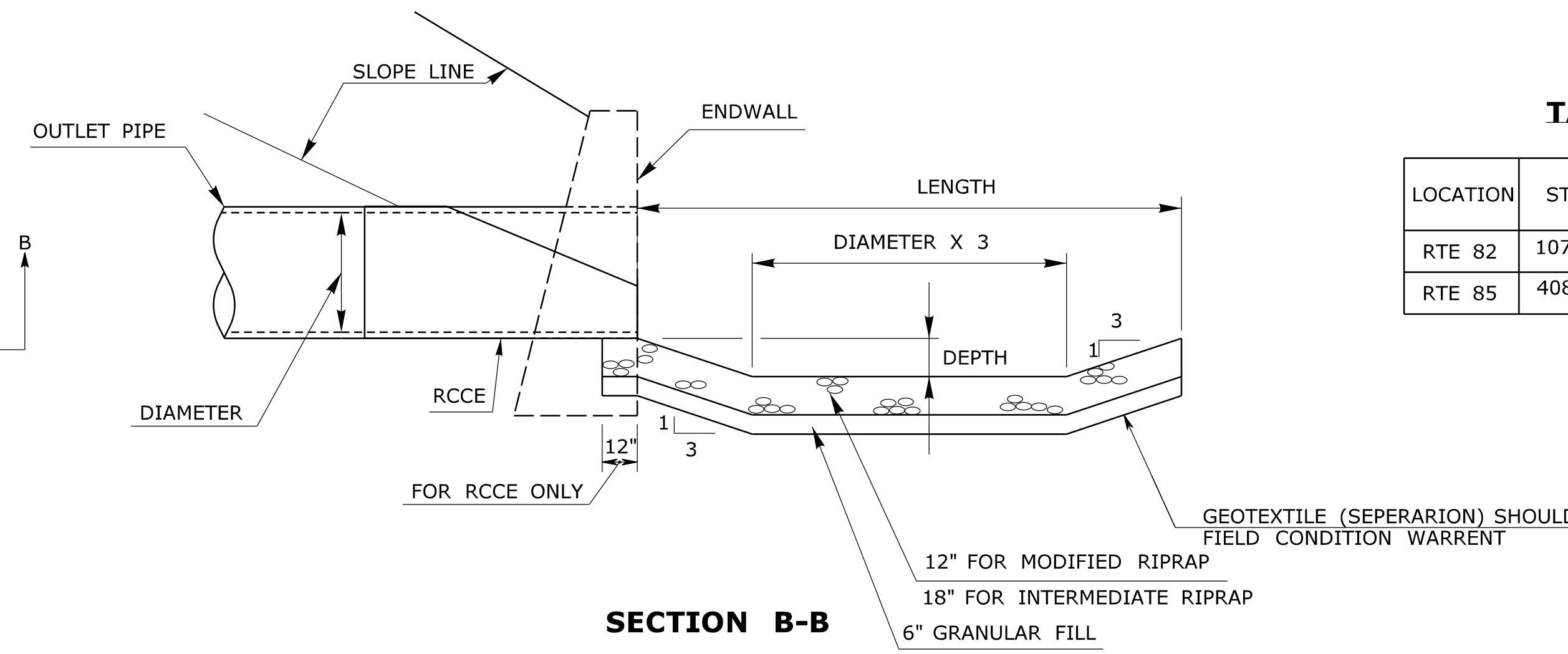
LOCATION	STATION	TYPE	LENGTH	WIDTH		RIP RAP TYPE
				W1	W2	
RTE 82	107+11 RT	B	10'	3.75'	7.75'	MODIFIED
RTE 85	406+48 LT	B	12'	4.5'	9.3'	MODIFIED
RTE 85	417+59 LT	B	10'	3'	7'	MODIFIED

RIPRAP APRON

SEE TABLE 1 FOR LOCATIONS AND DIMENTIONS



PLAN VIEW



SECTION B-B

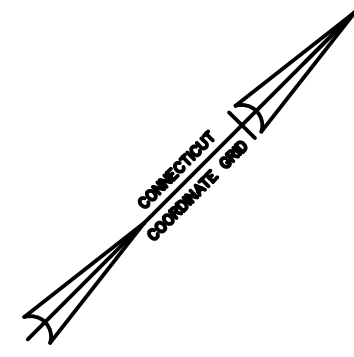
TABLE 2: RIP RAP SCOUR HOLE

LOCATION	STATION	TYPE	LENGTH	WIDTH	DEPTH	RIP RAP TYPE
RTE 82	107+11 RT	1	12'	10'	1'	INTERMEDIATE
RTE 85	408+60 LT	1	12'	10'	1'	MODIFIED

PREFORMED SCOUR HOLE

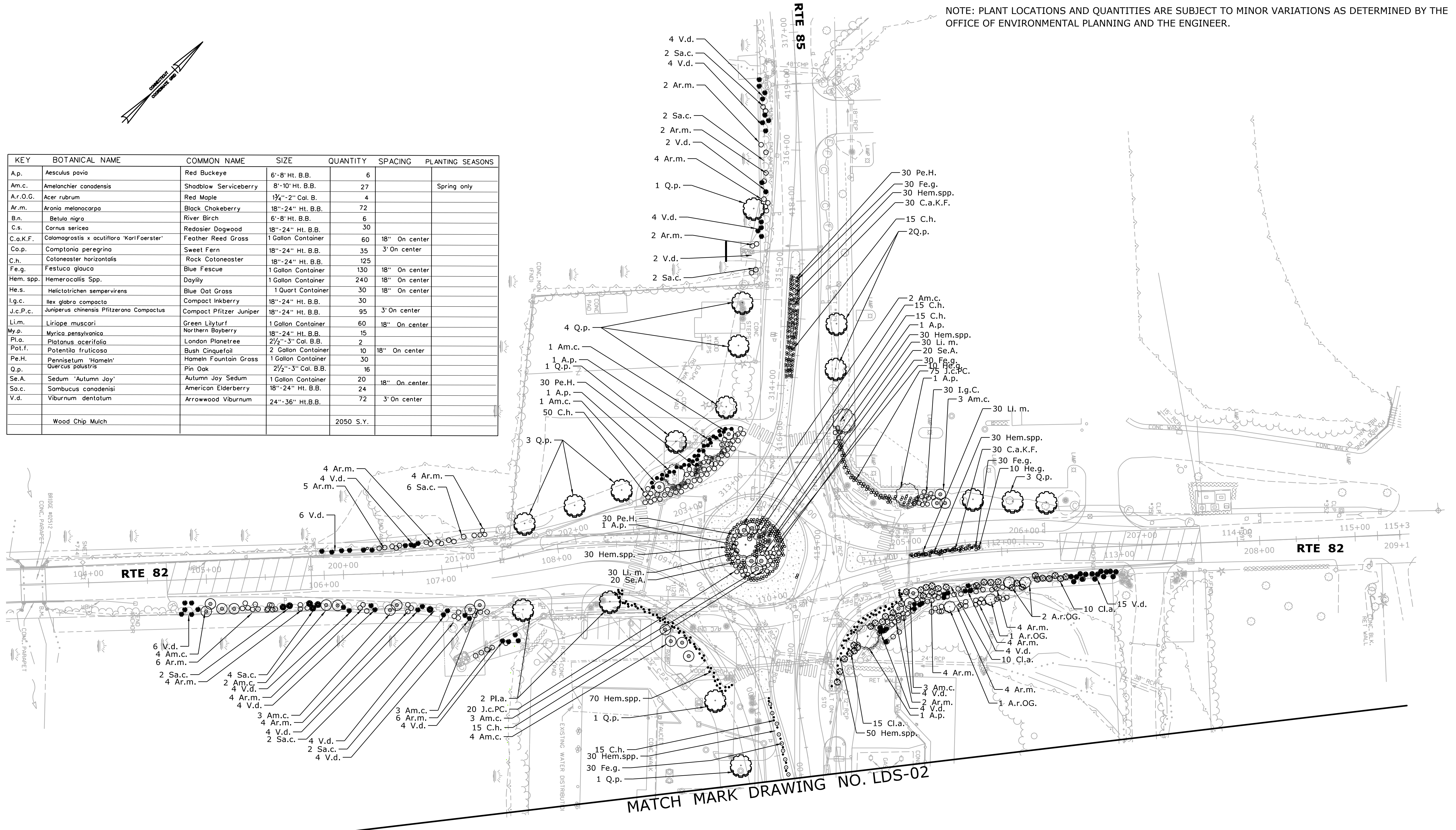
SEE TABLE 2 FOR LOCATIONS AND DIMENTIONS

<p>DESIGNER/DRAFTER: JNT</p> <p>CHECKED BY: BKK</p> <p>NOT TO SCALE</p>	<p>STATE OF CONNECTICUT</p> <p>DEPARTMENT OF TRANSPORTATION</p>	<p>SIGNATURE/BLOCK: OFFICE OF ENGINEERING</p> <p>APPROVED BY: _____ DATE: _____</p>	<p>PROJECT TITLE: ROUNDAABOUT AT SALEM FOUR CORNERS</p>	<p>TOWN: SALEM</p> <p>DRAWING TITLE: RIPRAP DETAILS</p>	<p>PROJECT NO. 120-86</p> <p>DRAWING NO. MDS-</p> <p>SHEET NO. _____</p>
<p>REV. 1 1/31/2011</p>	<p>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.</p>	<p>Plotted Date: 1/31/2011</p>	<p>Filename: ...VHW_MDS_sheet022 (rprap).dgn</p>	<p>REV. 1 1/31/2011</p>	<p>REV. 1 1/31/2011</p>



KEY	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY	SPACING	PLANTING SEASONS
A.p.	<i>Aesculus pavia</i>	Red Buckeye	6'-8" Ht. B.B.	6		
Am.c.	<i>Amelanchier canadensis</i>	Shadblow Serviceberry	8'-10" Ht. B.B.	27		Spring only
Ar.O.G.	<i>Acer rubrum</i>	Red Maple	1 3/4"-2" Cal. B.	4		
Ar.m.	<i>Aronia melanocarpa</i>	Black Chokeberry	18"-24" Ht. B.B.	72		
B.n.	<i>Betula nigra</i>	River Birch	6'-8" Ht. B.B.	6		
C.s.	<i>Cornus sericea</i>	Redosier Dogwood	18"-24" Ht. B.B.	30		
C.a.K.F.	<i>Calamagrostis x oculiflora 'Karl Foerster'</i>	Feather Reed Grass	1 Gallon Container	60	18" On center	
Co.p.	<i>Comptonia peregrina</i>	Sweet Fern	18"-24" Ht. B.B.	35	3' On center	
C.h.	<i>Cotoneaster horizontalis</i>	Rock Cotoneaster	18"-24" Ht. B.B.	125		
Fe.g.	<i>Festuca glauca</i>	Blue Fescue	1 Gallon Container	130	18" On center	
Hem. spp.	<i>Hemerocallis Spp.</i>	Daylily	1 Gallon Container	240	18" On center	
He.s.	<i>Helictotrichen sempervirens</i>	Blue Oat Grass	1 Quart Container	30	18" On center	
I.g.c.	<i>Ilex glabra compacta</i>	Compact Inkberry	18"-24" Ht. B.B.	30		
J.c.P.c.	<i>Juniperus chinensis Pfitzerana Compactus</i>	Compact Pfitzer Juniper	18"-24" Ht. B.B.	95	3' On center	
Li.m.	<i>Liriope muscari</i>	Green Lilyturf	1 Gallon Container	60	18" On center	
My.p.	<i>Myrica pensylvanica</i>	Northern Bayberry	18"-24" Ht. B.B.	15		
Pla.	<i>Platanus acerifolia</i>	London Planetree	2 1/2"-3" Cal. B.B.	2		
Pot.f.	<i>Potentilla fruticosa</i>	Bush Cinquefoil	2 Gallon Container	10	18" On center	
Pe.H.	<i>Pennisetum 'Hamel'</i>	Hamel Fountain Grass	1 Gallon Container	30		
Q.p.	<i>Quercus palustris</i>	Pin Oak	2 1/2"-3" Cal. B.B.	16		
Se.A.	<i>Sedum 'Autumn Joy'</i>	Autumn Joy Sedum	1 Gallon Container	20	18" On center	
Sa.c.	<i>Sambucus canadensis</i>	American Elderberry	18"-24" Ht. B.B.	24		
V.d.	<i>Viburnum dentatum</i>	Arrowwood Viburnum	24"-36" Ht. B.B.	72	3' On center	
	Wood Chip Mulch			2050 S.Y.		

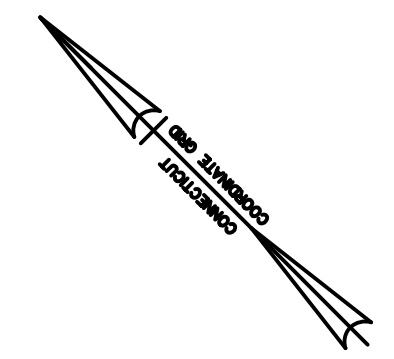
NOTE: PLANT LOCATIONS AND QUANTITIES ARE SUBJECT TO MINOR VARIATIONS AS DETERMINED BY THE OFFICE OF ENVIRONMENTAL PLANNING AND THE ENGINEER.



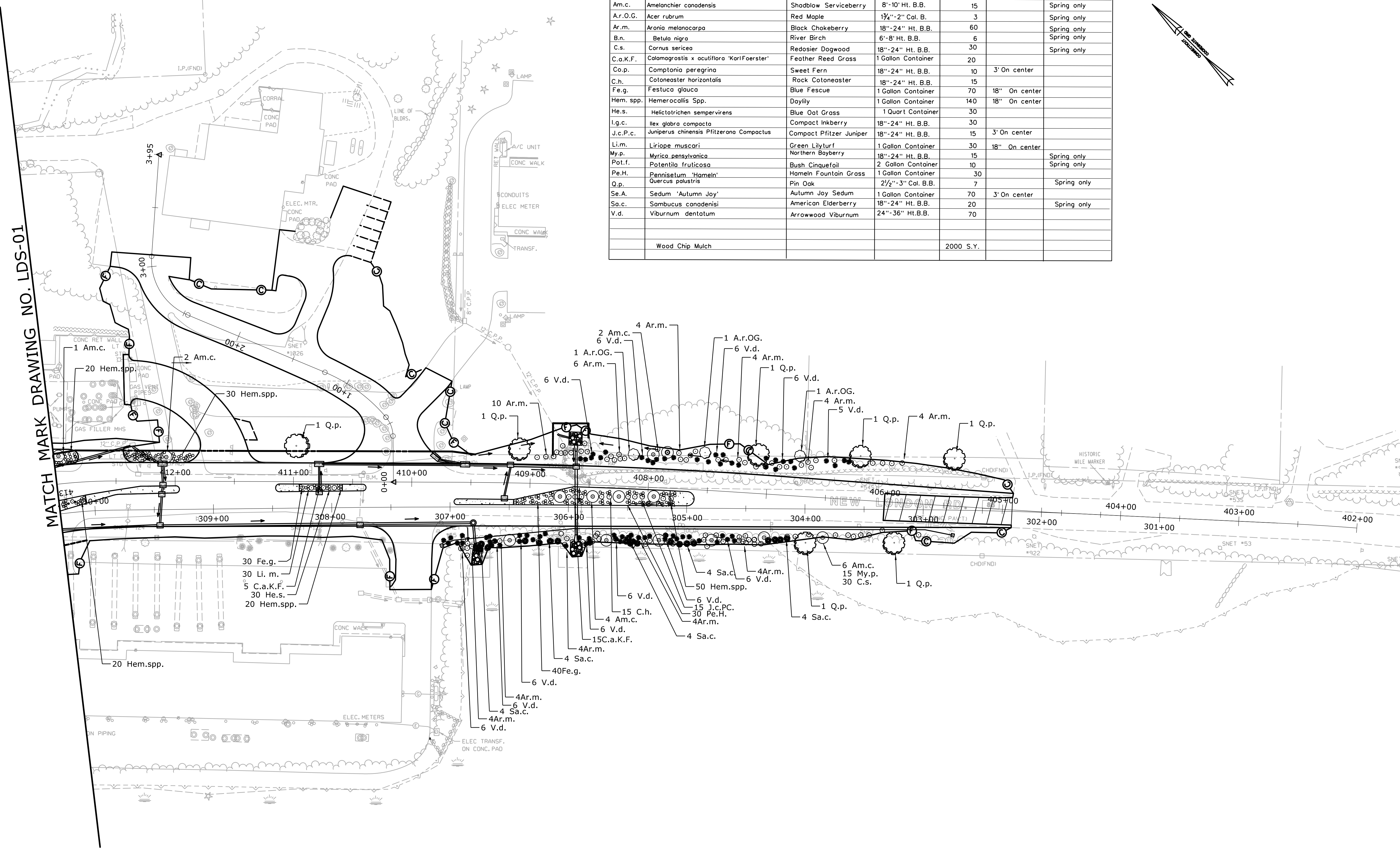
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REV.	DATE	REVISION DESCRIPTION	SHEET NO.											

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY	SPACING	PLANTING SEASONS
A.p.	Aesculus pavia	Red Buckeye	6'-8" Ht. B.B.	1		
Am.c.	Amelanchier canadensis	Shadblow Serviceberry	8'-10" Ht. B.B.	15		Spring only
Ar.O.G.	Acer rubrum	Red Maple	1 3/4"-2" Cal. B.	3		Spring only
Ar.m.	Aronia melanocarpa	Black Chokeberry	18"-24" Ht. B.B.	60		Spring only
B.n.	Betula nigra	River Birch	6'-8" Ht. B.B.	6		Spring only
C.s.	Cornus sericea	Redosier Dogwood	18"-24" Ht. B.B.	30		Spring only
C.a.K.F.	Calamagrostis x acutiflora 'KarlFoerster'	Feather Reed Grass	1 Gallon Container	20		
Co.p.	Comptonia peregrina	Sweet Fern	18"-24" Ht. B.B.	10	3' On center	
C.h.	Cotoneaster horizontalis	Rock Cotoneaster	18"-24" Ht. B.B.	15		
Fe.g.	Festuca glauca	Blue Fescue	1 Gallon Container	70	18" On center	
Hem. spp.	Hemerocallis Spp.	Daylily	1 Gallon Container	140	18" On center	
He.s.	Helictotrichon sempervirens	Blue Oat Grass	1 Quart Container	30		
I.g.c.	Ilex glabra compacta	Compact Inkberry	18"-24" Ht. B.B.	30		
J.c.P.c.	Juniperus chinensis Pfitzerana Compactus	Compact Pfitzer Juniper	18"-24" Ht. B.B.	15	3' On center	
Li.m.	Liriope muscari	Green Lilyturf	1 Gallon Container	30	18" On center	
My.p.	Myrica pensylvanica	Northern Bayberry	18"-24" Ht. B.B.	15		Spring only
Pot.f.	Potentilla fruticosa	Bush Cinquefoil	2 Gallon Container	10		Spring only
Pe.H.	Pennisetum 'Hameln'	Hameln Fountain Grass	1 Gallon Container	30		
Q.p.	Quercus palustris	Pin Oak	2 1/2"-3" Cal. B.B.	7		Spring only
Se.a.	Sedum 'Autumn Joy'	Autumn Joy Sedum	1 Gallon Container	70	3' On center	
Sa.c.	Sambucus canadensis	American Elderberry	18"-24" Ht. B.B.	20		Spring only
V.d.	Viburnum dentatum	Arrowwood Viburnum	24"-36" Ht. B.B.	70		
	Wood Chip Mulch			2000 S.Y.		

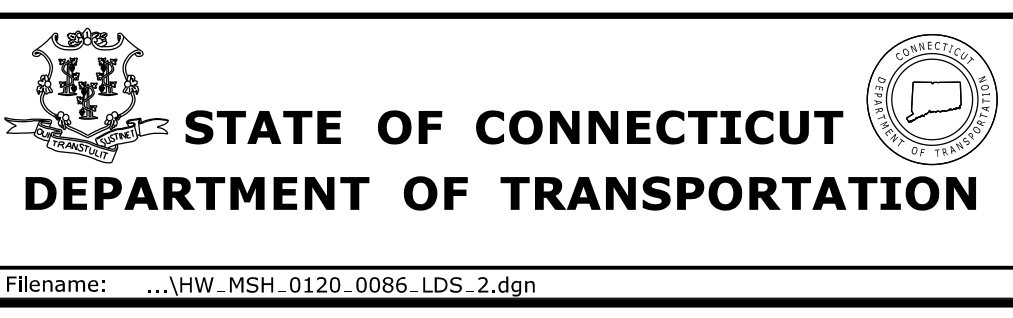


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DESIGNER/DRAFTER:
D. BARNES
CHECKED BY:
R. ZBROZEK
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OFFICE OF ENGINEERING
APPROVED BY: DATE:

PROJECT TITLE:
**ROUNDBOUT AT
SALEM FOUR CORNERS**

TOWN:
SALEM
DRAWING TITLE:
LANDSCAPE DESIGN SHEET

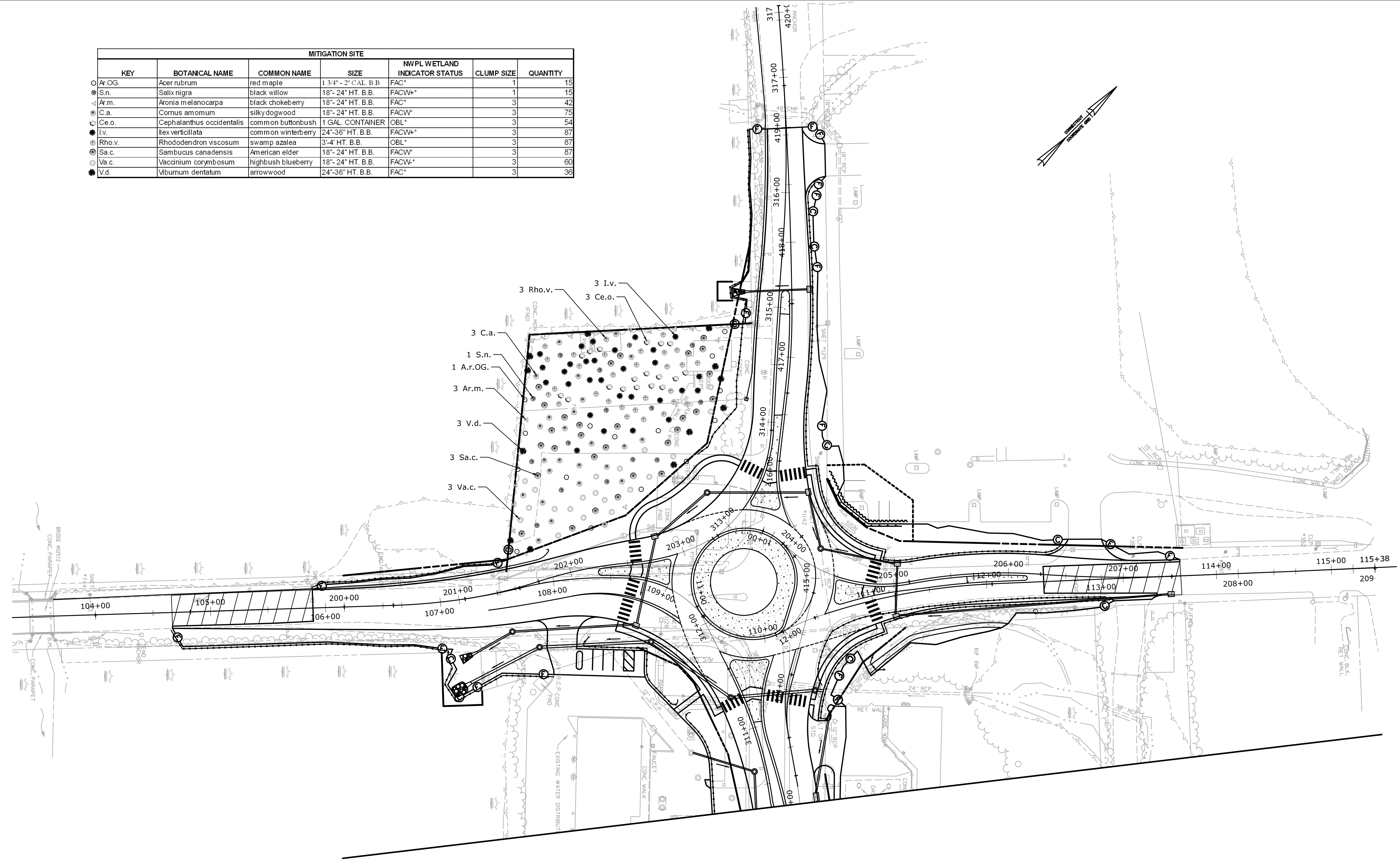
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DRAWING NO.
LDS-02
SHEET NO.

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Plotted Date: 3/9/2011

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MITIGATION SITE						
KEY	BOTANICAL NAME	COMMON NAME	SIZE	NWPL WETLAND INDICATOR STATUS	CLUMP SIZE	QUANTITY
Ar.OG.	Acer rubrum	red maple	1 3/4" - 2" CAL. B.B.	FAC*	1	15
S.n.	Salix nigra	black willow	18"- 24" HT. B.B.	FACW+*	1	15
Ar.m.	Aronia melanocarpa	black chokeberry	18"- 24" HT. B.B.	FAC*	3	42
C.a.	Cornus amomum	silky dogwood	18"- 24" HT. B.B.	FACW*	3	75
Ce.o.	Cephalanthus occidentalis	common buttonbush	1 GAL. CONTAINER	OBL*	3	54
I.v.	Ilex verticillata	common winterberry	24"-36" HT. B.B.	FACW+*	3	87
Rho.v.	Rhododendron viscosum	swamp azalea	3'-4" HT. B.B.	OBL*	3	87
Sa.c.	Sambucus canadensis	American elder	18"- 24" HT. B.B.	FACW*	3	87
Va.c.	Vaccinium corymbosum	highbush blueberry	18"- 24" HT. B.B.	FACW+*	3	60
V.d.	Viburnum dentatum	arrowwood	24"-36" HT. B.B.	FAC*	3	36



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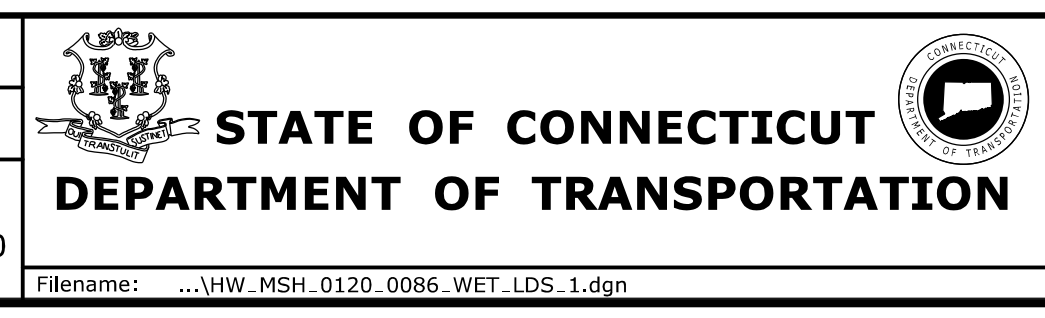
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PROJECT TITLE:
ROUNDAABOUT AT SALEM FOUR CORNERS

TOWN:
SALEM

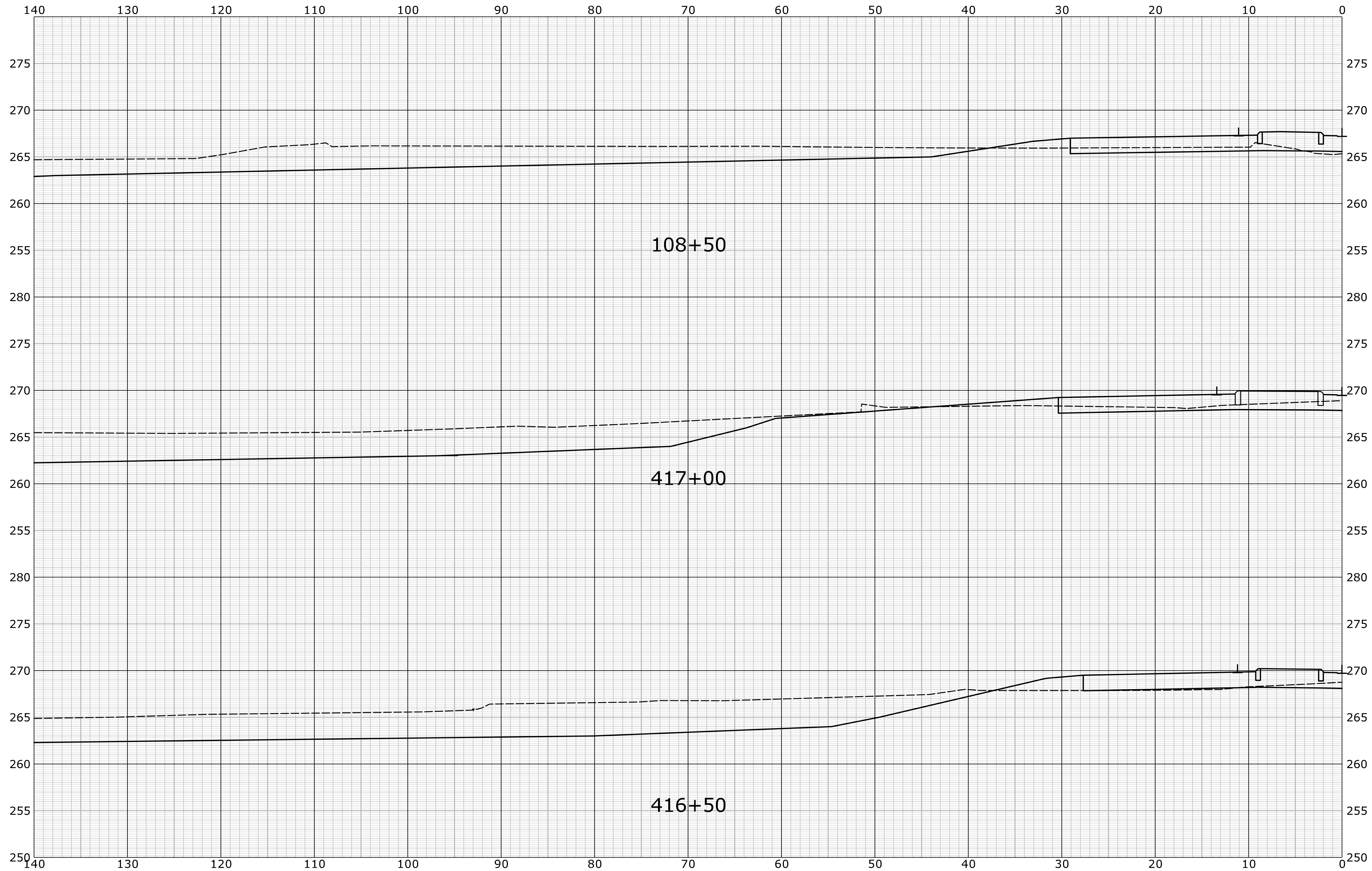
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MITIGATION LANDSCAPE DESIGN PLAN

PROJECT NO.
120-86

DRAWING NO.
MLDS-01

SHEET NO.

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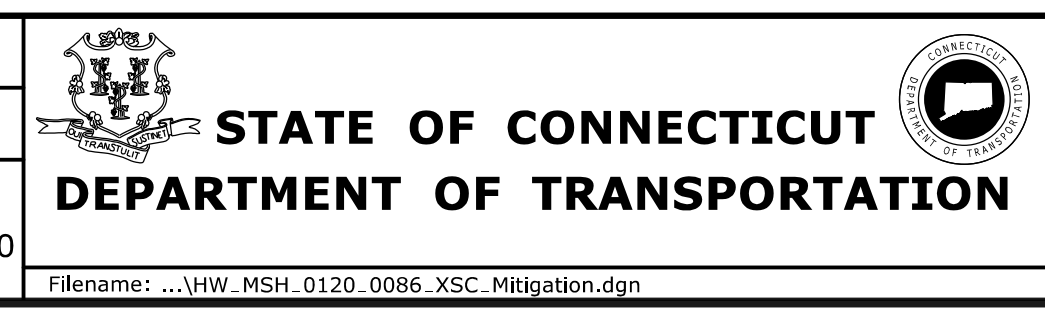
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Plotted Date: 1/31/2011

DESIGNER/DRAFTER:
JNT

CHECKED BY:
BKK

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OFFICE OF ENGINEERING

APPROVED BY: _____ DATE: _____

PROJECT TITLE:
ROUNDBOUT AT SALEM FOUR CORNERS

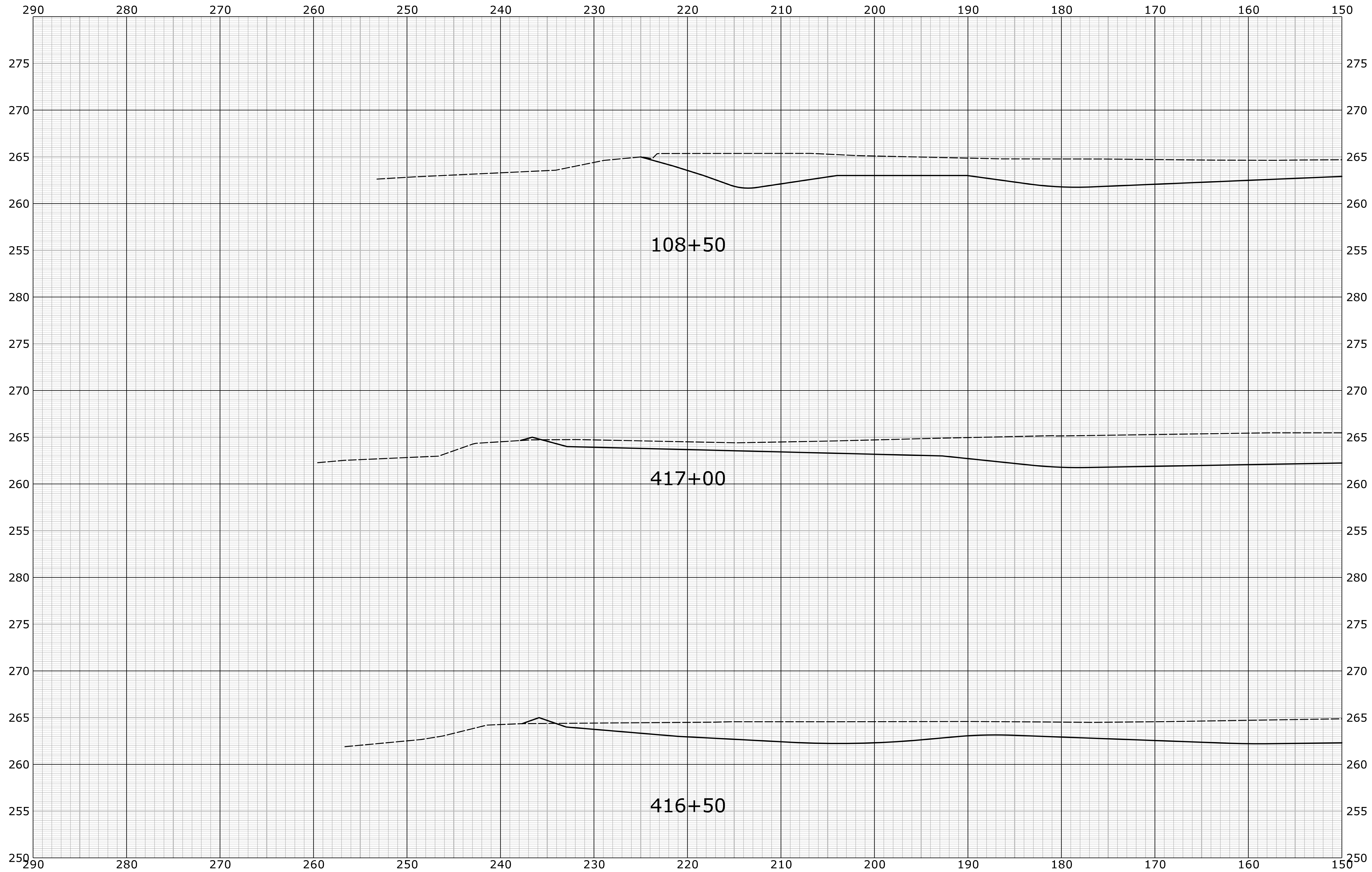
TOWN:
SALEM

DRAWING TITLE:
MITIGATION SITE CROSS SECTION

PROJECT NO.: **120-86**

DRAWING NO.: **SED-04**

SHEET NO.: **\$\$\$**



STA. 416+50 TO STA. 417+00 AND 108+50

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Plotted Date: 1/31/2011		CHECKED BY: BKK		APPROVED BY: _____ DATE: _____		DRAWING TITLE: MITIGATION SITE CROSS SECTION	DRAWING NO. SED-05
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Attachment B: Photographs of the Project Area



Wetland Site 1: Looking North down Rte 85



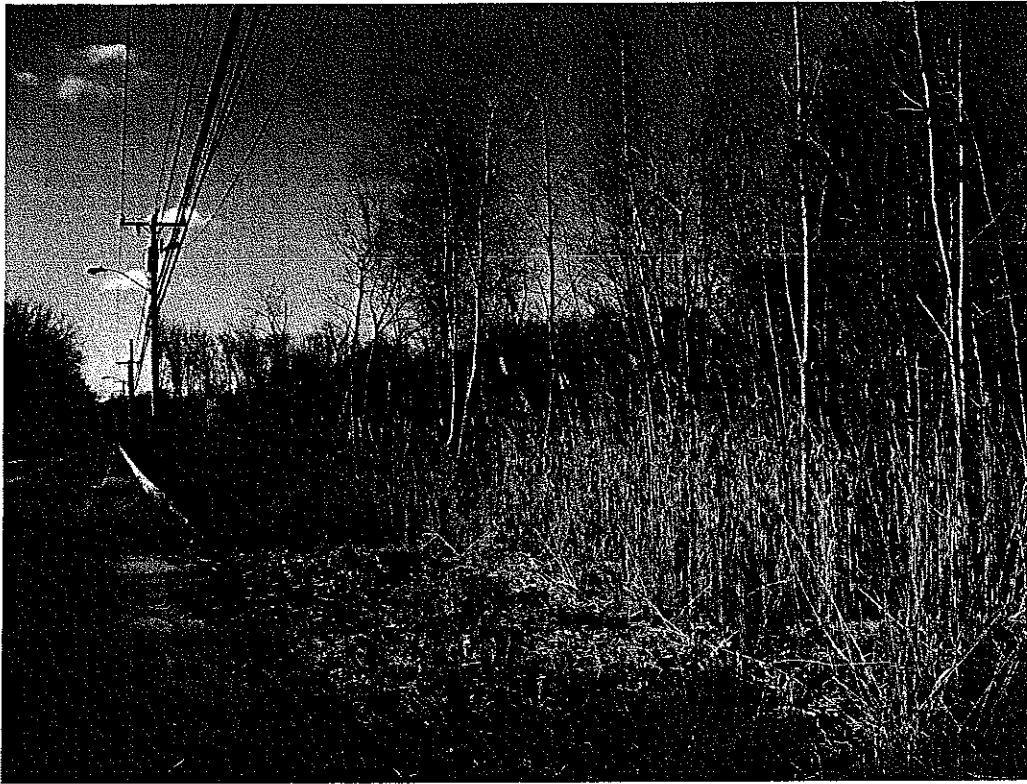
Wetland Site 1: Looking West from Rte 85



Wetland Site 2(South Side of Rte 82): Looking West down Rte 82



Wetland Site 2(South Side of Rte 82): Looking South from Rte 82
Location of Existing Outlet



Wetland Site 2(North Side of Rte 82): Looking West down Rte 82



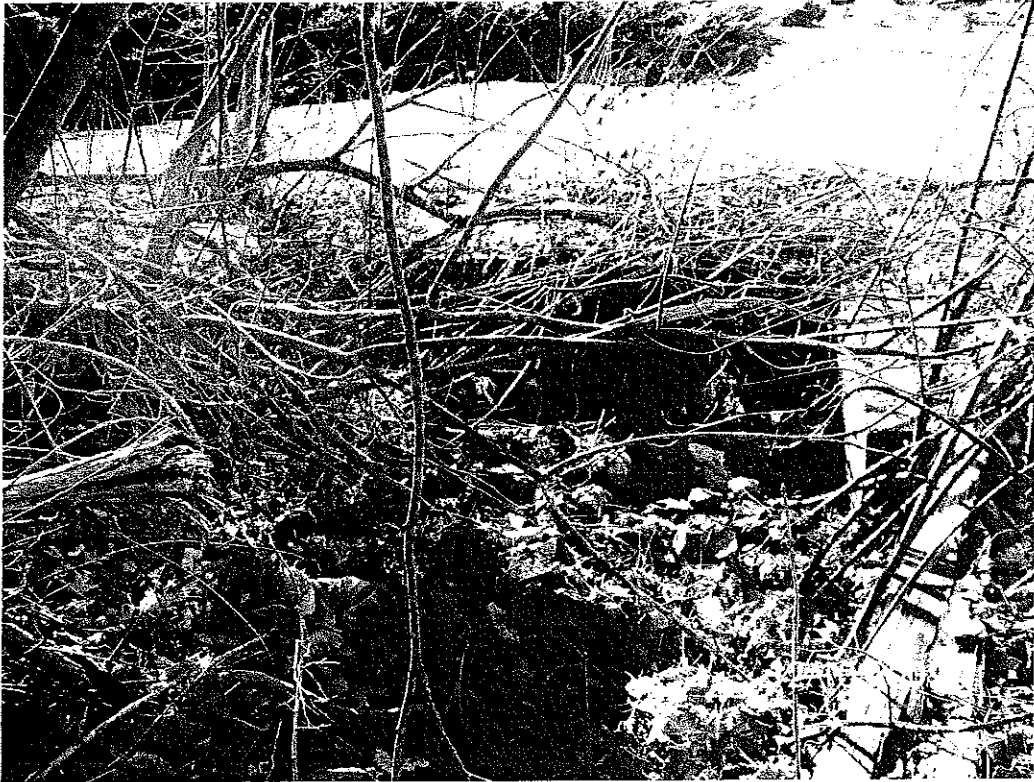
Wetland Site 2(North Side of Rte 82): Looking North from Rte 82



Wetland Site 3: Looking East down Rte 82
Overflow Channel



Wetland Site 3: Overflow Channel



Wetland Site 3: Overflow Channel Inlet



Wetland Site 4(South Side of Rte 85): Looking South down Rte 85



Wetland Site 4 (South Side of Rte 85): Looking South from Rte 85



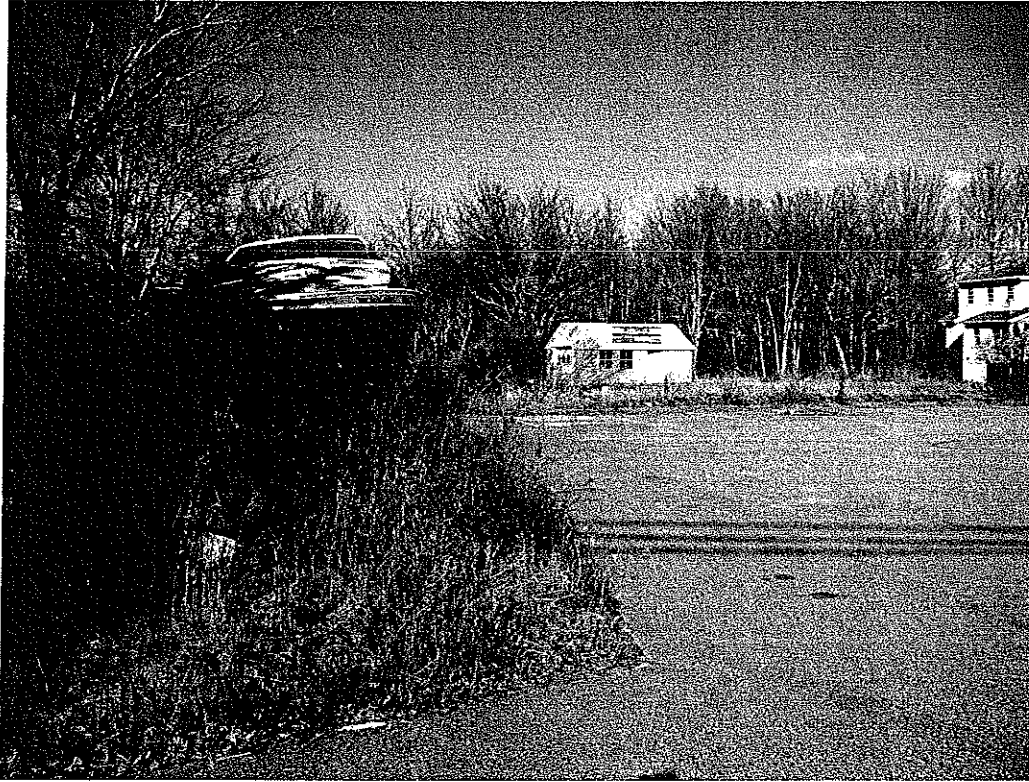
Wetland Site 4 (South Side of Rte 85): Looking South from Plaza parking Lot



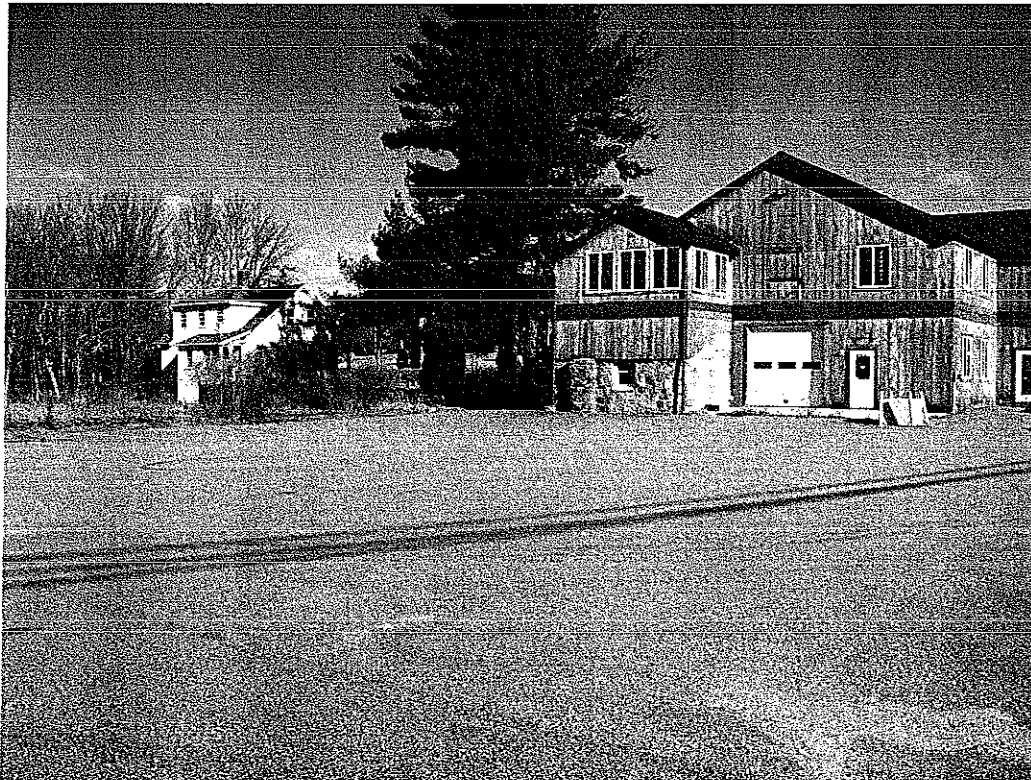
Wetland Site 4 (North Side of Rte 85): Looking North from Rte 85



Wetland Site 4 (North Side of Rte 85): Looking South towards Rte 85

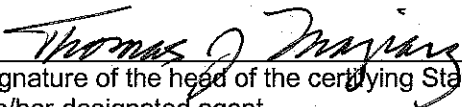


Mitigation Site



Mitigation Site

Attachment F: Documentation Form for Flood Management Certification

<p>1. Applicant Name: Connecticut Department of Transportation (as indicated on the <i>Permit Application Transmittal Form</i>)</p>	
<p>2. Name of Subject Facility or Project/Project Number: DOT Proj # 120 - 86, Salem Four Corners, Intersection of Routes 82 & 85</p>	
<p>3. Name of floodplain and watercourse: Harris Brook and associated floodplains</p>	
<p>4. This Certification is submitted for the Commissioner's approval pursuant to Section 25-68d of the General Statutes. I hereby certify that based on my reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the proposed activity described in this application is consistent with all applicable standards and criteria established in Sections 25-68d(b) of the General Statutes and Sections 25-68h-1 through 25-68h-3, inclusive, of the Regulations of Connecticut State Agencies.</p>	
	<u>3-21-2011</u>
Signature of the head of the certifying State agency or his/her designated agent	Date
Thomas J. Maziarz	Bureau Chief Policy & Planning
Name of the head of the certifying State agency or his/her designated agent (print or type)	Title (if applicable)

Attachment G: Plates, Plan Sheets, and Drawings

Project plan sheets and drawings are included separately.

Attachment H: Engineering Documentation

Part 1: Engineering Report Checklist

The following is a checklist of requirements that need to be completed, included and submitted as part of the Engineering Report. Please complete this checklist by identifying where each requirement listed is addressed in the Engineering Report (report title and page numbers). If an item is not applicable, place "NA" in the box. Attach the completed checklist as the cover sheet to engineering reports, as applicable, which fully describe the design of the proposed facilities or other actions and the hydraulic and hydrologic effects thereof. The application instructions (DEP-IWRD-INST-100) should be consulted for a complete description of each item listed. This checklist is required to be signed and sealed by a professional engineer licensed in the State of Connecticut.

Stormwater Management

Location of Item	Item Description
H Part 1 Sec 1	Description of the design storm frequency intensity, volume and duration
H Part 1 Sec 4	Watershed maps, existing and proposed
H Part 1 Sec 4	Computations for Tc
H Part 1 Sec 4	Imperviousness calculations
NA	NRCS runoff curve numbers, volumetric runoff coefficients
NA	Computations used to determine peak runoff rates, and velocities for each watershed area (24-hour storm): <ul style="list-style-type: none"> • Stream Channel Protection: 2-year frequency ("over-control" of 2-year storm) • Conveyance Protection: 10-year frequency • Peak Runoff Attenuation: 2-year, 10-year, and 100-year frequency • Emergency Outlet Sizing: safely pass the 100-year frequency or larger storm
NA	Hydrograph routing calculations
H Part 1 Sec 4	Description, schematics, and calculations for drainage and stormwater management systems, bridges and culverts
NA	Infiltration rates
NA	Documentation of sources
NA	Computer disk containing input and output data and the associated program for all computer models used in the analyses
NA	Hard copy of input and output data including input/output tables
NA	Detention basin analysis including timing and duration of expected outflow, stream stability analysis and hydrograph summation

Flood Plain Assessment

Location of Item	Item Description
H Part 1 Sec 1	Description or simulation of existing and proposed conditions upstream and downstream of the proposed activity
H Part 1 Sec 1	(For SCEL applications only) A determination of the effect of the proposed activity on flooding and flood hazards together with an equivalent encroachment on the opposite bank for the flood event establishing the encroachment lines
H Part 1 Sec 1	For any bridge or culvert placement or replacement with a drainage area of 100 acres or more, plan sheets showing the existing and proposed inundation area for the 2, 10, 25, 50, and 100 year discharges, carried to convergence
H Part 1 Sec 1	A description and analysis of the floodplain modifications required to restore any flood conveyance and flood storage capacity
H Part 1 Sec 1	Demonstration that backwater from the proposed activity will not impact an existing dam, dike, or similar structure
H Part 1 Sec 1	Backup data and complete hydraulic analysis for proposed modifications to the floodplain including location plan and plot for sections, profile sheet, summary sheet

Dams, Dikes, Diversion Channels, Similar Structures

Location of Item	Item Description
NA	Primary and emergency spillway and outlet structure erosion protection
NA	Dam breach analysis
NA	Geotechnical evaluation
NA	Construction Specifications for foundation preparation, embankment material, outlet structure, and construction inspection

Soil Erosion and Sediment Control Plan

Location of Item	Item Description
H Part 1 Sec 2	Narrative
Attachment G	Drawings
Attachment G	Details
H Part 1 Sec 4	Calculations for Engineered Measures

Professional Certification

For any Engineering Report submitted as part of the IWRD permit application, the following certification must be signed and sealed by a professional engineer licensed to practice in Connecticut and submitted with the Engineering Report Checklist and Report.

"I certify that in my professional judgement, each requirement listed in the Engineering Report Checklist has been addressed in the Engineering Report submitted as part of the IWRD permit application as Attachment H, Part 1 and that the information is true, accurate and complete to the best of my knowledge and belief.

This certification is based on my review of the Engineering Report.

I understand that a false statement made in the submitted information may, pursuant to Section 22a-6 of the General Statutes, be punishable as a criminal offense under Section 53a-157b of the General Statutes, and may also be punishable under Section 22a-438 of the General Statutes."


Signature of Applicant

3-21-2011
Date

Thomas J. Maziarz
Name of Applicant (print or type)

Bureau Chief, Policy & Planning
Title (if applicable)

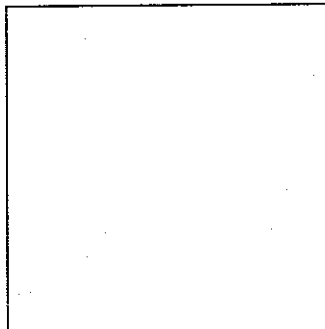

Signature of Professional Engineer

3/14/11
Date

Byong K. Kim
Name of Professional Engineer (print or type)

P.E. Number (if applicable)

Affix P.E. Stamp Here
(if applicable)



Attachment H – Part 1: Engineering Report

Section I: Hydraulic Analysis

Section II: Soil Erosion and Sediment Control Plan

Section III: E & S Plan Checklist

Section IV: Drainage Design Computations

Attachment H – Part 1: Engineering Report

Section I: Hydraulic Analysis

Note: Hydraulic Analysis – is *included under a separate cover.*

Attachment H – Part 1: Engineering Report

Section II: Soil Erosion and Sediment Control Plan

Soil Erosion and Sediment Control Plan

The type, location, and details of the erosion and sediment controls for the project are shown on the project plans provided as Attachment G of the DEP permit application. The project plans also identify the existing and proposed roadway drainage systems. The erosion and sediment controls are consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control and with the version of ConnDOT's "On Site Mitigation for Construction Activities." Additionally, the contractor is bound by the conditions set forth in ConnDOT's Standard Specifications for Roads, Bridges, and Incidental Construction, Section 1.10 – Environmental Compliance, Best Management Practices.

Soil Erosion and Sediment Controls

The design of this project relies on the combined effects of several erosion and sediment control measures to provide effective overall pollution control. The location for each stabilization and structural practice along with details for installation are shown in the construction plan set and in the specifications for the project. Additional measures that may be required are contained in the State of Connecticut Department of Transportation's "Standard Specifications for Roads, Bridges and Incidental Construction" (Form 816, 2004), ConnDOT Office of Environmental Planning's "On-site Mitigation for Construction Activities" (1994), and the Department of Environmental Protection's "2002 Connecticut Guidelines for Soil Erosion and Sediment Control". These documents address the warrants, installation, schedule for implementation, maintenance, inspection and expected results for the chosen methods.

The following stabilization and structural practices are proposed for this project. (The practices discussed may not be identified by the identical name or description as a contract pay item or on the detailed estimate sheets for the projects.)

1. Stabilization Practices

In all cases, the Contractor shall implement stabilization measures as soon as possible after any soil disturbance. Where construction activities have been permanently ceased or have temporarily been suspended for more than seven days, or when final grades are reached in any portion of the site, stabilization practices shall be implemented within three days. Such stabilization may consist of mulching and tracking. Areas that will remain disturbed but inactive for 30 days or more shall be temporarily seeded (turf establishment) in accordance with Best Management Practices and Section 2.10 – Water Pollution Control (Soil Erosion).

a. Interim Stabilization Practices

- Temporary seeding (Turf Establishment and/or a separate Temporary Seeding item)
- Mulching and tracking (Temporary Slope Protection)
- Staked hay bale siltation barrier
- Geotextile silt fence barrier
- Catch basin inlet protection
- Dust control (water, calcium chloride and/or sweeping)

Attachment H Part I: Soil Erosion and Sediment Control Plan

b. Permanent Stabilization Practices

- Topsoiling
- Permanent seeding (Turf Establishment)
- Landscape planting and wood chip mulching
- Overland sheet flow (minimum use of curbing to avoid concentrating runoff)

In addition, swales will be constructed in two locations within the project as a means of filtration prior to collecting stormwater in catch basins.

2. Structural Practices

Various structural practices are proposed for use throughout the project to divert flows away from exposed soils, store flows, collect sediment, or otherwise limit runoff and the discharge of pollutants.

The following features are included to improve the quality of stormwater runoff prior to its discharge to surface water:

- Catch basin sumps (2-foot standard and deeper 4-foot sumps where called for) to help trap sediments and contaminants.
- Riprap stabilization aprons and scour holes.
- Curbing was eliminated wherever possible to promote sheet flow.
- Grass Swales are used wherever possible to help filter out contaminants from runoff.

Where specified on the plans the last two basins will have a deeper sump (4-foot instead of 2-foot). These catch basins will have a capacity of 80 cubic feet of sump storage and settling area (48 cubic feet with older style masonry block basins), per basin. Riprap aprons are also to be placed at pipe outlets for energy dissipation and erosion prevention.

The use of overland sheet flow (areas without curbing) and grass swales as a vegetative filter to pretreat runoff from highways was employed through the project wherever possible.

3. Site Maintenance/Other Controls:

The Contractor is expected to maintain the construction site in a clean, orderly state through the duration of the construction effort by implementing sound construction management practices, site cleanliness, and good common sense. These will reduce the possibility of accidental spills or soil contamination, improve response times for addressing problems, and reduce safety hazards.

Construction solid waste materials such as concrete, bituminous concrete, lumber, scrap metal and packing materials are expected to be generated during construction. Various hazardous materials and substances are also expected to be on-site, such as concrete additives, fertilizers, fuels, petroleum-based products, and contaminated excavated soils.

Specifications for the handling and disposal of construction wastes and material management are contained in the following: the "Standard Specifications for Roads, Bridges and Incidental Construction – Form 816", 2004; the contract Special Provisions;

Attachment H Part I: Soil Erosion and Sediment Control Plan

and the "On-Site Mitigation for Construction Activities", 1994. These documents address materials handling, handling, testing and disposal of contaminated or hazardous materials, spill control, and materials storage and clean up on this state project.

Proper cleaning and material management practices must be adhered to after completion of this improvement to reduce the frequency and extent of routine, on going types of pollution associated with high-volume arterial highways. The Department currently has maintenance and monitoring programs to promote more effective maintenance practices.

Construction Sequencing

In order to facilitate environmental protections, minimize public inconvenience and traffic disruptions, and allow for efficient utility relocations, the following construction sequence is recommended. Certain phases of construction shall not be initiated until the completion of work in a prior phase, including stabilization of disturbed areas. Thus, the total acreage of disturbed area at any one time will be limited by the phasing sequence. The actual sequence may be revised as approved by the Connecticut Department of Transportation's District Office of Construction based on actual field conditions, traffic considerations, and the Contractor's proposed operations while following the intent of the Stormwater Pollution Control Plan.

General Construction Sequence:

1. Hold Pre-construction Coordination Meeting.
2. Stake all slope limits and identify trees to be removed.
3. Hold tree cutting meeting in accordance with Section 2.10 – Clearing and Grubbing.
4. Install erosion controls at drainage inlets, ditches and outlets that will receive runoff from areas to be disturbed by construction. Install silt fences along the perimeter of areas to be disturbed by work as shown on the plans. **Additional silt fences may be required, as directed, to address functional swales and localized runoff patterns.** Maintain the silt fences until contributing runoff areas are stabilized and until directed by the Engineer.
5. Perform clearing activities as shown on the plans and as determined at the tree cutting meeting. Do not grub (excavate) stumps from any areas except those within the areas of active construction. The stumps and root balls will maintain soil stability.
6. Construct required storm drainage as shown on the stage construction plans. Set erosion controls around catch basin inlets and ensure that outlet protection is in place as shown on plans prior to the discharge of any flow through the drainage systems.
7. Install pavement base and pavement structure, as shown on plans.
8. Place required depth of topsoil and perform turf establishment where shown on the plans in the time frame specified under "Stabilization Practices."
9. Remove all temporary erosion and sediment controls when directed by the Engineer after disturbed areas have been stabilized.
10. Perform project cleanup.

Construction Schedule:

This contract will be advertised in November 2011 with an expected start of construction in spring 2012. The anticipated duration of construction is roughly 1 construction seasons.

Attachment H – Part 1: Engineering Report

Section III: E & S Plan Checklist

Checklists, pp. 3-12 & 3-13 of the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*

Monitoring and Maintenance

The E&S plan and any revisions, shall identify an agent or agents who have the responsibility and authority for the implementation, operation, monitoring and maintenance of E&S measures. Such agent(s) shall be familiar with each control measure used including its limitations, installation, inspection and maintenance. When control measures fail, or are found to be otherwise ineffective, such agent(s) shall coordinate plan revisions with a professional experienced in erosion and sediment control and any approving agency when that agency's approval is required. Such agent(s) shall have the additional responsibility for ensuring all erosion and sediment controls are properly installed and maintained the construction site before predicted major storms. A major storm is defined as a storm predicted by the National Office of Atmospheric Administration (NOAA) Weather Service with warnings of flooding, severe thunderstorms or similarly severe weather conditions or effects.

Each measure has inspection requirements included in the measure's section entitled "Maintenance". Many of the measures require inspections at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater; some others require daily inspection. Only the permanent measures have less frequent inspections. More frequent inspections than those identified in the measure may be necessary for sites that are heavily traveled and before major storms.

E&S Plan Checklists

These checklists are intended to be of assistance in preparing and approving E&S plans, and serve as a reminder of major items that typically need to be considered when developing the plan.

1. Narrative

- 1.1 Purpose and description of project.
- 1.2 Estimates of the total area of the project site and the total area of the site that is expected to be disturbed by construction activities.
- 1.3 Identification of site-specific erosion or sediment control concerns and issues.
- 1.4 The phases of development if more than one phase is planned
- 1.5 The planned start and completion dates for each phase of the project.⁵
- 1.6 Either provide or identify where in the E&S plan the following information is found:
 - 1.6.1 the design criteria, construction details and maintenance program for the erosion and sediment control measures to be used,
 - 1.6.2 the sequence of major operations within each phase, such as installation of erosion control measures, clearing, grubbing, excavation, grading, drainage and utility installation, temporary stabilization, road base, paving for roadways and parking areas, building construction, permanent stabilization, removal of temporary erosion control measures
 - 1.6.3 The time (in days) required for the major operations identified in the sequence

⁵These are often subject to change depending on markets, financing, permit approvals and weather conditions. A change in a start date can cause a restriction or prohibition in the use of proposed measures, and thereby require revisions to the E&S plan.

1.7 Identify other possible local, state and federal permits required.

→ 1.8 Identify the conservation practices to be used.

→ 1.9 A listing of all other documents to be considered part of the E&S plan (e.g. reports of hydraulic and hydrologic computations, boring logs, test pit logs, soils reports, etc.)

2. Support Documents (as may be needed to support Engineering Designs)

2.1 Hydraulic Calculations

- 2.1.1 Size and locations of existing and planned channels or waterways with design calculations and construction details.
- 2.1.2 Existing peak flows with calculations
- 2.1.3 Planned peak flows with calculations
- 2.1.4 Changes in peak flows
- 2.1.5 Off-site effects of increased peak flows or volumes
- 2.1.6 Design calculations and construction details for engineered measures used to control off-site erosion caused by the project
- 2.1.7 Design calculations and construction details for engineered measures used to control erosion below culverts and storm sewer outlets
- 2.1.8 Design calculations and construction details for engineered measures used to control groundwater, i.e. seeps, high water table, etc.

2.2 Boring logs, test pit logs, soils reports, etc.

3. Site Drawing(s) Checklist

3.1 Jurisdictional Features Required on All Maps or Drawings

- 3.1.1 North arrow
- 3.1.2 Scale (including graphical scale)
- 3.1.3 A title block containing the name of the project, the author of the map or drawing, the owner of record for the project, date of drawing creation and any revision dates
- 3.1.4 Property lines
- 3.1.5 Legend identifying the symbols used
- 3.1.6 For plans containing E&S measures which require an engineered design, the signature and seal of a professional engineer licensed to practice in Connecticut

3.2 Site Locus Map

- 3.2.1 Scale (1:24,000 recommended)
- 3.2.2 Project location (show property boundaries and at least the area that is within 1000 feet of the property boundaries)
- 3.2.3 Roads, streets/buildings
- 3.3.4 Major drainage ways (at least named water-courses)
- 3.3.5 Identification of any public drinking water supply watershed area

3.3 Topography, Natural Features and Regulatory Boundaries

- 3.3.1 Existing contours (2 foot intervals)
- 3.3.2 Planned grades and elevations

- 3.3.13 Limits of cuts and/or fills
- 3.3.54 Soils, bedrock
- 3.3.55 Seeps, springs
- 3.3.76 Inland wetlands boundaries
- 3.3.77 FEMA identified floodplains, floodways and State established stream channel encroachment lines
- 3.3.78 Streams, lakes, ponds, drainage ways, dams
- 3.3.79 Existing vegetation
- 3.3.80 Tidal wetland boundaries and coastal resource limits (e.g. mean high water, shellfish beds, submerged aquatic vegetation, CAM boundary)
- 3.3.81 Public water supply watershed, well heads or aquifer boundaries (when available)

3.4 Drainage Patterns

- 3.4.1 Existing and planned drainage patterns (including offsite areas)
- 3.4.2 Size of drainage areas
- 3.4.3 Size and location of culverts and storm sewers (existing and planned)
- 3.4.4 Size and location of existing and planned channels or waterways
- 3.4.5 Major land uses of surrounding areas

3.5 Road and Utility Systems

- 3.5.1 Planned and existing roads and buildings with their location and elevations
- 3.5.2 Access roads: temporary and permanent
- 3.5.3 Location of existing and planned septic systems
- 3.5.4 Location and size of existing and planned sanitary sewers
- 3.5.5 Location of other existing and planned utilities, telephone, electric, gas, drinking water wells, etc.

3.6 Clearing, Grading, Vegetation Stabilization

- 3.6.1 Areas to be cleared, and sequence of clearing
- 3.6.2 Disposal of cleared material (off-site and on-site)
- 3.6.3 Areas to be excavated or graded, and sequence of grading or excavation
- 3.6.4 Areas and acreage to be vegetatively stabilized (temporary and/or permanent)
- 3.6.5 Planned vegetation with details of plants, seed, mulch, fertilizer, planting dates, etc.

4. Erosion & Sediment Control Drawings

- 4.1 Location of E&S measure on site plan drawing with appropriate symbol
- 4.2 Construction drawings and specifications for measures
- 4.3 Maintenance requirements of measures during construction of project
- 4.4 Person responsible for maintenance during construction of project
- 4.5 Maintenance requirements of permanent measures after project completion
- 4.6 Organization or person responsible for maintenance of permanent measures having the authority to maintain and upgrade control measures as designed or as needed to control erosion and sedimentation
- 4.7 Handling of emergency situations (e.g. severe flooding, rains or other environmental problems).
- 4.8 If not provided in the narrative, the information listed in check list paragraph 1.6 (see Narrative heading)

Attachment H – Part 1: Engineering Report

Section IV: Drainage Design Computations

Note: Drainage Design Computations – is *included under a separate cover*.

Attachment H: Engineering Documentation

Part 2: Hydrologic and Hydraulic Consistency Worksheet

Inland Water Resources Division Permit Activities

This worksheet has four sections; only complete the section(s) applicable to the proposed project. Where a question requires a "Yes" or "No" answer, select the appropriate response and explain your response, if required, in the space provided.

Section I: Floodplain Management *(if the proposed project involves a structure, obstruction, encroachment or work in a watercourse, floodplain, or coastal high hazard area)*

Section II: Stormwater Management *(if the proposed project involves stormwater drainage or stormwater runoff)*

Sections III: State Grants and Loans and **Section IV: Disposal of State Land** *(only if the applicant is a state agency seeking flood management certification approval for state grants and loans or disposal of state land)*

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Definitions of terms used in these worksheets are found in Section 25-68b of the Connecticut General Statutes and Section 25-68h-1 of the Regulations of Connecticut State Agencies and in the National Flood Insurance Program Regulations (44 CFR, Chapter 1, Subchapter B, Part 59.1).

Section I: Floodplain Management

Section I: Floodplain Management

Name of Applicant: **Connecticut Department of Transportation**

Name of Proposed Project: **Roundabout at Salem Four Corners (Rte 85 at Rte 82)**

1. General Criteria

- a. *Critical Activity* - Does the proposed project involve the treatment, storage and disposal of hazardous waste or the siting of hospitals, housing for the elderly, schools or residences, in the 0.2 per cent [500 year] floodplain? Yes No

If yes, the base flood for the critical activity shall have a recurrence interval equal to the 500 year flood event; if no, the base flood for the activity shall have a recurrence interval equal to the 100 year flood event.

- b. *Nonintensive Floodplain Uses* - Will the proposed project promote development in floodplains or will utilities servicing the project be located so as to enable floodplain development?

Yes No

Explain:

- c. *National Flood Insurance Program (NFIP)* - Will the proposed project be located within an area of special flood hazard designated by the Federal Emergency Management Agency (FEMA)?

Yes No If yes, list the FEMA flood zone(s):

Zone A6

Does the proposed project meet the NFIP minimum standards established in 44 CFR, Chapter 1, Subchapter B, Part 60.3, floodplain management criteria for flood-prone areas?

Yes No

- d. *Municipal Regulations* - Has the municipality in which the proposed project is to be located adopted floodplain regulations containing requirements that are more restrictive than the NFIP floodplain management criteria for flood-prone areas? Yes No

If yes, describe the more restrictive requirements:

Does the proposed project comply with the more restrictive standards of the municipality?

Yes No

Section I: Floodplain Management (continued)

2. Flooding and Flood Hazards

- a. *Flooding* - Will the proposed project pose any hazard to human life, health or property in the event of a base flood? Yes No

If yes, explain:

A section of Rte 82 near the intersection would completely be submerged under the 100-YR flood in the existing condition. Although the project will not eliminate this condition, it will reduce the length of flooding on the road. In order to eliminate the flooding completely, the roadway will have to be raised by 2 ft. Such work, which is beyond the scope of this project, will have a significant impact in the wetland and will be highly costly.

- b. *Flood Velocities* - Will the proposed project cause an increase in flow velocity or depth during the base flood discharge? Yes No

If yes, the increase in velocity is: **0.04** fps
and/or the increase in depth is: **0.00** ft.

Will such increase in velocity or depth cause channel erosion or pose any hazard to human life, health or property? Yes No

Explain:

The velocity through the bridge opening (Br #2512) will increase from 2.18 ft/s to 2.22 ft/s under the 100-year flood. However, as the magnitude of the increase as well as of the velocity itself is relatively low, it will have no realistic impact.

- c. *Flood Storage* - Will the proposed project affect the flood storage capacity or flood control value of the floodplain? Yes No

If yes, describe the effects:

The flood storage capacity of the floodplain will be increased with the wetland mitigation area which is proposed at the northwest quadrant of the Rte 82 and 85 intersection. This increase, however, will not significantly change the downstream peak discharge.

- d. *Degrading or Aggrading Stream Beds* - Is the streambed currently degrading or aggrading?

Degrading Aggrading Neither

Has the project design addressed degrading or aggrading streambed conditions?

Yes No

- e. *Ice Jams* - Is the watercourse prone to ice jams or floods due to ice? Yes No

Has the project design considered ice jams or floods due to ice? Yes No

Section I: Floodplain Management (continued)

f. *Storage of Materials & Equipment* - Will the construction or use of the proposed project involve the storage of materials below the 500 year flood elevation that are buoyant, hazardous, flammable, explosive, soluble, expansive or radioactive, or the storage of any other materials which could be injurious to human, animal or plant life in the event of a flood?

Yes No

If yes, describe the materials and how such materials will be protected from flood damage, secured or removed from the floodplain to prevent pollution and hazards to life and property.

Storage of materials that could be injurious to human health or the environment in the event of flooding is prohibited below the elevation of the 500 year flood. Other material or equipment may be stored below the 500 year flood elevation provided that such material or equipment is not subject to major damage by floods, and provided that such material or equipment is firmly anchored, restrained or enclosed to prevent it from floating away or that such material or equipment can be removed prior to flooding.

g. *Floodwater Loads* - Will structures, facilities and stored materials be anchored or otherwise designed to prevent floatation, collapse, or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy? Yes No

3. Standards for Structures in Floodplains or Coastal High Hazard Areas

Does the proposed project involve a new or substantially improved structure or facility located within a floodplain or coastal high hazard area? Yes No

If yes, complete this subsection; if no, skip to subsection 4 (*Topography Changes within Floodplain*).

a. *Structures in Coastal High Hazard Areas* - Will the structure or facility be located within an NFIP coastal high hazard area? Yes No

If no, skip to paragraph 3(b); if yes:

1. Will the structure or facility be located landward of the reach of mean high tide?

Yes No

2. Will a new structure or facility be located on an undeveloped coastal barrier beach designated by FEMA? Yes No

3. If the structure or facility is/will be located within a coastal high hazard area, the structure or facility must be elevated on pilings or columns so that the bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated to at least one foot above the base flood level and the pile or column foundation and structure attached thereto must be anchored to resist floatation, collapse and lateral movement due to the effects of wind, velocity waters, hurricane wave wash, and base flood water loads acting simultaneously on all building components.

Does the proposed structure or facility meet these standards? Yes No

The base flood elevation is: ft. (Datum:)

The elevation of the lowest horizontal structural member is: ft. (Datum:)

Section I: Floodplain Management (continued)

4. Will the space below the lowest floor be either free of obstruction or constructed with non-supporting breakaway walls? Yes No

5. Will fill be used for structural support of any buildings within coastal high hazard areas?
 Yes No

b. *Structures in Floodplain Areas* - Are the structures residential or nonresidential?
 Residential Nonresidential If *nonresidential*, skip to paragraph 3(d) below.

c. *Residential Structures* - If the structure or facility is for human habitation will the lowest floor of such structure or facility, including its basement, be elevated one foot above the level of the 500 year flood?
 Yes No

The 500 year flood elevation is: ft. (Datum:)

The elevation of the lowest floor, including basement, is: ft. (Datum:)

d. *Non-residential Structures* - If the structure or facility is not intended for residential uses, will the lowest floor of such structure or facility, including its basement, be elevated to or above the 100 year flood height or be floodproofed to that height, or in the case of a critical activity, the 500 year flood height?
 Yes No

If yes, the structure will be: Elevated Floodproofed

The base flood elevation is: ft. (Datum:)

The elevation of the lowest floor, including basement, is: ft. (Datum:)

The structure is floodproofed to: ft. (Datum:)

Note: for insurance purposes nonresidential structures must be floodproofed to at least one foot above the base flood elevation. DEP strongly encourages that the height of floodproofing incorporate one foot of freeboard.

e. *Utilities* - Will service facilities such as electrical, heating, ventilation, plumbing, and air conditioning equipment be constructed at or above the elevation of the base flood or floodproofed with a passive system? Yes No

f. *Water Supply Systems* - Does the proposed project include a new or replacement water supply system?
 Yes No

If yes, is the water supply system designed to prevent floodwaters from entering and contaminating the system during the base flood? Yes No

g. *Sanitary Sewage Systems* - Does the proposed project include a new or replacement sanitary sewage or collection system? Yes No

If yes, is the sanitary sewage system designed to minimize or eliminate the infiltration of flood waters into the systems and discharges from the systems into flood waters during the base flood?

Yes No

h. *Foundation Drains* - Are foundation drains of buildings designed to prevent backflow from the 100 year frequency flood into the building?

Yes No No foundation drains

Section I: Floodplain Management (continued)

4. Activity within Floodplain

Does the proposed project involve activity in a floodplain including but not limited to filling, dumping, construction, excavating, or grading?

Yes No If no, skip to subsection 5 (**Alterations of Watercourses**).

If yes, does the proposed project include encroachments, including fill, new construction, substantial improvements, or other development within a NFIP adopted regulatory floodway?

Yes No If yes, skip to paragraph 4(b) below.

a. **No Regulatory Floodway** - The NFIP requires that until a regulatory floodway is designated, that no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point. (If no regulatory floodway has been adopted, project impacts may be evaluated by considering an equivalent conveyance loss on the opposite side of the river from the proposed project.)

Is the proposed project consistent with this requirement? Yes No

b. **Floodway Encroachments** - Will the proposed encroachment into the floodway result in any increase in flood levels during either the 100 year or 10 year discharges?

100 year: Yes; the increase is: (in 1/100ths of a foot) No

If yes, has the applicant received approval of such increase in accordance with 44 CFR, Chapter 1, Subchapter B, Part 65.12? Yes No

10 year: Yes; the increase is: (in 1/100ths of a foot) No

c. **Coastal Areas** - Flood hazard potential in coastal areas shall be evaluated considering surface profiles of the combined occurrence of tides, storm surges, and peak runoff. The starting water surface elevation for the base flood in watersheds with time of concentrations of over 6 hours shall be the 10 year frequency tidal surge level.

If the proposed project is in a coastal area, have the hydraulic analyses incorporated these criteria?

Yes No Not in Coastal Area

5. Alterations of Watercourses

Does the proposed project include the construction or alteration to a natural perennial watercourse or man-made channel?

Yes No If no, skip to subsection 6 (**Culverts and Bridges**); if yes, complete the following subsection:

a. **Topography Change** - Is the watercourse or channel located within a regulatory floodway or Zone A1-30 or AE as designated by the NFIP? Yes No

b. **Hydraulic Capacity** - Does the channel have a minimum flow capacity of a flood equal to at least the 25 year frequency flood? Yes No

The channel capacity is designed for the: year flood.

Does the channel have an inner channel with a capacity of a 2 year frequency flood? Yes No

Section I: Floodplain Management (continued)

- c. *Aquatic Habitat* - Channel alterations should be designed to create aquatic habitats suitable for fisheries, including suitable habitat for maintaining fish populations and to enable fish passage, and to maintain or improve water quality, aesthetics, and recreation.

Has the applicant had any pre-application meetings or correspondence with DEP Fisheries?

- Yes No

Check each of the following criteria that have been incorporated into the project design:

- 1. artificial channel linings have been avoided;
- 2. the channel will encourage ecological productivity and diversity;
- 3. the channel and its banks will be compatible with their surroundings;
- 4. the channel will vary in its width, depth, invert elevations, and side slopes to provide diverse aquatic habitat;
- 5. straightening existing channels and thereby decreasing their length has been avoided;
- 6. the channel will not create barriers to upstream and downstream fish passage;
- 7. the channel will contain pools and riffles and a low flow channel to concentrate seasonal low water flows;
- 8. the channel will contain flow deflectors, boulders and low check dams to enhance aquatic habitat;
- 9. stream bank vegetation will be preserved where feasible and disturbed stream bank areas will be replanted with suitable vegetation;
- 10. clean natural stream bed materials of a suitable size will be incorporated in the new channel; and
- 11. construction of the proposed project will be scheduled to minimize conflicts with spawning, stocking, and recreational fishing seasons.

Describe how the above aquatic habitat design criteria have been incorporated into the project design:

Section I: Floodplain Management (continued)

6. Culverts and Bridges

Does the proposed project involve the repair or new construction of a culvert or bridge?

Yes No If no, go to subsection 7 (*Temporary Hydraulic Facilities*).

If yes, complete this subsection:

a. *Fish Passage* - Does the culvert design allow for the passage of fish? Yes No

If yes, describe the specific design provisions for fish passage:

b. *Depressed Structural Floors* - Is the rigid structural floor of the culvert or bridge depressed below the normal stream bed to allow a natural stream bed to form over the floor?

Yes No No rigid structural floor

c. *Multiple Openings* - The use of a single large culvert or bridge opening is preferred over the use of multiple small openings. Has the design minimized the use of multiple small openings?

Yes No

If no, explain:

d. *Sag Vertical Curves* - Does the design utilize solid parapet walls in the sag part of a vertical curve?

Yes No Not located in a sag vertical curve

e. *Debris Blockage* - Is the culvert or bridge prone to blockage by debris? Yes No

If yes, has the project design incorporated measures to minimize the potential for debris blockage?

Yes No

f. *Topography Change* - Is the culvert or bridge located within a regulatory floodway or Zone A1-30 or AE as designated by the NFIP? Yes No

Section I: Floodplain Management (continued)

g. *State Highways* - Does the watercourse pass under a state roadway?

Yes No If no, skip to paragraph 6(g)(2).

If yes, culverts and bridges for state highways shall be designed in accordance with the Connecticut Department of Transportation (DOT) Drainage Manual and all applicants should refer to it for specific design criteria. In general, however, the Drainage Manual requires the following:

(Place a check mark for all applicable criteria utilized)

Minor Structures - Minor structures have a drainage area of less than one square mile in which there is no established watercourse. They shall be designed to pass the 25 year frequency discharge.

Small Structures - Small structures have a drainage area of less than one square mile in which there is an established watercourse. They shall be designed to pass the 50 year frequency discharge.

Intermediate Structures - Intermediate structures have a drainage area greater than one square mile and less than 10 square miles. They shall be designed to pass the 100 year frequency discharge with reasonable underclearance.

Large Structures - Large structures have a drainage area greater than 10 square miles and less than 1000 square miles. They shall be designed to pass the 100 year frequency discharge with an underclearance not less than two feet.

Monumental Structures - Monumental structures have a drainage area greater than 1000 square miles. They shall be designed to meet the requirements of the Connecticut Department of Environmental Protection, U.S. Army Corps of Engineers, and the U.S. Coast Guard.

Tidal Structures - Tidal structures are subject to tidal action and shall be classified as minor, small, intermediate, etc. depending on their drainage area. These structures shall be designed in accordance with the previously listed *classifications*. However if the highway is subject to frequent tidal flooding, the design storm may be made consistent with the frequency of flooding by tidal action. The proposed culvert or bridge is classified as:

Tidal, minor

Tidal, small

Tidal, intermediate

Tidal, large

Tidal, monumental

1. Has the structure been designed in accordance with the criteria established in the DOT Drainage Manual? Yes No

If no, describe the lower design standards and the reasons for not complying with the DOT Drainage Manual:

Section I: Floodplain Management (continued)

2. Will the proposed culvert or bridge increase upstream water surface elevations in the event of a base flood above that which would have been obtained in the natural channel if the highway embankment were not constructed? Yes No

If yes, is the increase in elevation more than one foot? Describe:

3. Will the proposed culvert or bridge be designed so that flooding during the design discharge does not endanger the roadway or cause damage to upstream developed property? (NOTE: The design discharge for culverts and bridges on state highways should be that which was determined by FEMA. If the applicant judges that the FEMA discharge is inappropriate, the project should be analyzed for both the applicant's computed flow and the FEMA discharge. The project, however, must still meet the standards of the NFIP.) Yes No

Explain:

- h. *Local Roads & Driveways* - Local roads (not state highways) and driveways may be designed for flood frequencies and underclearances less stringent than those specified in the DOT Drainage Manual when (check all that have been incorporated into the project design):

- 1. the road is at or close to the floodplain grade
- 2. water surface elevations are not increased by more than one foot nor cause damage to upstream properties
- 3. provisions are made to barricade the road when overtopped
- 4. the road or driveway is posted as being subject to flooding
- 5. the road or driveway has low traffic volume
- 6. alternate routes are available

The culvert or bridge has been designed to pass the: _____ year frequency discharge with an underclearance of: _____ feet.

Utilizing the DOT Drainage Manual classifications listed under paragraph 6(g) above, the culvert or bridge is classified as a: _____ structure.

Section I: Floodplain Management (continued)

h. If the culvert or bridge is designed to standards lower than which is stipulated in the DOT Drainage Manual, list such standards and the reasons for the lower design standards:

i. *Downstream Peak Flows* - Will the proposed culvert or bridge increase downstream peak flows by decreasing existing headwater depths during flooding events? Yes No

If yes, describe the selected design criteria and the impacts to downstream properties:

7. Temporary Hydraulic Facilities

Temporary hydraulic facilities include all channels, culverts or bridges which are required for haul roads, channel relocations, culvert installations, bridge construction, temporary roads, or detours. They are to be designed with the same care which is used for the primary facility.

If the proposed activity involves a temporary hydraulic facility(s), has such facility been designed in accordance with Chapter 6, Appendix F, "Temporary Hydraulic Facilities," of the DOT Drainage Manual?

Yes No No temporary hydraulic facilities

If yes, the design flood frequency is the: year flood.

Describe the temporary facilities:

Section II: Stormwater Management

Name of Applicant: **State of Connecticut, Department of Transportation**

Name of Proposed Project: **Salem Four Corners Roundabout at Routes 82 and 85**

1. Stormwater Runoff

The proposed project will (check all that apply):

- Increase the area of impervious surfaces
- Increase runoff coefficients
- Alter existing drainage patterns
- Alter time of concentrations
- Change the timing of runoff in relation to adjacent watersheds

Will the proposed project impact downstream areas by increasing peak flow rates, the timing of runoff, or the volume of runoff? Yes No

If yes, describe the downstream impacts for the 2, 10 and 100 year frequency discharges:

The pre and post development peak flow rates at the downstream design point are as follows:

Return Frequency (Year)	Peak Discharges (CFS)	
	Pre-Development	Post-Development
2		
10		
100		

The above peak discharges were computed utilizing the: _____ hour duration storm. This duration storm was selected because:

Section II: Stormwater Management (continued)

Describe the location of the design point and why this location was chosen:

2. Stormwater Detention Facilities

Does the proposed project include the construction of any stormwater detention facilities?

Yes No If no, skip to subsection 3 (**Storm Drainage Systems**).

If yes, has the DEP determined whether a dam construction permit is required? Yes No

The pre and post development peak flow rates at the downstream design point are as follows:

Return Frequency (Year)	Peak Discharges (CFS)		
	Pre-Development	Post-Development (without detention)	Post-Development (with detention)
2			
10			
100			

The above peak discharges were computed utilizing the: _____ hour duration storm. This duration storm was selected because:

Describe the location of the design point and why this location was chosen:

Section II: Stormwater Management (continued)

If the proposed project increases peak flow rates for the 2, 10 or 100 year frequency discharges, describe the impacts to downstream areas:

Will the detention facility aggravate erosion along the downstream channel? Yes No

In certain situations, detention of stormwater aggravates downstream flooding. This occurs when the discharge from a subwatershed is delayed by a detention facility so that it adds to the peak discharge from another subwatershed. Adding the hydrographs of the two subwatersheds results in a higher peak discharge over that which would occur if detention were not present.

Is the location of the detention facility within the watershed suitable for detention? Yes No

Explain:

3. Storm Drainage Systems

Does the proposed project include the construction of subsurface storm drainage systems?

Yes No If no, you have completed Section II of the worksheets.

If yes, complete this subsection:

a. *DOT Standards* - Is the proposed storm drainage system designed in accordance with the Connecticut Department of Transportation's (DOT) Drainage Manual? Yes No

If no, describe the lower design standards and the reasons for not complying with the Drainage Manual:

b. *Design Storm* - Is the storm drainage system designed for a ten year frequency storm without closing the use of the facility? Yes No

c. *Future Development* - Has the design of the system considered future development of adjacent properties? Yes No

Section II: Stormwater Management (continued)

- d. *Outlet Protection* - Have the outlets from the system been designed to minimize the potential for downstream erosion? Yes No
- e. *Overland Flow* - Has the use of curbing been minimized to encourage overland dispersed flow through stable vegetated areas? Yes No
- f. *Vegetated Filter Strips* - Has the design incorporated the use of vegetated filter strips or grass swales to improve the quality of water outletting from the storm drainage system? Yes No
- g. *Stormwater Treatment* - Describe features of the stormwater collection system intended to improve the quality of stormwater runoff prior to its discharge to surface waters.

The following features are included to improve the quality of stormwater runoff prior to its discharge to surface water.

- 1. Deep sumps of 4 ft are proposed in some catch basins to help trap sediment and contaminants**
- 2. Curbing was eliminated wherever possible to promote sheet flow**
- 3. Grass swales are used wherever possible to help filter out contaminants from runoff.**

- h. *E & S Control Plan* - Has the design and installation of the storm drainage system been coordinated with the soil erosion and sediment control plan prepared in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control? Yes No

Explain:

The soil erosion and sediment controls were developed with consideration for existing and proposed outlets, flow patterns, and functional swales. Where required, intermediate erosion and sediment controls will be provided during construction, in conjunction with water handling.

Section III: State Grants and Loans

Name of Applicant:

Name of Proposed Project:

1. This Flood Management Certification concerns a: grant loan

2. Total amount of grant or loan: \$

3. The recipient of the grant or loan will be:

Name:

Mailing Address:

City/Town:

State:

Zip Code:

Phone:

ext.

Fax:

Recipient Contact person:

Name:

Mailing Address:

City/Town:

State:

Zip Code:

Phone:

ext.

Fax:

4. The recipient will use the grant or loan to (check all that apply):

- construct a structure, obstruction or encroachment or conduct other work within a floodplain or coastal high hazard area.
- construct a facility or develop a site affecting drainage and stormwater runoff.
- conduct a study or prepare a report concerning land use or land use planning affecting a floodplain, drainage or stormwater runoff.

5. If the grant or loan is for a study or report, describe the anticipated effects on floodplains, drainage or stormwater runoff if the recommendations are implemented:

6. Will the proposed project promote development in floodplains or will utilities servicing the project be located so as to enable floodplain development? Yes No

Explain:

If the grant or loan is for construction of a structure, obstruction or encroachment or other work within a floodplain, or if it is for construction of a facility or development of a site that will affect drainage and stormwater runoff, Sections I and/or II of this Worksheet must be completed and the engineering report (Attachment H) and plans (Attachment G) must be provided as part of this application.

Section IV: Disposal of State Land

Name of Applicant:

Name of Proposed Project:

1. The grantee will be:

Name:

Mailing Address:

City/Town:

State:

Zip Code:

Phone:

ext.

Fax:

Contact Person:

Phone:

2. Describe the current state of development and use of the land to be disposed.

3. Why is the agency disposing of the land?

4. Describe the grantee's intended use of the land.

5. Will the disposal of the land promote development in floodplains? Yes No

Explain:

6. Will the grantee's use of the land be consistent with the state's flood management statutes and regulations?

Yes No Explain:

Attachment I: Flood Contingency Plan

Applicant: State of Connecticut, Department of Transportation
Project No. 120-86
Roundabout at Salem Four Corners – Intersection of Route 82 and 85

Construction Flood Contingency Operation Plan

No buoyant, hazardous, flammable, explosive, soluble, expansive, or any other materials which could be injurious to human, animal, or plant life in the event of a flood, will be stored within the 500 year flood plain at any time. No long term storage of construction equipment and/or material will occur within the flood plain unless such equipment or material is not subject to major flood damage, or is anchored, restrained, or enclosed to prevent it from floating away or is removed prior to flooding. In addition, in the likelihood of such an event, the road may be shut down to traffic.

Prior to commencement of any construction, the Contractor will submit to the Engineer for approval, a written Flood Contingency Plan. The Plan will include the following:

- A description of the means by which the Contractor will remove from within the floodplain, all materials, equipment and personnel prior to a predicted major storm. The Contractor is responsible for monitoring local weather conditions and will secure the work site before predicted major storms. A major storm shall be defined as a storm predicted by the N.O.A.A. weather service with warnings of flooding, severe thunderstorms, or similar severe weather conditions or effects.
- Provisions for notifying workers engaged in work on or near a watercourse of an impending storm.
- Provisions for securing work in progress prior to a major storm.

Work within or adjacent to watercourses will be conducted during periods of low flow between June 1 and September 30. The Engineer will remain aware of flow conditions during the conduct of such work and will direct the Contractor to stop this work if flow conditions threaten to cause excessive erosion, siltation, or turbidity.

During construction, the Contractor will be bound by the conditions set forth in the Department's "Standard Specifications for Roads, Bridges, and Incidental Construction", Form 816, Section 1.10, Environmental Compliance, Best Management Practices, which addresses the need for the Contractor to maintain a stable work area.

The Department will have District inspection personnel assigned to the project to ensure compliance with the provisions of the Standard Specifications. In addition, the Office of Environmental Planning will assign personnel to oversee the contractor for the duration of the contract as necessary to ensure compliance with all environmental requirements.

The limits of the 500-year floodplain are shown on Figure 11 of the *Floodplain Assessment Report for the Harris Brook near Salem Four Corners* (Attachment H, Part 1). For any other areas that are not reflected in the above mentioned figures, the floodplain limits shown on the Flood Insurance Rate Maps (FIRM), dated February 3, 1982 for Town of Salem may be used. An excerpt from the map is located in Appendix A of the *Floodplain Assessment Report*.

Post Construction Flood Contingency Operation Plan:

The Department is responsible for maintaining the integrity of the facility after completion of the project. All drainage modifications have been designed in accordance with the Department's drainage manual to prevent damage to people and property. Therefore, the need for a special flood operation plan upon completion of the project is not foreseen, since storm drainage systems will be hydraulically adequate for the design flow. Any deficiencies will be noted and corrected in a timely manner.

Contact Information:

District 2 Office of Construction, District Engineer, Carl Nelson: (860) 823-3204 (during construction)

District 2 Maintenance, Jeffery Wilson: (860) 823-3222 (post construction)

Attachment J: Soils Scientist Report

Applicant: State of Connecticut, Department of Transportation
Project No. 120-86
Roundabout at Salem Four Corners – Intersection on Routes 82 and 85

According to the NRCS GIS soils data, the soils most prevalent in the project area include the following: Canton and Charlton, Timakwa and Natchaug, Scarboro, and Udorthents-Urban Land complex. A portion of the project is located within the 100 and 500 year floodplains. Specifically, much of the section of Route 82 southwest of the intersection is within the floodplain of the Harris Brook, which flows south under Route 85 to the northwest of the project and then south under Route 82 to the south west of the project. Within this area of concern, the soil types associated with the roadway and its immediate vicinity are Timakwa and Natchaug and the Udorthents-Urban Land complex. A brief description of all mapped soil types on the project follows.

CANTON SOILS

The Canton series consists of very deep well drained soils formed in a loamy mantle underlain by sandy till. They are nearly level to very steep glaciated upland plains, hills, and ridges. Slope ranges from 0 to 35 percent. Runoff is negligible to medium. Internal drainage is medium. Saturated hydraulic conductivity is high in the solum and high or very high in the substratum. The mean annual air temperature is 46 to 51 degrees F., and the mean annual precipitation ranges from 42 to 46 inches.

Solum thickness ranges from 18 to 36 inches and corresponds closely to the depth to sandy till. Rock fragment content consists of 5 to 20 percent gravel and 0 to 5 percent cobbles in the solum. Gravel content is 10 to 30 percent, cobbles 5 to 10 percent, and stones 0 to 10 percent in the substratum. Stones and boulders are 0 to 15 percent of the surface and subsoil. Rock fragments are dominantly granite, gneiss, and quartzite. The soil ranges from extremely acid to moderately acid. Most Canton series soils are forested or idle. Some areas have been cleared of surface stones and are used for crops and pasture. Native vegetation is typically composed of white pine; red, white and black oaks; hickory; red and sugar maple; gray and yellow birch; beech; hemlock; and white ash.

CHARLTON SOILS

The Charlton series consists of very deep, well drained loamy soils formed in till. They are nearly level to very steep soils on till plains and hills. Slope ranges from 0 to 50 percent. The soils formed in acid till derived mainly from schist, gneiss, or granite. Runoff is negligible to medium. Saturated hydraulic conductivity is moderately high or high. Mean annual temperature ranges from 45 to 52 degrees F., mean annual precipitation commonly ranges from 37 to 49 inches, and the growing season ranges from 115 to 185 days.

Thickness of the solum ranges from 20 to 38 inches, and depth to bedrock is commonly more than 6 feet. Rock fragments range from 5 to 35 percent by volume to a depth of 40

inches and up to 50 percent below 40 inches. Except where the surface layer is stony, the fragments are mostly subrounded gravel and typically make up 60 percent or more of the total rock fragments. Unless limed, reaction ranges from very strongly acid to moderately acid. Areas cleared of stones are used for crops, hay, and pasture. Many scattered areas are used for community development. Stony areas are mostly wooded. Common trees are red, white, and black oak; hickory; sugar and red maple; black and gray birch; white ash; beech; white pine; and hemlock.

NATCHAUG SERIES

The Natchaug series consists of very deep, very poorly drained soils formed in woody and herbaceous organic materials overlying loamy deposits in depressions on lake plains, outwash plains, till plains, moraines, and flood plains. Slope ranges from 0 to 2 percent. Depth to the seasonal high water table ranges from 1 foot above the surface to 1 foot below the surface from October to June. Surface runoff is negligible or very low. Permeability is moderate to very rapid in the organic layers and moderate or moderately slow in the loamy material. Saturated hydraulic conductivity is moderately low to very high in the organic layers and moderately low to high in the loamy material. Some areas are subject to rare, very brief flooding during March and April. Mean annual temperature is 46 to 50 degrees F. The mean annual precipitation is 43 to 50 inches. The frost-free period is 120 to 180 days.

The organic material in Natchaug soils extends to a depth of 16 to 51 inches. The reaction of the organic material ranges from ultra acid to slightly alkaline. Woody fragments commonly occur throughout the organic soil materials in most pedons consisting of twigs, branches, logs or stumps. Most areas of Natchaug soils are used for wildlife habitat, or are in woodland or clear-cut woodland. Some areas are used for pasture. Common vegetation is red maple, skunk cabbage and sphagnum moss.

SCARBORO SERIES

The Scarboro series consists of very deep, very poorly drained soils formed in sandy glaciofluvial deposits in level or nearly level depressions on outwash plains, deltas, and terraces. Slope is less than 3 percent. The water table is at or near the surface for 6 to 12 months of the year, and many areas are ponded for short periods. Both surface runoff and saturated hydraulic conductivity are high or very high. Mean annual temperature ranges from 46 through 57 degrees F, and mean annual precipitation ranges from 38 through 55.

The organic horizon is commonly mucky peat or muck, but the range includes thin layers of peat at the surface and generally extends to a depth of 8 inches. Reaction ranges from very strongly acid through moderately acid in the A horizon and upper part of the C horizon, and from very strongly acid through neutral in the lower part of the C horizon. Scarboro soils tend to be shrub and brush land or woodland. Common shrubs are speckled alder, smooth alder, rhoda azalea, steplebush spiraea, leatherleaf, labrador-tea, winterberry, highbush blueberry, large cranberry, black huckleberry, poison sumac, and sheep laurel. Common trees are red maple, slippery elm, Atlantic white cedar, tamarack, eastern white pine, willow, and gray birch.

TIMAKWA SERIES

The Timakwa series consists of very deep, very poorly drained soils formed primarily in woody organic materials with some herbaceous materials. These soils are in depressions in lake plains, outwash plains, moraines, till plains and flood plains. Slope ranges from 0 to 2 percent. Depth to the seasonal high water table ranges from 1 foot above the surface to 1 foot below the surface from October to June. Surface runoff is negligible or very low. Saturated hydraulic conductivity is moderately low to high in the organic layers and high or very high in the sandy material. Some areas are subject to rare, very brief flooding from November to May. Mean annual temperature is 46 to 50 degrees F. and the mean annual precipitation is 43 to 50 inches. The frost-free period is 120 to 180 days.

The organic material in Timakwa soils extends to a depth of 16 to 51 inches. The reaction of the organic material commonly is ultra acid to moderately acid in 0.01 M calcium chloride but the range includes slightly acid or neutral in some places. Woody fragments occur in some part of the organic soil materials in most pedons consisting of twigs, branches, logs or stumps and average from 2 to 10 percent by volume in the control section. Most areas of Timakwa soils are used for wildlife, or are in woodland or clear-cut woodland. Some of these soils are used for pasture. Common vegetation is red maple, skunk cabbage, and sphagnum moss.

UDORTHENTS-URBAN LAND COMPLEX

Udorthents consist of excessively drained to moderately well drained soils that have been altered by cutting, filling, or grading. The areas either have had two feet or more of the upper part of the original soil removed or have more than two feet of fill material on top of the original soil. These soils formed in material in loamy glacial till and in sandy or gravelly outwash with a loamy mantle. Udorthents are on glacial till plains and outwash plains and terraces. Slopes range from 0 to 25 percent. Rock fragments make up 0 to 45 percent of Udorthents. The soils are very strongly acid to neutral. They are dominantly sandy loam, fine sandy loam, or their gravelly analogues.

The Urban Land designation consists of areas where urban structures (i.e. buildings, paved roads and parking lots) cover more than 85 percent of the surface. These areas are commonly rectangular and range from 5 to 500 acres. Slopes range from 0 to 8 percent but are dominantly less than 5 percent. Included with this unit in mapping are small, intermingled areas of Udorthents and areas of excessively drained Hinckley soils; somewhat excessively drained Hollis soils; well drained Agawam, Charlton, and Paxton soils; and moderately well drained Ninigret and Sutton soils. Included areas make up about 15 percent of this map unit. Areas of Urban land require onsite investigation and evaluation for most land-use decisions.

Attachment K: Environmental Report

Applicant: State of Connecticut, Department of Transportation
Project No. 120-86
Roundabout at Salem Four Corners – Intersection on Routes 82 and 85

Project 120-86 was initiated to address safety issues at the intersection of Route 82 and Route 85. The project involves the replacement of the existing signalized intersection with a modern roundabout at the intersection of Routes 82 and 85 in Salem, Connecticut. Also proposed are adjustments to the existing roadway stormwater drainage systems as a result of the roadway reconfiguration and widening.

The Department of Transportation has coordinated with both DEP Wildlife Division and DEP Fisheries Division to ensure that project components are environmentally sensitive and agreeable to both Divisions of DEP. With respect to DEP Fisheries, Senior Fisheries Habitat Biologist Brian Murphy reviewed the project and concluded that he did not have any fisheries concerns related to the proposed work. A copy of DOT's *CTDEP Inland Fisheries Division Coordination Transmittal Memorandum*, which includes Mr. Murphy's March 15, 2011 signoff indicating that no further review is warranted, is included with this Attachment.

With respect to DEP Wildlife concerns, DOT contacted DEP following a file review indicating that the project is in the vicinity of a mapped Natural Diversity Database polygon. A June 5, 2009 letter from DEP Wildlife Biologist Julie Victoria indicated that two state threatened species- the short-eared owl (*Asio flammeus*) and the frosted elfin butterfly (*Callophrys irus*) - as well as four special concern species- the wood turtle (*Glyptemys insculpta*), eastern box turtle (*Terrapene Carolina*), Henry's elfin butterfly (*Callophrys henrici*) and brown thrasher (*Toxostoma rufum*) - occur within the vicinity of the project. Following this letter, several correspondences went back and forth, during which DOT Engineering provided conceptual plans that clarified where minor wetland impacts were to occur. On July 22, 2009, Ms. Victoria concurred that she did not have concerns about any of the threatened or special concern species in the vicinity being adversely impacted by the proposed work. She concluded by noting that surveys may be needed if the plans were to be changed in the future and more wetlands to be impacted. Since the present plan does involve marginally greater wetland impacts than what was originally presented to Ms. Victoria, DOT contacted her in March 2011 with project updates to make certain that she still did not have any concerns about the proposed work. Copies of all correspondence with DEP Wildlife to date are included with this Attachment, and DOT will update DEP IWRD and the Army Corps regarding DEP Wildlife Division's findings as soon as possible.

The intersection of Routes 85 and 82 is located near the confluence of several streams, all of which have associated floodplain and wetlands. Frasier Brook flows in a southwesterly direction under Route 85 south of both the intersection and the project limits. Shingle Mill Brook flows north towards its confluence with Frasier Brook just under a quarter mile south of the intersection. From this point, Frasier Brook continues northwest

approximately 0.1 miles to its confluence with Harris Brook. Upstream of this confluence, Harris Brook flows in a southerly direction under Route 85 approximately 600 feet northwest of the intersection and continues in a southerly direction under Route 82 approximately 600 feet southwest of the intersection. None of the above-named streams come within the project footprint. However, the floodplain of Harris Brook does extend into the southwest corner of the project. The demarcation line between wetlands associated with each individual watercourse is often ambiguous since there is a wide swath of wetlands and floodplain associated with all three streams, however, the majority of the wetlands on the project are associated with Harris Brook, and any remaining wetlands are associated with its named and unnamed tributaries. There are four wetland impact areas associated with the project, all of which total 8,861 s.f (0.204 ac.). These impacts are described in detail below.

Site No. 1

Wetland Site 1 is located on the west side of Route 85 north of the existing intersection. This site is a palustrine forested wetland associated with Harris Brook that has an overstory dominated by red maple (*Acer rubrum*). The understory is dominated by American elm (*Ulmus americana*), American elder (*Sambucus canadensis*), common winterberry (*Ilex verticillata*), arrowwood (*Viburnum dentatum*), highbush blueberry (*Vaccinium corymbosum*), swamp dogwood (*Cornus amomum*) and the invasive species Oriental bittersweet (*Celastrus orbiculatus*), and the herbaceous layer includes sensitive fern (*Onoclea sensibilis*) and goldenrod (*Solidago spp.*). The sliver of wetland that would be impacted by the project is located at the toe of the existing fill slope for Route 85 and also includes the more upland dwelling species black cherry (*Prunus serotina*). These proposed impacts total 1,231s.f (0.028 ac.) and are associated with an extension of the fill slope to accommodate the proposed roadway widening at this site.

The most important functions of Site 1 are likely groundwater recharge, flood flow alteration, sediment/toxicant retention, nutrient retention/transformation, and visual quality/aesthetics. This wetland is well vegetated and part of a low-lying area that catches storm flow and associated contaminants from the surrounding developed areas. Wildlife habitat is also likely an important function of the overall wetland. Although the impacted sliver's proximity to the roadway makes wildlife habitat a much less likely function here, this function should still be considered due to the effect that roadways and sliver takes have of incrementally moving habitat into the interior of habitat patches.

Site No. 2

Wetland Site 2 is located on both sides of Route 82 southwest of the existing intersection. These wetlands are associated with Harris Brook. On both sides, the wetlands are located at the toe of the existing roadway slope embankment.

The impact to the north side of the roadway is solely a sliver impact associated with moving the toe slope out to widen the roadway. This side of the roadway is a palustrine forested wetland that is part of the same contiguous patch of wetland as Site 1 and is very similar to Site 1 in species composition and vegetation density. It is also pretty much

consistent with Site 1 in terms of functions and values associated with the sliver to be impacted. The proposed impact to this side of Wetland Site 2 is 388 s.f. (0.009 ac.)

The impact to the south side of Route 82 at Site 2 is 2,965 s.f., (0.068 ac.) and its purpose is twofold. There is a sliver impact for widening along Route 82 as well as a bump out of proposed regrading behind the existing strip mall where a 24" RCP currently outlets combined watercourse and stormwater flow. This latter impact is necessary to replace the existing outlet pipe with two separate outlet pipes, thus allowing for the separation of clean stream flow from storm drainage. Impacts beyond the toe of the new fill slope are associated with installing these outlets as well as providing for scour protection. The watercourse that would be impacted by this portion of the project and that would outlet at this location enters the project area at Site 3 and is described in more detail below.

The western portion of the sliver of wetland proposed to be impact on the south side of Site 2 is much like that of Site 1 and the north side of Site 2. The eastern portion of this wetland immediately adjacent to the existing culvert outlet is still well vegetated, however, it appears that the vegetation is cut back periodically. This is presumably done to maintain the culvert outlet. Vegetation in the palustrine forested wetland adjacent to the maintained area includes red maple, American elm, black cherry, American elder, winterberry, arrowwood, summersweet (*Clethra alnifolia*) common spicebush (*Lindera benzoin*), specked alder (*Alnus incana*) and black chokeberry (*Aronia melanocarpa*). At and around the culvert, the vegetation is entirely shrubs, vines and herbaceous cover and consists mainly of American elder and pasture rose in the shrub layer, grape (*Vitis sp.*) and the invasive Oriental bittersweet in the liana, and sedges in the herbaceous layer.

As with the north side of Site 2, functions and values associated with the sliver impact are consistent with those listed for Site 1. Groundwater recharge, flood flow alteration, sediment/toxicant retention, and nutrient retention/transformation are primary. Wildlife habitat and visual quality/aesthetics and are also provided by virtue of the fact that the wetland is fairly pristine not far from the roadway embankment and, regarding the latter function, is within viewing distance from the roadway. The already impacted area at and immediately adjacent to the culvert is also a low-lying area that would store water and trap sediments, and therefore would serve the same primary functions listed above. Wildlife habitat and visual quality/aesthetics are not provided here to any degree, however.

Site No. 3

Wetland Site 3 is located on the southeast side of the intersection. Upslope of this site and off of the project area, a small, unmapped stream and associated wooded swamp drain into a 24" RCP that travels under Route 85 and outlets at Site 2 as described above. While there is no discernible channel at the culvert outlet, the flow out of the culvert enters the wetland system associated with Harris Brook. Upslope of the inlet to this pipe, the unnamed stream has an overflow channel that appears to have been artificially created. This overflow channel runs roughly parallel to Route 82 along the top of the roadway embankment and then flows into an 18" RCP that connects to the 24" RCP and rejoins the main flow before passing under Route 85. This overflow channel will be

impacted by the extension of the roadway embankment for roadway widening. The unnamed watercourse that constitutes the primary channel and the wetlands upstream of this overflow channel will not. The proposed work in this area consists of reconstructing the overflow channel in a slightly different alignment to accommodate the Route 82 widening. The relocated channel will be lined with rip rap. Vegetation along the channel and the new alignment that constitutes the impact area is dominated by herbaceous species and maintained shrubs and small saplings, including red maple, American elm, American elder, arrowwood, the invasive multiflora rose (*Rosa multiflora*), grape, jewelweed (*Impatiens capensis*), spiraea, goldenrod (*Solidago spp.*) and aster (*Aster sp.*). Impacts at this site are to a watercourse only and total 130 l.f. of channel.

Functions and values associated with the overflow channel are likely negligible. This channel is predominantly dry, but in times of high flow it conveys the overflow from the main channel. At most, this overflow channel could be construed to provide very limited floodflow alteration since it is unclear where this water would otherwise flow if the channel had not been constructed. There is no retention of water in the channel, however, so this function would only be served to the degree that the channel may get water into the cross culvert that would otherwise drain into undesirable areas (such as flooding the nearby business or impervious surfaces).

Site No. 4

Wetland Site 4 is located south of the existing intersection along both sides of Route 85. On the west side of the road, a sliver impact is proposed along roughly 250 linear feet of new fill embankment, along with two small bump outs along this alignment to accommodate the addition of an 18" drainage outlet and the extension and upsizing of an existing 15" cross culvert to a 24" culvert with a scour hole. The total impact to this side of Site 4 is 1,805 s.f. (0.041 ac.) This area is part of the same large, palustrine forested wetland system that extends through Sites 1 and 2 and is bisected by Routes 82 and 85. This portion of the wetland is associated with Harris Brook as well as with its tributary from the east, Frasier Brook. Vegetation along this sliver of wetland is modified by maintenance activities immediately adjacent to the road and mature beyond that point. Throughout both the maintained section and the natural section, vegetation is dominated by red maple, winterberry, summersweet, elderberry, arrowwood, silky dogwood, chokeberry and common spicebush.

As with most of impact areas on this project, the primary functions and values associated with this side of Wetland Site 4 are likely to be groundwater recharge, flood flow alteration, sediment/toxicant retention and nutrient retention/transformation. Wildlife habitat and visual quality/aesthetics are less prominent but are still present in the sense that the wetland beyond the existing toe of slope is mature with relatively few invasives or signs of degradation.

The eastern side of Route 85 at Site 4 consists of a vegetated swale and narrow bordering forested wetland that leads to a low-lying herbaceous wetland. The swale runs parallel to the roadway at the foot of a stone wall and appears to have been artificially created, but it has hydric soils and predominantly woody wetland vegetation immediately surrounding

it, including highbush blueberry, common spicebush, winterberry and arrowwood. Also present are the upland species black cherry, red oak (*Quercus rubra*), sassafras (*Sassafras albidum*) and greenbrier (*Smilax rotundifolia*). At the toe of the swale, the wetland opens up to an herbaceous monoculture of phragmites (*Phragmites australis*). The phragmites patch, which constitutes the majority of the impact to the eastern portion of Site 4, is within a cleared area and surrounded on all sides other than the swale by either mowed lawn or roadway embankment. Impacts to this side of Site 4 total 1,572 s.f. (0.036 ac.) Unlike the majority of the work on this site, the impact does not represent a sliver impact to a large wetland system. This wetland is limited to the subject swale, its narrow forested buffer and the ponding area at the toe of the swale. Beyond the swale is a narrow patch of forested upland that leads back to mowed lawn. As a result, a drainage swale will be provided for at the new edge of roadway and this swale will be re-vegetated with appropriated native species. This will maintain the drainage and provide a buffer to the remaining upland forested area.

Functions and values associated with the wetlands on the east side of Site 4 include groundwater recharge, flood flow alteration, sediment/toxicant retention, and nutrient retention/transformation. Visual quality/aesthetics is likely negligible because the forested portion of the wetland is so small and the largest and most visible portion is a phragmites patch. Wildlife habitat is also expected to be negligible since the size of the patch is so small and nearly surrounded by roadway and manicured lawn.

From: Victoria, Julie
Sent: Wednesday, July 22, 2009 2:44 PM
To: Britnell, William W
Cc: Talarico, Peter E; Wilson, Timothy M; Norman, James H; Alexander, Mark W; McKay, Dawn; Victoria, Julie
Subject: NDDDB-16932: Proposed roundabout-Routes 85 and 82 in Salem
Attachments: Public_info_plan.pdf

Will:

Thanks for the plan. If the wetland impacts are limited to the existing intersection area and currently developed areas on the NW and SW quadrants then I don't have any concerns and can concur that surveys are not needed. If the plans change in the future and more wetlands are impacted, surveys may be needed.

Julie

From: Britnell, William W
Sent: Friday, July 10, 2009 8:45 AM
To: Victoria, Julie
Cc: Talarico, Peter E; Wilson, Timothy M; Norman, James H; Alexander, Mark W
Subject: RE: Proposed roundabout-Routes 85 and 82 in Salem

Julie,

I have attached a colored conceptual plan that was overlaid onto an aerial photo and an old survey that included wetland limits. The wetland impacts identified at this time are adjacent to the gas station on the SE corner and along the edge of the large wetland area behind the former motorcycle shop on the NW corner. It should be noted that this plan is conceptual and could change. It was prepared using only the aerial photo as a base and now that we know where the wetland limits are, we can try to modify the design to reduce even these impacts. The grading limits shown on this plan are just rough approximations and will be refined as we proceed. We are also going to be getting updated survey information.

As you can see from the photo, the area to the west of the project (behind the Salem Town Center shopping plaza and the former motorcycle shop) is a large wetland area, which is where we assume the endangered species exist. The project will be located within the existing intersection area and currently developed areas on the NW and SW quadrants. The cross-hatched areas in this plan show the limits of the existing pavement. If there is anything else you need, let me know.

Will Britnell
Project Manager
ConnDOT
(860) 594-3283

From: Victoria, Julie
Sent: Thursday, July 09, 2009 5:41 PM
To: Britnell, William W
Cc: Talarico, Peter E; Wilson, Timothy M; Norman, James H; Alexander, Mark W; Victoria, Julie
Subject: RE: Proposed roundabout-Routes 85 and 82 in Salem
Importance: Low

Thanks Will.

Before I can concur with you, could you show me on a map where the "very minor" wetland impacts may occur according to your preliminary design?

Julie Victoria
Wildlife Biologist
CT DEP Wildlife Division
Wildlife Diversity Program
Franklin Swamp WMA
391 Route 32
N. Franklin, CT 06254
860-642-7239
860-642-7964 fax

Please consider the environment before printing this email.

From: Britnell, William W
Sent: Thursday, June 25, 2009 2:29 PM
To: Victoria, Julie
Cc: Talarico, Peter E; Wilson, Timothy M; Norman, James H; Alexander, Mark W
Subject: Proposed roundabout-Routes 85 and 82 in Salem

Dear Ms. Victoria,

We are in receipt of your memo to Tim Wilson dated June 5, 2009 regarding the presence of two threatened and four species of special concern in the vicinity of the proposed roundabout at the intersection of Routes 82 and 85 in Salem. In your memo you stated that a field inspection of the site has not been conducted. To that end, we wanted to provide you with some additional information that we thought might be helpful to you to provide some context for the project site and scope of work.

The project is located at a moderately high volume intersection in a well developed area. A gas station/convenience store is located on the southeast corner, a small strip shopping center is on the southwest corner, a vacant building that formerly housed a motorcycle accessory store is located on the northwest corner and another shopping plaza is located on the northeast corner. Farther to the west, Route 82 crosses Harris Brook and the wetlands associated with it. We believe the threatened and special concern species you mentioned are located within these wetlands, which will be unaffected by this project.

The project work will be confined within the existing intersection and the developed properties on the southwest and northwest corners. The only wetland impacts that may occur (to be determined during the preliminary design phase) would be very minor, fringe impacts as a result of modifications of the drainage system to fit the reconfigured intersection. It is our belief that any impacts to wetlands will be very minor and will not occur in the areas where the threatened and special concern species exist.

We have attached some photos of the area and a link to a web site that provides an aerial view of the project site. We have also attached a concept plan indicating the limits of proposed work. Photo 003.jpg shows the northwest corner (vacant brown building to be removed) and the southwest corner (white building to be removed). Photo 024.jpg shows the gas station in the southeast corner and Photo 028.jpg shows the plaza in the northeast corner. In addition, we have attached a birds eye view showing the entire intersection.

Using this information, we hope you will reconsider the need for any additional studies or surveys. Both the Department and the Town of Salem are anxious to proceed with this project to address serious safety issues at this intersection. If you need any further information, please feel free to contact me.

Will Britnell
Project Manager
ConnDOT

CTDEP INLAND FISHERIES DIVISION COORDINATION TRANSMITTAL MEMORANDUM

DOT Project #: 120-86 Town: Salem Bridge #: _____
Waterway: tributary to Harris Brook & unnamed watercourse on the Henry Penny property Drainage Basin Name & Number: Harris Brook, 4801
Project Description / Scope of work: Salem Four Corners Roundabout at Routes 82 & 85

Initial Coordination

The following information is provided as required:

Plan /submittal date : 2/7/2011

- Legible location map with project site clearly marked
- Description of scope of work and if developed, pertinent 1/2 scale plans as deemed relevant.
- Area photographs

To be completed by CTDEP Inland Fisheries Division and returned to DOT Environmental Planning Division

- Affect of proposal on our program interests is negligible. No further review is warranted.
- Additional information is required, a list of requested information is attached.
- Comments and recommendations are attached.

BDM Initials

3/15/11 Date

Structure Type Agreement

The following information is provided as required:

- Copies of previous correspondence from Fisheries Division
- If previous recommendations cannot be incorporated, provide narrative explaining why.
- 1/2 scale plans of pertinent plan sheets including plan view, elevation view, profile and details as deemed relevant.

To be completed by CTDEP Inland Fisheries Division and returned to DOT Environmental Planning Division

- DEP Fisheries agrees to the structure type presented in the plans.
- Comments and recommendations are attached.

Initials

Date

Final Fisheries Sign-Off

Attachment L: Mitigation Report

Applicant: State of Connecticut, Department of Transportation

Project No. 120-86

Roundabout at Salem Four Corners – Intersection on Routes 82 and 85

As mitigation for the 8,861 s.f. of wetland impacts proposed by Project 120-86, 27,300 of wetland restoration is proposed at the former Bad Boyz Toyz property at the northwest corner of the intersection. This represents a ratio of approximately 3:1. This site is known to be contaminated and will be cleaned up prior to proceeding with the mitigation plan.

The plan for the restoration site is to restore it in-kind with the adjacent palustrine shrub swamp since, presumably that is what it looked and functioned like before it was originally impacted. The adjacent wetland is a very low-lying area that is often flooded, yet it has well-established vegetation with few open patches. The proposed mitigation, like the adjacent wetland, will be dominated by shrubs that can tolerate a lot of inundation, with more sparse trees planted throughout. Proposed species are red maple (*Acer rubrum*), black willow (*Salix nigra*), buttonbush (*Cephalanthus occidentalis*), American elder (*Sambucus canadensis*), black chokeberry (*Aronia melanocarpa*), silky dogwood (*Cornus amomum*), winterberry (*Ilex verticillata*), swamp azalea (*Rhododendron viscosum*), highbush blueberry (*Vaccinium corymbosum*), and arrowwood (*Viburnum dentatum*). A grading and planting plan is included with this permit application.

To account for impact to the overflow channel at Site 3, this channel will be recreated immediately adjacent to its old location. The proposed channel will be lined with riprap to continue to sustain the current overflow velocities, and the sides of the channel as well as the newly impacted roadway embankment will be planted with native woody species. These include red maple, black chokeberry, arrowwood, shadblow serviceberry (*Amelanchier canadensis*) and sweet pepperbush (*Clethra alnifolia*).

In addition to the above restoration efforts, all temporary impact areas will be replanted with appropriate native species. Plantings at Site 1 will consist of black chokeberry, American elder and arrowwood. At Site 2, plantings will consist of black chokeberry, American elder, arrowwood, and shadblow serviceberry. At Site 4, plantings will consist of red maple, shadblow serviceberry, black chokeberry, American elder, arrowwood, northern bayberry (*Myrica pensylvanica*) and sweet fern (*Comptonia peregrina*).

Stormwater upgrades include remedying the current situation of a culvert carrying combined watercourse and stormwater with two separate culverts with separate outlets, the installation of outlet protections at all new and upgraded outlets.

Attachment M: Alternatives Assessment

Applicant: State of Connecticut, Department of Transportation

Project No. 120-86

Roundabout at Salem Four Corners – Intersection on Routes 82 and 85

Three alternatives were considered to address traffic and safety concerns at the intersection:

- No Build Alternative
- Reconfiguration of the Existing Intersection
- Construction of Roundabout at the Intersection

No Build Alternative

Under the No Build Alternative, the existing accident problems would continue to occur and get worse as traffic volumes steadily increase. Also under the No Build Alternative fuel delivery truck will continue to back out off the Henny Penny driveway located just southeast of the intersection. This creates an unsafe situation for drivers as well as a potentially environmentally hazardous situation. Fuel delivery trucks can block the intersection while backing out from the gas station driveway for up to 20 minutes at a time; this can cause a collision because an approaching driver might not be expecting that at a major intersection. A collision with a fuel truck could cause serious gasoline spills. This alternative perpetuates unsafe traffic conditions on the roadway.

Reconfiguration of the Existing Intersection

The reconfiguration of the existing intersection is not a prudent alternative since it would still impact wetlands and not address the safety problems at the intersection. A conventional 4-way signalized intersection would require additional left turn lanes on both approaches on Route 82 and the north approach of Route 85. Median islands would still be needed to control the access to the gas station to address accidents at this location and the south approach of 85 would need to be widened to match the width on the opposite approach. This widening would only address capacity. Head-on turning accidents at the intersection would not be addressed with this alternative.

Construction of Roundabout at the Intersection

Construction of a roundabout is the preferred alternative. As stated in the other alternatives, this alternative will eliminate the need for fuel delivery trucks to back out onto the highway. This alternative also addresses the capacity and safety needs at the intersection. In addition to these benefits, cars traveling through roundabouts continuously flow and cars at conventional intersection stop and idle. This leads to improved air quality at roundabouts.

Attachment Q: Other Information

Photographs of the project area



Wetland Site 1: Looking North down Rte 85



Wetland Site 1: Looking West from Rte 85



Wetland Site 2(South Side of Rte 82): Looking West down Rte 82



Wetland Site 2(South Side of Rte 82): Looking South from Rte 82
Location of Existing Outlet



Wetland Site 2(North Side of Rte 82): Looking West down Rte 82



Wetland Site 2(North Side of Rte 82): Looking North from Rte 82



Wetland Site 3: Looking East down Rte 82
Overflow Channel



Wetland Site 3: Overflow Channel



Wetland Site 3: Overflow Channel Inlet



Wetland Site 4(South Side of Rte 85): Looking South down Rte 85



Wetland Site 4 (South Side of Rte 85): Looking South from Rte 85



Wetland Site 4 (South Side of Rte 85): Looking South from Plaza parking Lot



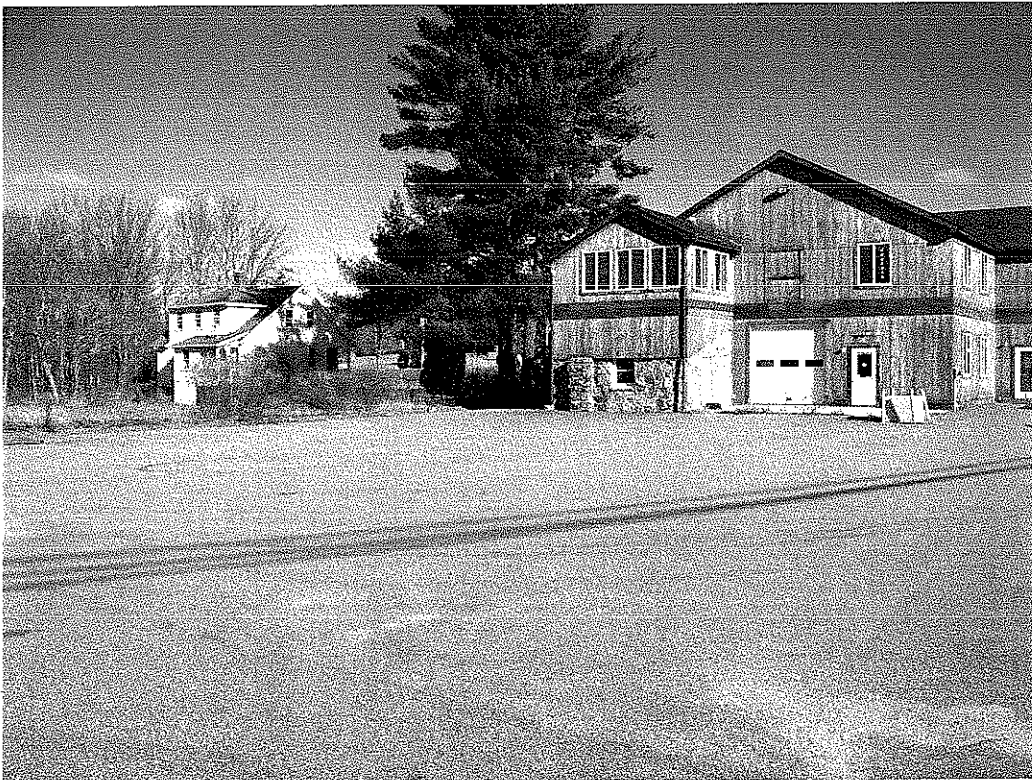
Wetland Site 4 (North Side of Rte 85): Looking North from Rte 85



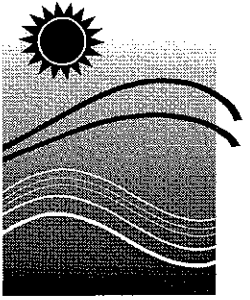
Wetland Site 4 (North Side of Rte 85): Looking South towards Rte 85



Mitigation Site



Mitigation Site



Connecticut Department
of
**ENERGY &
ENVIRONMENTAL
PROTECTION**

August 1, 2011

Permittee: Connecticut Department of Transportation
2800 Berlin Turnpike
P.O. Box 317546
Newington, CT 06131-7546

Attn: Mark Alexander

Permit No.: IW-201102128, WQC-201102127
Permit Type: Inland Wetlands and Watercourses
Water Quality Certification

Town: Salem

Project: Construction of a roundabout at the intersection of Route 82 and 85

The Commissioner of Energy and Environmental Protection has approved your application to conduct certain regulated activities. Your attention is directed to the conditions of the enclosed permit or certificate. You should read the enclosed document carefully, as all construction or work must conform to that which is authorized.

If you have not already done so, you should contact the U.S. Army Corps of Engineers to determine local and federal permit requirements on your project, if any. Write to the Corps' New England District, Regulatory Branch, 696 Virginia Road, Concord, MA 01742-2751; or call 1-800-343-4789.

If you have any questions concerning the enclosed document, please contact this office at (860) 424-3019.

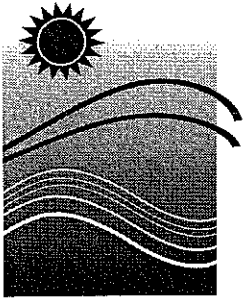
Sincerely,

Denise Ruzicka
Director
Inland Water Resources Division

COPIES FURNISHED TO:

Conservation Commission
Inland Wetland Agency
Planning & Zoning Commission

All Parties/Adjacent Property Owners
DEEP Fisheries
Corinne Fitting, DEEP
U.S. Army Corps of Engineers



Connecticut Department
of
**ENERGY &
ENVIRONMENTAL
PROTECTION**

PERMIT

Permittee: Connecticut Department of Transportation
2800 Berlin Turnpike
P.O. Box 317546
Newington, CT 06131-7546

Attn: Mark Alexander

Permit No: IW-201102128, WQC-201102127
Permit Type: Inland Wetlands and Watercourses
Water Quality Certification

Town: Salem

Project: Construction of a roundabout at the intersection of Routes 82 and 85

Pursuant to Connecticut General Statutes Sections 22a-39 the Commissioner of Energy and Environmental Protection hereby grants a permit to the Connecticut Department of Transportation (the "permittee") to conduct activities within inland wetlands and watercourses and pursuant to Section 401 of the Federal Clean Water Act (33USC 1341) Water Quality Certification is hereby issued to the permittee for activities, including but not limited to the construction or operation of facilities, which may result in any discharge into the waters of the state in accordance with the applications referenced above and filed with this Department on September 29, 2010 and described herein. The purpose of said activities is to replace the existing signalized intersection with a roundabout at the intersection of Routes 82 and 85 in Salem (the "site").

Said discharge(s) of material will comply with the applicable provisions of Section 301, 302, 303, 306 and 307 of the Federal Clean Water Act and will not violate Connecticut's Water Quality Standards.

AUTHORIZED ACTIVITY

Specifically, the permittee is authorized to impact 0.204 acres of inland wetlands, watercourses, and waters of the state in association with constructing a roundabout at the intersection of Routes 82 and 85 which will include a widening of the road and constructing new drainage configurations and outlets. This activity will be conducted in accordance with said application and plans which are a part thereof entitled, "Environmental Permit Plans State Project 120-86 Roundabout at Salem Four Corners Town of Salem" prepared by State of Connecticut Department of Transportation Office of Engineering (the "plans") and dated January 31, 2011.

This authorization constitutes the licenses and approvals required by Section 22a-39 of the Connecticut General Statutes and is subject to and does not derogate any present or future property rights or other rights or powers of the State of Connecticut, conveys no property rights in real estate or material nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state, or local laws or regulations pertinent to the property or activity affected thereby.

This authorization does not comprise the licenses or approvals as may be required by Chapters 446i, 446j and 446k of the Connecticut General Statutes.

PERMITTEE'S FAILURE TO COMPLY WITH THE TERMS AND CONDITIONS OF THIS PERMIT SHALL SUBJECT PERMITTEE AND PERMITTEE'S CONTRACTOR(S) TO ENFORCEMENT ACTIONS AND PENALTIES AS PROVIDED BY LAW.

This authorization is subject to the following conditions:

SPECIAL CONDITIONS:

1. **Mitigation.** The permittee shall implement all mitigation provisions in accordance with the plans entitled "Environmental Permit Plans State Project 120-86 Roundabout at Salem Four Corners Town of Salem" prepared by State of Connecticut Department of Transportation Office of Engineering (the "plans") and dated January 31, 2011.

GENERAL TERMS AND CONDITIONS:

1. **Initiation and Completion of Work.** At least five (5) days prior to starting any construction activity at the site, the permittee shall notify the Commissioner of Environmental Protection (the "Commissioner"), in writing, as to the date activity will start, and no later than five (5) days after completing such activity, notify the Commissioner, in writing, that the activity has been completed.
2. **Expiration of Permit.** If the activities authorized herein are not completed by five years after the date of this license, or by the expiration date of the permit issued by the U.S. Army Corps of Engineers for this proposal, whichever is sooner, said activity shall cease and, if not previously revoked or specifically extended, this permit shall be null and void

Upon the written request of the permittee and without notice, the Commissioner may extend the expiration date of this permit for a period of up to one year, which period may be extended once for a like period, in order for the permittee to complete activities authorized herein which have been substantially initiated but will not be completed by the expiration date of this license. Any request to extend the expiration date of this permit shall state with particularity the reasons therefore.

In making his decision to extend the expiration date of this license, the Commissioner shall consider all relevant facts and circumstances including but not limited to the extent of work completed to date, the permittee's compliance with the terms and conditions of this license, and any change in environmental conditions or other information since the permit was issued. Any application to renew or reissue this permit shall be filed in accordance with the Section 22a-39 of the General Statutes and section 22a-3a-5(c) of the regulations of Connecticut State Agencies.

3. **Compliance with Permit.** All work and all activities authorized herein conducted by the permittee at the site shall be consistent with the terms and conditions of this license. Any regulated activities carried out at the site, including but not limited to, construction of any structure, excavation, fill, obstruction, or encroachment, that are not specifically identified and authorized herein shall constitute a violation of this permit and may result in its modification, suspension, or revocation. In constructing or maintaining the activities authorized herein, the permittee shall not store, deposit or place equipment or material including without limitation, fill, construction materials, or debris in any wetland or watercourse on or off site unless specifically authorized by this license. Upon initiation of the activities authorized herein, the permittee thereby accepts and agrees to comply with the terms and conditions of this license.
4. **Transfer of Permit.** This authorization is not transferable without the written consent of the Commissioner.
5. **Reliance on Application.** In evaluating the permittee's application, the Commissioner has relied on information provided by the permittee. If such information subsequently proves to be false, deceptive, incomplete or inaccurate, this permit may be modified, suspended or revoked.
6. **Best Management Practices.** In constructing or maintaining the activities authorized herein, the permittee shall employ best management practices, consistent with the terms and conditions of this license, to control storm water discharges and erosion and sedimentation and to prevent pollution. Such practices to be implemented by the permittee at the site include, but are not necessarily limited to:
 - a. Prohibiting dumping of any quantity of oil, chemicals or other deleterious material on the ground;
 - b. Immediately informing the Commissioner's Oil and Chemical Spill Section at 424-3338 of any adverse impact or hazard to the environment, including any discharges, spillage or loss of oil or petroleum or chemical liquids or solids, which occurs or is likely to occur as the direct or indirect result of the activities authorized herein;
 - c. Separating staging areas at the site from the regulated areas by silt fences or haybales at all times.

- d. Prohibiting storage of any fuel and refueling of equipment within 25 feet from any wetland or watercourse.
- e. Preventing pollution of wetlands and watercourses in accordance with the document "Connecticut Guidelines for Soil Erosion and Sediment Control" as revised. Said controls shall be inspected by the permittee for deficiencies at least once per week and immediately after each rainfall and at least daily during prolonged rainfall. The permittee shall correct any such deficiencies within forty eight (48) hours of said deficiencies being found.
- f. Stabilizing disturbed soils in a timely fashion to minimize erosion. If a grading operation at the site will be suspended for a period of thirty (30) or more consecutive days, the permittee shall, within the first seven (7) days of that suspension period, accomplish seeding and mulching or take such other appropriate measures to stabilize the soil involved in such grading operation. Within seven (7) days after establishing final grade in any grading operation at the site the permittee shall seed and mulch the soil involved in such grading operation or take such other appropriate measures to stabilize such soil until seeding and mulching can be accomplished.
- g. Prohibiting the storage of any materials at the site which are buoyant, hazardous, flammable, explosive, soluble, expansive, radioactive, or which could in the event of a flood be injurious to human, animal or plant life, below the elevation of the five-hundred (500) year flood. Any other material or equipment stored at the site below said elevation by the permittee or the permittee's contractor must be firmly anchored, restrained or enclosed to prevent flotation. The quantity of fuel stored below such elevation for equipment used at the site shall not exceed the quantity of fuel that is expected to be used by such equipment in one day.
- h. Immediately informing the Commissioner's Inland Water Resources Division (IWRD) of the occurrence of pollution or other environmental damage resulting from construction or maintenance of the authorized activity or any construction associated therewith in violation of this license. The permittee shall, no later than 48 hours after the permittee learns of a violation of this license, report same in writing to the Commissioner. Such report shall contain the following information:
 - (i) the provision(s) of this permit that has been violated;
 - (ii) the date and time the violation(s) was first observed and by whom;
 - (iii) the cause of the violation(s), if known
 - (iv) if the violation(s) has ceased, the duration of the violation(s) and the exact date(s) and times(s) it was corrected;

- (v) if the violation(s) has not ceased, the anticipated date when it will be corrected;
- (vi) steps taken and steps planned to prevent a reoccurrence of the violation(s) and the date(s) such steps were implemented or will be implemented;
- (vii) the signatures of the permittee and of the individual(s) responsible for actually preparing such report, each of whom shall certify said report in accordance with section 9 of this license.

For information and technical assistance, contact the Department of Energy and Environmental Protection's Inland Water Resources Division at (860)424-3019.

7. **Contractor Liability.** The permittee shall give a copy of this permit to the contractor(s) who will be carrying out the activities authorized herein prior to the start of construction and shall receive a written receipt for such copy, signed and dated by such contractor(s). The permittee's contractor(s) shall conduct all operations at the site in full compliance with this permit and, to the extent provided by law, may be held liable for any violation of the terms and conditions of this license.
8. **Monitoring and Reports to the Commissioner.** The permittee shall record all actions taken pursuant to Condition Number 6(e) of this permit and shall, on a monthly basis, submit a report of such actions to the Commissioner. This report shall indicate compliance or noncompliance with this permit for all aspects of the project which is the subject of this license. The report shall be signed by the environmental inspector assigned to the site by the permittee and shall be certified in accordance with Condition Number 9 below. Such monthly report shall be submitted to the Commissioner no later than the 15th of the month subsequent to the month being reported. The permittee shall submit such reports until the subject project is completed.
9. **Certification of Documents.** Any document, including but not limited to any notice, which is required to be submitted to the Commissioner under this permit shall be signed by the permittee, a responsible corporate officer of the permittee, a general partner of the permittee, or a duly authorized representative of the permittee and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

"I have personally examined and am familiar with the information submitted in this document and all attachments and 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, and I understand that any false statement made in this document or its attachments may be punishable as a

criminal offense in accordance with Section 22a-6 under Section 53a-157b of the Connecticut General Statutes."

10. **Submission of Documents.** The date of submission to the Commissioner of any document required by this permit shall be the date such document is received by the Commissioner. Except as otherwise specified in this license, the word "day" as used in this permit means the calendar day. Any document or action which falls on a Saturday, Sunday, or legal holiday shall be submitted or performed by the next business day thereafter.

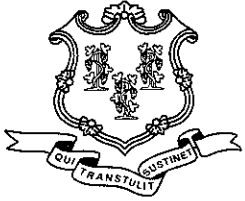
Any document or notice required to be submitted to the Commissioner under this permit shall, unless otherwise specified in writing by the Commissioner, be directed to:

The Director
Department of Energy and Environmental Protection
Inland Water Resources Division
79 Elm Street, 3rd Floor
Hartford, Connecticut, 06106-5127

Issued by the Commissioner of Energy and Environmental Protection on:

August 1, 2011
Date

Robert E. Kaliszewski
for Daniel C. Esty Commissioner
Robert E. Kaliszewski, Director,
Planning & Program Development



**STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION**



June 20, 2011

Connecticut Department of Transportation
Bureau of Policy & Planning
2800 Berlin Turnpike, P.O. Box 317546
Newington, CT 06131-7546

Attn: Thomas J. Maziarz, Bureau Chief

Re: Application #: FM-201102125
State Project No. 120-86
Construction of Roundabout at Routes 82 & 85
Salem, CT

Dear Mr. Maziarz,

The Inland Water Resources Division of the Department of Environmental Protection has reviewed the flood management certification signed by you and dated March 21, 2011. The certification document, submitted March 24, 2011, states that the proposed activity has been designed in compliance with the requirements of Section 25-68d(b) of the Connecticut General Statutes (CGS) and Section 25-68h-1 through 25-68h-3 of the Regulations of Connecticut State Agencies (RCSA).

The project proposes to construct a roundabout at the intersection of Routes 82 and 85 in the Town of Salem, as shown on plans entitled, "*Environmental Permit Plans, State Project 120-86, Roundabout at Salem Four Corners, Town of Salem*". The project is located within the 500-year and 100-year flood plains associated with the Harris Brook.

The above referenced certification is hereby approved. No revisions or alterations to the approved plans are allowed without first obtaining written approval from this Division of such alterations. If there are any questions, contact Colin Clark of the Inland Water Resources Division at 860-424-3214.

Sincerely,

A handwritten signature in black ink, appearing to read "Denise Ruzicka".

Denise Ruzicka
Director

cc: Mark W. Alexander, ConnDOT, Transportation Assistant Planning Director

Construction Contracts - Required Contract Provisions

Index

1. Federal Highway Administration (FHWA) Form 1273 and Amendment Notices
2. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements
3. Contractor Work Force Utilization (Federal Executive Order 11246) / Specific Equal Employment Opportunity
4. Requirements of Title 49, CFR , Part 26
5. Contract Wage Rates
6. Americans with Disabilities Act of 1990
7. Connecticut Statutory Labor Requirements
 - a. Construction, Alteration or Repair of Public Works Projects; Wage Rates
 - b. Debarment List - Limitation on Awarding Contracts
 - c. Construction Safety and Health Course
 - d. Awarding of Contracts to Occupational Safety and Health Law Violators Prohibited
 - e. Residents Preference in Work on Other Public Facilities (Not Applicable to Federal Aid Contracts)
8. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)
9. Executive Orders (State of CT)
10. Non Discrimination Requirement (pursuant to section 4a-60 and 4a-60a of the Connecticut General Statutes, as revised)
11. Whistleblower Provision
12. Connecticut Freedom of Information Act
 - a. Disclosure of Records
 - b. Confidential Information
13. Service of Process
14. Substitution of Securities for Retainages on State Contracts and Subcontracts
15. Health Insurance Portability and Accountability Act of 1996 (HIPAA)
16. Forum and Choice of Law
17. Summary of State Ethics Laws

18. Audit and Inspection of Plants, Places of Business and Records
19. Campaign Contribution Restriction
20. Tangible Personal Property
21. Bid Rigging and/or Fraud – Notice to Contractor
22. Consulting Agreement Affidavit

Index of Exhibits

- EXHIBIT A – FHWA Form 1273 (Begins on page 13)
- EXHIBIT B – Amendment to FHWA Form 1273 (page 27)
- EXHIBIT C – Title VI Contractor Assurances (page 28)
- EXHIBIT D – Contractor Work Force Utilization (Federal Executive Order 11246) / Equal Employment Opportunity (page 29)
- EXHIBIT E – Health Insurance Portability and Accountability Act of 1996 (HIPAA) (page 36)
- EXHIBIT F - SEEC Form 10 – Campaign Contribution Restriction (page 44)
- EXHIBIT G – Federal Wage Rates (Attached at the end)
- EXHIBIT H - State Wage Rates (Attached at the end)

1. Federal Highway Administration (FHWA) Form 1273 and Amendment Notices

The Contractor shall comply with the Federal Highway Administration (FHWA), Form 1273 attached at Exhibit A, as revised by amendment attached at Exhibit B (collectively “Form 1273”) of this section, all of which are hereby made part of this contract. The Contractor shall also require its subcontractors to comply with the FHWA – Form 1273 and include the FHWA – Form 1273 as an attachment to all subcontracts and purchase orders.

2. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements

The Contractor shall comply with Title VI of the Civil Rights Act of 1964 as amended (42 U.S.C. 2000 et seq.), all requirements imposed by the regulations of the United States Department of Transportation (49 CFR Part 21) issued in implementation thereof, and the Title VI Contractor Assurances attached hereto at Exhibit C, all of which are hereby made a part of this Contract.

3. Contractor Work Force Utilization (Federal Executive Order 11246) / Equal Employment Opportunity

- (a) The Contractor shall comply with the Contractor Work Force Utilization (Federal Executive Order 11246) / Equal Employment Opportunity requirements attached at Exhibit D and hereby made part of this Contract, whenever a contractor or subcontractor at any tier performs construction work in excess of \$10,000. These goals shall be included in each contract and subcontract. Goal achievement is calculated for each trade using the hours worked under each trade.
- (b) Companies with contracts, agreements or purchase orders valued at \$10,000 or more will develop and implement an Affirmative Action Plan utilizing the ConnDOT Affirmative Action Plan Guideline. This Plan shall be designed to further the provision of equal employment opportunity to all persons without regard to their race, color, religion, sex or national origin, and to promote the full realization of equal employment opportunity through a positive continuation program. Plans shall be updated as required by ConnDOT.

4. Requirements of Title 49, Code of Federal Regulations (CFR), Part 26

Pursuant to 49 CFR 26.13, the following paragraph is part of this Contract and shall be included in each subcontract the Contractor enters into with a subcontractor:

“The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of U.S. DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this contract or such other remedy as ConnDOT (recipient) deems appropriate.”

5. Contract Wage Rates

The Contractor shall comply with:

The Federal and State wage rate requirements indicated in Exhibits G and H hereof are hereby made part of this Contract. If a conflict exists between the Federal and State wage rates, the higher rate shall govern.

Prevailing Wages for Work on State Highways; Annual Adjustments. With respect to contracts for work on state highways and bridges on state highways, the Contractor shall comply with the provisions of Section 31-54 and 31-55a of the Connecticut General Statutes, as revised.

As required by section 1.05.12 (Payrolls) of the State of Connecticut, Department of Transportation's Standard Specification for Roads, Bridges and Incidental Construction (FORM 816), as may be revised, every Contractor or subcontractor performing project work on a federal aid project is required to post the relevant prevailing wage rates as determined by the United States Secretary of Labor. The wage rate determinations shall be posted in prominent and easily accessible places at the work site.

6. Americans with Disabilities Act of 1990

This provision applies to those Contractors who are or will be responsible for compliance with the terms of the Americans with Disabilities Act of 1990, (42 U.S.C. 12101 et seq.), (Act), during the term of the Contract. The Contractor represents that it is familiar with the terms of this Act and that it is in compliance with the Act. Failure of the Contractor to satisfy this standard as the same applies to performance under this Contract, either now or during the term of the Contract as it may be amended, will render the Contract voidable at the option of the State upon notice to the contractor. The Contractor warrants that it will hold the State harmless and indemnify the State from any liability which may be imposed upon the State as a result of any failure of the Contractor to be in compliance with this Act, as the same applies to performance under this Contract.

7. Connecticut Statutory Labor Requirements

(a) Construction, Alteration or Repair of Public Works Projects; Wage Rates. The Contractor shall comply with Section 31-53 of the Connecticut General Statutes, as revised. The wages paid on an hourly basis to any person performing the work of any mechanic, laborer or worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in subsection (i) of section 31-53 of the Connecticut General Statutes, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each pay day.

(b) Debarment List. Limitation on Awarding Contracts. The Contractor shall comply with Section 31-53a of the Connecticut General Statutes, as revised.

(c) Construction Safety and Health Course. The Contractor shall comply with section 31-53b of the Connecticut General Statutes, as revised. The contractor shall furnish proof to the Labor Commissioner with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 of the Connecticut General Statutes, as revised, on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health

Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

Any employee required to complete a construction safety and health course as required that has not completed the course, shall have a maximum of fourteen (14) days to complete the course. If the employee has not been brought into compliance, they shall be removed from the project until such time as they have completed the required training.

Any costs associated with this notice shall be included in the general cost of the contract. In addition, there shall be no time granted to the contractor for compliance with this notice. The contractor's compliance with this notice and any associated regulations shall not be grounds for claims as outlined in Section 1.11 – "Claims".

(d) Awarding of Contracts to Occupational Safety and Health Law Violators Prohibited. The Contract is subject to Section 31-57b of the Connecticut General Statutes, as revised.

(e) Residents Preference in Work on Other Public Facilities. NOT APPLICABLE TO FEDERAL AID CONTRACTS. Pursuant to Section 31-52a of the Connecticut General Statutes, as revised, in the employment of mechanics, laborers or workmen to perform the work specified herein, preference shall be given to residents of the state who are, and continuously for at least six months prior to the date hereof have been, residents of this state, and if no such person is available, then to residents of other states

8. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)

The Contractor shall comply with Chapter 219 of the Connecticut General Statutes pertaining to tangible personal property or services rendered that is/are subject to sales tax. The Contractor is responsible for determining its tax liability. If the Contractor purchases materials or supplies pursuant to the Connecticut Department of Revenue Services' "Contractor's Exempt Purchase Certificate (CERT-141)," as may be revised, the Contractor acknowledges and agrees that title to such materials and supplies installed or placed in the project will vest in the State simultaneously with passage of title from the retailers or vendors thereof, and the Contractor will have no property rights in the materials and supplies purchased.

Forms and instructions are available anytime by:

Internet: Visit the DRS website at www.ct.gov/DRS to download and print Connecticut tax forms; or Telephone: Call 1-800-382-9463 (Connecticut calls outside the Greater Hartford calling area only) and select Option 2 or call 860-297-4753 (from anywhere).

9. Executive Orders

This Contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill, promulgated June 16, 1971, concerning labor employment practices, Executive Order No. Seventeen of Governor Thomas J. Meskill, promulgated February 15, 1973, concerning the listing of employment openings and Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999, concerning violence in the workplace, all of which are incorporated into and are made a part of the Contract as if they had been fully set forth in it. The Contract may also be subject to Executive Order No. 7C of Governor M. Jodi Rell, promulgated July 13, 2006, concerning contracting

reforms and Executive Order No. 14 of Governor M. Jodi Rell, promulgated April 17, 2006, concerning procurement of cleaning products and services, in accordance with their respective terms and conditions. If Executive Orders 7C and 14 are applicable, they are deemed to be incorporated into and are made a part of the Contract as if they had been fully set forth in it. At the Contractor's request, the Department shall provide a copy of these orders to the Contractor.

10. Non Discrimination Requirement (pursuant to section 4a-60 and 4a-60a of the Connecticut General Statutes, as revised): References to "minority business enterprises" in this Section are not applicable to Federal-aid projects/contracts. Federal-aid projects/contracts are instead subject to the Federal Disadvantaged Business Enterprise Program.

(a) For purposes of this Section, the following terms are defined as follows:

- i. "Commission" means the Commission on Human Rights and Opportunities;
- ii. "Contract" and "contract" include any extension or modification of the Contract or contract;
- iii. "Contractor" and "contractor" include any successors or assigns of the Contractor or contractor;
- iv. "gender identity or expression" means a person's gender-related identity, appearance or behavior, whether or not that gender-related identity, appearance or behavior is different from that traditionally associated with the person's physiology or assigned sex at birth, which gender-related identity can be shown by providing evidence including, but not limited to, medical history, care or treatment of the gender-related identity, consistent and uniform assertion of the gender-related identity or any other evidence that the gender-related identity is sincerely held, part of a person's core identity or not being asserted for an improper purpose.
- v. "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations;
- vi. "good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements;
- vii. "marital status" means being single, married as recognized by the state of Connecticut, widowed, separated or divorced;
- viii. "mental disability" means one or more mental disorders, as defined in the most recent edition of the American Psychiatric Association's "Diagnostic and Statistical Manual of Mental Disorders", or a record of or regarding a person as having one or more such disorders;
- ix. "minority business enterprise" means any small contractor or supplier of materials fifty-one percent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise, and (3) who are members of a minority, as such term is defined in subsection (a) of Connecticut General Statutes § 32-9n; and
- x. "public works contract" means any agreement between any individual, firm or corporation and the State or any political subdivision of the State other than a municipality for construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, or which is financed in whole or in part by the State, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.

For purposes of this Section, the terms "Contract" and "contract" do not include a contract where each contractor is (1) a political subdivision of the state, including, but not limited to, a municipality, (2) a quasi-public agency, as defined in Conn. Gen. Stat. Section 1-120, (3) any other state, including but not limited to any federally recognized Indian tribal governments, as defined in Conn. Gen. Stat. Section 1-267, (4) the federal government, (5) a foreign government, or (6) an agency of a subdivision, agency, state or government described in the immediately preceding enumerated items (1), (2), (3), (4) or (5).

- (b) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, mental retardation, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut; and the Contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, mental retardation, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by the Contractor that such disability prevents performance of the work involved; (2) the Contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission; (3) the Contractor agrees to provide each labor union or representative of workers with which the Contractor has a collective bargaining Agreement or other contract or understanding and each vendor with which the Contractor has a contract or understanding, a notice to be provided by the Commission, advising the labor union or workers' representative of the Contractor's commitments under this section and to post copies of the notice in conspicuous places available to employees and applicants for employment; (4) the Contractor agrees to comply with each provision of this Section and Connecticut General Statutes §§ 46a-68e and 46a-68f and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes §§ 46a-56, 46a-68e and 46a-68f; and (5) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor as relate to the provisions of this Section and Connecticut General Statutes § 46a-56. If the contract is a public works contract, the Contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works projects.
- (c) Determination of the Contractor's good faith efforts shall include, but shall not be limited to, the following factors: The Contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission may prescribe that are designed to ensure the participation of minority business enterprises in public works projects.
- (d) The Contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission, of its good faith efforts.
- (e) The Contractor shall include the provisions of subsection (b) of this Section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and

such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes §46a-56; provided if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.

- (f) The Contractor agrees to comply with the regulations referred to in this Section as they exist on the date of this Contract and as they may be adopted or amended from time to time during the term of this Contract and any amendments thereto.
- (g) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or the State of Connecticut, and that employees are treated when employed without regard to their sexual orientation; (2) the Contractor agrees to provide each labor union or representative of workers with which such Contractor has a collective bargaining Agreement or other contract or understanding and each vendor with which such Contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the Contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (3) the Contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes § 46a-56; and (4) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor which relate to the provisions of this Section and Connecticut General Statutes § 46a-56.
- (h) The Contractor shall include the provisions of the foregoing paragraph in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes § 46a-56; provided, if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.”

The Nondiscrimination Certifications can be found at the Office of Policy and Management website.

<http://www.ct.gov/opm/cwp/view.asp?a=2982&Q=390928>

11. Whistleblower Provision

The following clause is applicable if the Contract has a value of Five Million Dollars (\$5,000,000) or more.

Whistleblowing. This Contract may be subject to the provisions of Section 4-61dd of the Connecticut General Statutes. In accordance with this statute, if an officer, employee or appointing authority of the Contractor takes or threatens to take any personnel action against any employee of the Contractor in retaliation for such employee's disclosure of information to any employee of the contracting state or quasi-public agency or the Auditors of Public Accounts or the Attorney General under the provisions of subsection (a) of such statute, the Contractor shall be liable for a civil penalty of not more than five thousand dollars for each offense, up to a maximum of twenty per cent of the value of this Contract. Each violation shall be a separate and distinct offense and in the case of a continuing violation, each calendar day's continuance of the violation shall be deemed to be a separate and distinct offense. The State may request that the Attorney General bring a civil action in the Superior Court for the Judicial District of Hartford to seek imposition and recovery of such civil penalty. In accordance with subsection (f) of such statute, each large state contractor, as defined in the statute, shall post a notice of the provisions of the statute relating to large state contractors in a conspicuous place which is readily available for viewing by the employees of the Contractor.

12. Connecticut Freedom of Information Act

- (a) **Disclosure of Records.** This Contract may be subject to the provisions of section 1-218 of the Connecticut General Statutes. In accordance with this statute, each contract in excess of two million five hundred thousand dollars between a public agency and a person for the performance of a governmental function shall (a) provide that the public agency is entitled to receive a copy of records and files related to the performance of the governmental function, and (b) indicate that such records and files are subject to FOIA and may be disclosed by the public agency pursuant to FOIA. No request to inspect or copy such records or files shall be valid unless the request is made to the public agency in accordance with FOIA. Any complaint by a person who is denied the right to inspect or copy such records or files shall be brought to the Freedom of Information Commission in accordance with the provisions of sections 1-205 and 1-206 of the Connecticut General Statutes.
- (b) **Confidential Information.** The State will afford due regard to the Contractor's request for the protection of proprietary or confidential information which the State receives from the Contractor. However, all materials associated with the Contract are subject to the terms of the FOIA and all corresponding rules, regulations and interpretations. In making such a request, the Contractor may not merely state generally that the materials are proprietary or confidential in nature and not, therefore, subject to release to third parties. Those particular sentences, paragraphs, pages or sections that the Contractor believes are exempt from disclosure under the FOIA must be specifically identified as such. Convincing explanation and rationale sufficient to justify each exemption consistent with the FOIA must accompany the request. The rationale and explanation must be stated in terms of the prospective harm to the competitive position of the Contractor that would result if the identified material were to be released and the reasons why the materials are legally exempt from release pursuant to the FOIA. To the extent that any other provision or part of the Contract conflicts or is in any way inconsistent with this section, this section controls and shall apply and the conflicting provision or part shall not be given effect. If the Contractor indicates that certain documentation is submitted in confidence, by specifically and clearly marking the documentation as "CONFIDENTIAL," DOT will first review the Contractor's claim for consistency with the FOIA (that is, review that the documentation is actually a trade secret or commercial or financial information and not required by statute), and if determined to be consistent, will endeavor to keep such information confidential to the extent permitted by law. See, *e.g.*, Conn. Gen. Stat. §1-210(b)(5)(A-B). The State, however, has no obligation to initiate, prosecute or defend any legal proceeding or to seek a protective order or other similar relief to prevent disclosure of any information that is

sought pursuant to a FOIA request. Should the State withhold such documentation from a Freedom of Information requester and a complaint be brought to the Freedom of Information Commission, the Contractor shall have the burden of cooperating with DOT in defense of that action and in terms of establishing the availability of any FOIA exemption in any proceeding where it is an issue. In no event shall the State have any liability for the disclosure of any documents or information in its possession which the State believes are required to be disclosed pursuant to the FOIA or other law.

13. Service of Process

The Contractor, if not a resident of the State of Connecticut, or, in the case of a partnership, the partners, if not residents, hereby appoints the Secretary of State of the State of Connecticut, and his successors in office, as agent for service of process for any action arising out of or as a result of this Contract; such appointment to be in effect throughout the life of this Contract and six (6) years thereafter.

14. Substitution of Securities for Retainages on State Contracts and Subcontracts

This Contract is subject to the provisions of Section 3-112a of the General Statutes of the State of Connecticut, as revised.

15. Health Insurance Portability and Accountability Act of 1996 (HIPAA)

The Contractor shall comply, if applicable, with the Health Insurance Portability and Accountability Act of 1996 and, pursuant thereto, the provisions attached at Exhibit E, and hereby made part of this Contract.

16. Forum and Choice of Law

Forum and Choice of Law. The parties deem the Contract to have been made in the City of Hartford, State of Connecticut. Both parties agree that it is fair and reasonable for the validity and construction of the Contract to be, and it shall be, governed by the laws and court decisions of the State of Connecticut, without giving effect to its principles of conflicts of laws. To the extent that any immunities provided by Federal law or the laws of the State of Connecticut do not bar an action against the State, and to the extent that these courts are courts of competent jurisdiction, for the purpose of venue, the complaint shall be made returnable to the Judicial District of Hartford only or shall be brought in the United States District Court for the District of Connecticut only, and shall not be transferred to any other court, provided, however, that nothing here constitutes a waiver or compromise of the sovereign immunity of the State of Connecticut. The Contractor waives any objection which it may now have or will have to the laying of venue of any Claims in any forum and further irrevocably submits to such jurisdiction in any suit, action or proceeding.

17. Summary of State Ethics Laws

Pursuant to the requirements of section 1-101qq of the Connecticut General Statutes, the summary of State ethics laws developed by the State Ethics Commission pursuant to section 1-81b of the Connecticut General Statutes is incorporated by reference into and made a part of the Contract as if the summary had been fully set forth in the Contract. The Affirmation of Receipt of State Ethics laws Summary Form is provided with the bid proposal documents when issued to prospective bidders. Contractors are responsible for the submission of this document.

18. Audit and Inspection of Plants, Places of Business and Records

- (a) The State and its agents, including, but not limited to, the Connecticut Auditors of Public Accounts, Attorney General and State’s Attorney and their respective agents, may, at reasonable hours, inspect and examine all of the parts of the Contractor’s and Contractor Parties’ plants and places of business which, in any way, are related to, or involved in, the performance of this Contract. For the purposes of this Section, “Contractor Parties” means the Contractor’s members, directors, officers, shareholders, partners, managers, principal officers, representatives, agents, servants, consultants, employees or any one of them or any other person or entity with whom the Contractor is in privity of oral or written contract and the Contractor intends for such other person or entity to Perform under the Contract in any capacity.
- (b) The Contractor shall maintain, and shall require each of the Contractor Parties to maintain, accurate and complete Records. The Contractor shall make all of its and the Contractor Parties’ Records available at all reasonable hours for audit and inspection by the State and its agents.
- (c) The State shall make all requests for any audit or inspection in writing and shall provide the Contractor with at least twenty-four (24) hours’ notice prior to the requested audit and inspection date. If the State suspects fraud or other abuse, or in the event of an emergency, the State is not obligated to provide any prior notice.
- (d) The Contractor shall keep and preserve or cause to be kept and preserved all of its and Contractor Parties’ Records until three (3) years after the latter of (i) final payment under this Agreement, or (ii) the expiration or earlier termination of this Agreement, as the same may be modified for any reason. The State may request an audit or inspection at any time during this period. If any Claim or audit is started before the expiration of this period, the Contractor shall retain or cause to be retained all Records until all Claims or audit findings have been resolved.
- (e) The Contractor shall cooperate fully with the State and its agents in connection with an audit or inspection. Following any audit or inspection, the State may conduct and the Contractor shall cooperate with an exit conference.
- (f) The Contractor shall incorporate this entire Section verbatim into any contract or other agreement that it enters into with any Contractor Party.

19.Campaign Contribution Restriction

Campaign Contribution Restriction. For all State contracts as defined in P.A. 07-1 having a value in a calendar year of \$50,000 or more or a combination or series of such agreements or contracts having a value of \$100,000 or more, the authorized signatory to this Agreement expressly acknowledges receipt of the State Elections Enforcement Commission's notice advising state contractors of state campaign contribution and solicitation prohibitions, and will inform its principals of the contents of the notice. See Exhibit F [SEEC Form 10].

20. Tangible Personal Property

- (a) The Contractor on its behalf and on behalf of its Affiliates, as defined below, shall comply with the provisions of Conn. Gen. Stat. §12-411b, as follows:
 - (1) For the term of the Contract, the Contractor and its Affiliates shall collect and remit to the State of Connecticut, Department of Revenue Services, any Connecticut use tax due under the provisions of Chapter 219 of the Connecticut General Statutes for items of tangible personal property sold by the Contractor or by any of its Affiliates in the same manner as if the Contractor and such Affiliates were engaged in the business of selling tangible personal property for use in Connecticut and had sufficient nexus under the provisions of Chapter 219 to be required to collect Connecticut use tax;
 - (2) A customer’s payment of a use tax to the Contractor or its Affiliates relieves the customer of liability for the use tax;
 - (3) The Contractor and its Affiliates shall remit all use taxes they collect from customers on or before the due date specified in the Contract, which may not be later than the last day of the

month next succeeding the end of a calendar quarter or other tax collection period during which the tax was collected;

- (4) The Contractor and its Affiliates are not liable for use tax billed by them but not paid to them by a customer; and
- (5) Any Contractor or Affiliate who fails to remit use taxes collected on behalf of its customers by the due date specified in the Contract shall be subject to the interest and penalties provided for persons required to collect sales tax under chapter 219 of the general statutes.

- (b) For purposes of this section of the Contract, the word “Affiliate” means any person, as defined in section 12-1 of the general statutes, that controls, is controlled by, or is under common control with another person. A person controls another person if the person owns, directly or indirectly, more than ten per cent of the voting securities of the other person. The word “voting security” means a security that confers upon the holder the right to vote for the election of members of the board of directors or similar governing body of the business, or that is convertible into, or entitles the holder to receive, upon its exercise, a security that confers such a right to vote. “Voting security” includes a general partnership interest.
- (c) The Contractor represents and warrants that each of its Affiliates has vested in the Contractor plenary authority to so bind the Affiliates in any agreement with the State of Connecticut. The Contractor on its own behalf and on behalf of its Affiliates shall also provide, no later than 30 days after receiving a request by the State’s contracting authority, such information as the State may require to ensure, in the State’s sole determination, compliance with the provisions of Chapter 219 of the Connecticut General Statutes, including, but not limited to, §12-411b.

21. Bid Rigging and/or Fraud – Notice to Contractor

The Connecticut Department of Transportation is cooperating with the U.S. Department of Transportation and the Justice Department in their investigation into highway construction contract bid rigging and/or fraud.

A toll-free “HOT LINE” telephone number 800-424-9071 has been established to receive information from contractors, subcontractors, manufacturers, suppliers or anyone with knowledge of bid rigging and/or fraud, either past or current. The “HOT LINE” telephone number will be available during normal working hours (8:00 am – 5:00 pm EST). Information will be treated confidentially and anonymity respected.

22. Consulting Agreement Affidavit

The Contractor shall comply with Connecticut General Statutes Section 4a-81, as revised. The Consulting Agreement Affidavit must be completed and submitted with the contractors bid proposal for those contracts having an anticipated total value to the State of more than fifty thousand dollars (\$50,000.00) in a calendar or fiscal year. The Affidavit Form is provided with the bid proposal documents when issued to prospective bidders. Contractors are responsible for the submission of this Affidavit.

EXHIBIT A

Federal Highway Administration (FHWA) Form – 1273 (3/10/94)
Required Contract Provisions for Federal-Aid Construction Contracts

- I. [General](#)
- II. [Nondiscrimination](#)
- III. [Nonsegregated Facilities](#)
- IV. [Payment of Predetermined Minimum Wage](#)
- V. [Statements and Payrolls](#)
- VI. [Record of Materials, Supplies, and Labor](#)
- VII. [Subletting or Assigning the Contract](#)
- VIII. [Safety: Accident Prevention](#)
- IX. [False Statements Concerning Highway Projects](#)
- X. [Implementation of Clean Air Act and Federal Water Pollution Control Act](#)
- XI. [Certification Regarding Debarment, Suspension Ineligibility, and Voluntary Exclusion](#)
- XII. [Certification Regarding Use of Contract Funds for Lobbying](#)

Attachments

- A. [Employment Preference for Appalachian Contracts \(included in Appalachian contracts only\)](#)

I. GENERAL

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

- Section I, paragraph 2;
- Section IV, paragraphs 1,2,3,4, and 7;
- Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. **Selection of Labor:** During the performance of this contract the contractor shall not:

- A. Discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or

- B. Employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

II. NONDISCRIMINATION

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 *et seq.*) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

A. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

B. The contractor will accept as his operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

3. Dissemination Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

A. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

B. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

C. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.

D. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

E. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

A. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.

B. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

C. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

A. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

B. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

C. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

D. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

6. Training and Promotion:

A. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

B. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

C. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

D. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

A. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

B. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

C. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such

labor union refuses to furnish such information to the contractor, the contractor shall so certify to the SHA and shall set forth what efforts have been made to obtain such information.

D. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

8. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

A. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

B. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

C. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

A. The records kept by the contractor shall document the following:

1. The number of minority and non-minority group members and women employed in each work classification on the project;
2. The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;
3. The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and
4. The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

B. The contractors will submit an annual report to the SHA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

A. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

B. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities

provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

C. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of \$10,000 or more and that it will retain such certifications in its files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. General:

A. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

B. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

C. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. Classification:

A. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

B. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

1. the work to be performed by the additional classification requested is not performed by a classification in the wage determination;
2. the additional classification is utilized in the area by the construction industry;
3. the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and
4. with respect to helpers, when such a classification prevails in the area in which the work is performed.

C. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or disapprove every additional

classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

D. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

E. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification

3. Payment of Fringe Benefits:

A. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

B. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

4. Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:

A. Apprentices:

1. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

2. The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

3. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

4. In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or

subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

B. Trainees:

1. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.
2. The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.
3. Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which case such trainees shall receive the same fringe benefits as apprentices.
4. In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

C. Helpers

Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV.2. Any worker listed on a payroll at a helper wage rate, who is not a helper under an approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. Apprentices and Trainees (Programs of the U.S. DOT):

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. Withholding:

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

7. Overtime Requirements:

No contractor or subcontractor contracting for any part of the contract work which may require or involved the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. Violation:

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of \$10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. Withholding for Unpaid Wages and Liquidated Damages:

The SHA shall upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

V. STATEMENTS AND PAYROLLS

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. Compliance with Copeland Regulations (29 CFR 3):

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payroll and Payroll Records:

A. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

B. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1 (b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the

registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

C. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices, trainees, and helpers, described in Section IV, paragraphs 4 and 8, and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this section V. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

D. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

1. that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;
2. that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;
3. that each laborer or mechanic has been paid not less than the applicable wage rate and fringe benefits or cash equivalent for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

E. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.

F. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

G. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.2.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all Federal-aid contracts on the National Highway System, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than \$1,000 (23 CFR 635) the contractor shall:

A. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.

B. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.

C. Furnish, upon the completion of the contract, to the SHA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary or all contract work indicating the total hours worked and total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. SUBLETTING OR ASSIGNING THE CONTRACT

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).
 - A. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.
 - B. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.
2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.
3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.
4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.
2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).
3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

18 U.S.C. 1020 reads as follows:

“Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined not more than \$10,000 or imprisoned not more than 5 years or both.”

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$100,000 or more.)

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontract, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 *et seq.*, as amended by Pub. L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 *et seq.*, as amended by Pub. L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.
2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.
3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.
4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

1. Instructions for Certification- Primary Covered Transactions:

(Applicable to all Federal-aid contracts- 49 CFR 29)

- A. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.
- B. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.
- C. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that

- the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.
- D. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
 - E. The terms “covered transaction,” “debarred,” “suspended,” “ineligible,” “lower tier covered transaction,” “participant,” “person,” “primary covered transaction,” “principal,” “proposal,” and “voluntarily excluded,” as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.
 - F. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.
 - G. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled “Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction,” provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
 - H. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the “Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs” (Nonprocurement List) which is compiled by the General Services Administration.
 - I. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
 - J. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion- Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
 - A. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 - B. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - C. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and
 - D. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.
2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

2. Instructions for Certification- Lower Tier Covered Transactions:

(Applicable to all subcontracts, purchase orders and other lower tier transactions of \$25,000 or more- 49 CFR 29)

- A. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.
- B. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
- C. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.
- D. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
- E. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
- F. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
- G. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.
- H. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- I. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion—Lower Tier Covered Transactions:

- 1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- 2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000- 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:
 - A. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
 - B. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.
3. The prospective participant also agrees by submitting his or her bid proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A- EMPLOYMENT PREFERENCE FOR APPALACHIAN CONTRACTS

(Applicable to Appalachian contracts only.)

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified person who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:
 - A. To the extent that qualified persons regularly residing in the area are not available.
 - B. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.
 - C. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph 1c shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph 4 below.
2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which he estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, he shall promptly notify the State Employment Service.
3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.
4. If, within 1 week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph 1c above.
5. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

EXHIBIT B

Amendment to FHWA – Form 1273 Federal-Aid Construction Contracts

1. Delete Section VI, “Record of Materials, Supplies and Labor” in its entirety. Form FHWA-47, “Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds” has been discontinued.

2. Section V, Paragraph 2b is replaced with the following:

The payroll records shall contain the name, and the last four digits of the social security number of each such employee, his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid.

3. All references to ‘49 CFR 29’ under Section XI are replaced with reference to ‘2 CFR 180’.

EXHIBIT C**TITLE VI CONTRACTOR ASSURANCES**

During the performance of this Contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "Contractor") agrees as follows:

1. **Compliance with Regulations:** The Contractor shall comply with the regulations relative to nondiscrimination in federally assisted programs of the United States Department of Transportation (hereinafter, "USDOT"), Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the "Regulations"), which are herein incorporated by reference and made a part of this contract.

2. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the Contract, shall not discriminate on the grounds of race, color, national origin, sex, age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor shall not participate either directly or indirectly in the discrimination prohibited by Subsection 5 of the Regulations, including employment practices when the Contract covers a program set forth in Appendix B of the Regulations.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:**

In all solicitations either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the Contractor of the Contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, national origin, sex, age, or disability.

4. **Information and Reports:** The Contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Connecticut Department of Transportation (ConnDOT) or the Funding Agency (FHWA, FTA and FAA) to be pertinent to ascertain compliance with such Regulations, orders, and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to ConnDOT or the Funding Agency, as appropriate, and shall set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of the Contractor's noncompliance with the nondiscrimination provisions of this Contract, the ConnDOT shall impose such sanctions as it or the Funding Agency may determine to be appropriate, including, but not limited to:

- A. Withholding contract payments until the Contractor is in-compliance; and/or
- B. Cancellation, termination, or suspension of the Contract, in whole or in part.

6. **Incorporation of Provisions:** The Contractor shall include the provisions of paragraphs 1 through 5 in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The Contractor shall take such action with respect to any subcontract or procurement as the ConnDOT or the Funding Agency may -direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Contractor may request the ConnDOT to enter into such litigation to protect the interests of the Funding Agency, and, in addition, the Contractor may request the United States to enter into such litigation to protect the interests of the United States

EXHIBIT D**CONTRACTOR WORKFORCE UTILIZATION (FEDERAL EXECUTIVE ORDER 11246) /
EQUAL EMPLOYMENT OPPORTUNITY
(Federal - FHWA)****1. Project Workforce Utilization Goals:**

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted or funded) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for the geographical area where the work is actually performed.

Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications which contain the applicable goals for minority and female participation.

The goals for minority and female utilization are expressed in percentage terms for the contractor's aggregate work-force in each trade on all construction work in the covered area, are referenced in the attached Appendix A.

2. Executive Order 11246

The Contractor's compliance with Executive Order 11246 and 41-CFR Part 60-4 shall be based on its implementation of the specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(A) and its efforts to meet the goals established for the geographical area where the contract is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hour performed.

If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or subcontractors toward a goal in an approved Pan does not excuse any covered Contractor's or subcontractor's failure to take good faith efforts to achieve the plan goals and timetables.

The Contractor shall implement the specific affirmative action standards provided in a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in

which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any Office of Federal Contract Compliance Programs (OFCCP) Office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant hereto.

In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

- a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites; and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
- b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
- c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off the street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason thereafter; along with whatever additional actions the Contractor may have taken.
- d. Provide immediate written notification to the Director when the Union or Unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or women sent by the Contractor, or when the Contractor has other

information that the Union referral process has impeded the Contractor's efforts to meet its obligations.

- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under b above.
- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO Policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review, at least annually, the company EEO Policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment, decisions including specific Foreman, etc. prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO Policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations such as the above, describing the openings, screening procedures and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work-force.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and

employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

- n. Ensure that all facilities and company activities are non-segregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review at least annually of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (a through p). The efforts of a contractor association, joint contractor union, contractor community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work-force participation, makes a good faith effort to meet with individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of Executive Order 11246 if a particular group is employed in a substantially disparate manner, (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is under utilized).

The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in these

specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status, (e.g. mechanic, apprentice, trainee, helper, or laborer) dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

Nothing herein provided shall be construed as a limitation upon the application of their laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g. those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

The Director of the Office of Federal Contract Compliance Programs, from time to time, shall issue goals and timetables for minority and female utilization which shall be based on appropriate workforce, demographic or other relevant data and which shall cover construction projects or construction contracts performed in specific geographical areas. The goals, which shall be applicable to each construction trade in a covered contractor's or timetables, shall be published as notices in the Federal Register, and shall be inserted by the Contracting officers and applicants, as applicable, in the Notice required by 41 CFR 60-4.2.

FEDERALLY FUNDED OR ASSISTED PROJECTS
APPENDIX A
(Labor Market Goals)

Standard Metropolitan Statistical Area (SMSA)

Female

Minority

Bridgeport – Stamford – Norwalk – Danbury	10.2%
6.9%	

Bethel	Bridgeport	Brookfield	Danbury
Darien	Derby	Easton	Fairfield
Greenwich	Milford	Monroe	New Canaan
New Fairfield	Newton	Norwalk	Redding
Shelton	Stamford	Stratford	Trumbull
Weston	Westport	Wilton	

Hartford – Bristol – New Britain	6.9%
6.9%	

Andover	Avon	Berlin	Bloomfield
Bolton	Bristol	Burlington	Canton
Colchester	Columbia	Coventry	Cromwell
East Granby	East Hampton	East Hartford	East Windsor
Ellington	Enfield	Farmington	Glastonbury
Granby	Hartford	Hebron	Manchester
Marlborough	New Britain	New Hartford	Newington
Plainville	Plymouth	Portland	Rocky Hill
Simsbury	South Windsor	Southington	Stafford
Suffield	Tolland	Vernon	West Hartford
Wethersfield	Willington	Windsor	Windsor Locks

New Haven – Waterbury – Meriden	9.0%
6.9%	

Beacon Falls	Bethany	Branford	Cheshire
Clinton	East Haven	Guilford	Hamden
Madison	Meriden	Middlebury	Naugatuck
New Haven	North Branford	North Haven	Orange
Prospect	Southbury	Thomaston	Wallingford
Waterbury	Watertown	West Haven	Wolcott
Woodbridge	Woodbury		

New London – Norwich	4.5%
6.9%	

Bozrah	East Lyme	Griswold	Groton
Ledyard	Lisbon	Montville	New London
Norwich	Old Lyme	Old Saybrook	Preston
Sprague	Stonington	Waterford	

Non SMSA

Female

Minority

Litchfield – Windham			5.9%
6.9%			
Abington	Ashford	Ballouville	Bantam
Barkhamsted	Bethlehem	Bridgewater	Brooklyn
Canaan	Canterbury	Central Village	Cahplin
Colebrook	Cornwall	Cornwall Bridge	Danielson
Dayville	East Canaan	East Killingly	East Woodstock
Eastford	Falls Village	Gaylordsville	Goshen
Grosvenor Dale	Hampton	Harwinton	Kent
Killigly	Lakeside	Litchfield	Moosup
Morris	New Milford	New Preston	New Preston Marble Dale
Norfolk	North Canaan	No. Grosvenordale	North Windham
Oneco	Pequabuck	Pine Meadow	Plainfield
Pleasant Valley	Pomfret	Pomfret Center	Putnam
Quinebaug	Riverton	Rogers	Roxbury
Salisbury	Scotland	Sharon	South Kent
South Woodstock	Sterling	Taconic	Terryville
Thompson	Torrington	Warren	Warrenville
Washington	Washington Depot	Wauregan	West Cornwall
Willimantic	Winchester	Winchester Center	Windham
Winsted	Woodstock	Woodstock Valley	

EXHIBIT E**Health Insurance Portability and Accountability Act of 1996 (“HIPAA”).**

- (a) If the Contactor is a Business Associate under the requirements of the Health Insurance Portability and Accountability Act of 1996 (“HIPAA”), the Contractor must comply with all terms and conditions of this Section of the Contract. If the Contractor is not a Business Associate under HIPAA, this Section of the Contract does not apply to the Contractor for this Contract.
- (b) The Contractor is required to safeguard the use, publication and disclosure of information on all applicants for, and all clients who receive, services under the Contract in accordance with all applicable federal and state law regarding confidentiality, which includes but is not limited to HIPAA, more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E; and
- (c) The State of Connecticut Agency named on page 1 of this Contract (hereinafter the “Department”) is a “covered entity” as that term is defined in 45 C.F.R. § 160.103; and
- (d) The Contractor, on behalf of the Department, performs functions that involve the use or disclosure of “individually identifiable health information,” as that term is defined in 45 C.F.R. § 160.103; and
- (e) The Contractor is a “business associate” of the Department, as that term is defined in 45 C.F.R. § 160.103; and
- (f) The Contractor and the Department agree to the following in order to secure compliance with the HIPAA, the requirements of Subtitle D of the Health Information Technology for Economic and Clinical Health Act (hereinafter the HITECH Act), (Pub. L. 111-5, sections 13400 to 13423), and more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E.
- (g) Definitions
 - (1) “Breach shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(1))
 - (2) “Business Associate” shall mean the Contractor.
 - (3) “Covered Entity” shall mean the Department of the State of Connecticut named on page 1 of this Contract.
 - (4) “Designated Record Set” shall have the same meaning as the term “designated record set” in 45 C.F.R. § 164.501.
 - (5) “Electronic Health Record” shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(5))

- (6) "Individual" shall have the same meaning as the term "individual" in 45 C.F.R. § 160.103 and shall include a person who qualifies as a personal representative as defined in 45 C.F.R. § 164.502(g).
 - (7) "Privacy Rule" shall mean the Standards for Privacy of Individually Identifiable Health Information at 45 C.F.R. part 160 and parts 164, subparts A and E.
 - (8) "Protected Health Information" or "PHI" shall have the same meaning as the term "protected health information" in 45 C.F.R. § 160.103, limited to information created or received by the Business Associate from or on behalf of the Covered Entity.
 - (9) "Required by Law" shall have the same meaning as the term "required by law" in 45 C.F.R. § 164.103.
 - (10) "Secretary" shall mean the Secretary of the Department of Health and Human Services or his designee.
 - (11) "More stringent" shall have the same meaning as the term "more stringent" in 45 C.F.R. § 160.202.
 - (12) "This Section of the Contract" refers to the HIPAA Provisions stated herein, in their entirety.
 - (13) "Security Incident" shall have the same meaning as the term "security incident" in 45 C.F.R. § 164.304.
 - (14) "Security Rule" shall mean the Security Standards for the Protection of Electronic Protected Health Information at 45 C.F.R. part 160 and parts 164, subpart A and C.
 - (15) "Unsecured protected health information" shall have the same meaning as the term as defined in section 13402(h)(1)(A) of HITECH. Act. (42 U.S.C. § 17932(h)(1)(A)).
- (h) Obligations and Activities of Business Associates.
- (1) Business Associate agrees not to use or disclose PHI other than as permitted or required by this Section of the Contract or as Required by Law.
 - (2) Business Associate agrees to use appropriate safeguards to prevent use or disclosure of PHI other than as provided for in this Section of the Contract.
 - (3) Business Associate agrees to use administrative, physical and technical safeguards that reasonably and appropriately protect the confidentiality, integrity, and availability of electronic protected health information that it creates, receives, maintains, or transmits on behalf of the Covered Entity.
 - (4) Business Associate agrees to mitigate, to the extent practicable, any harmful effect that is known to the Business Associate of a use or disclosure of PHI by Business Associate in violation of this Section of the Contract.

- (5) Business Associate agrees to report to Covered Entity any use or disclosure of PHI not provided for by this Section of the Contract or any security incident of which it becomes aware.
- (6) Business Associate agrees to insure that any agent, including a subcontractor, to whom it provides PHI received from, or created or received by Business Associate, on behalf of the Covered Entity, agrees to the same restrictions and conditions that apply through this Section of the Contract to Business Associate with respect to such information.
- (7) Business Associate agrees to provide access, at the request of the Covered Entity, and in the time and manner agreed to by the parties, to PHI in a Designated Record Set, to Covered Entity or, as directed by Covered Entity, to an Individual in order to meet the requirements under 45 C.F.R. § 164.524.
- (8) Business Associate agrees to make any amendments to PHI in a Designated Record Set that the Covered Entity directs or agrees to pursuant to 45 C.F.R. § 164.526 at the request of the Covered Entity, and in the time and manner agreed to by the parties.
- (9) Business Associate agrees to make internal practices, books, and records, including policies and procedures and PHI, relating to the use and disclosure of PHI received from, or created or received by, Business Associate on behalf of Covered Entity, available to Covered Entity or to the Secretary in a time and manner agreed to by the parties or designated by the Secretary, for purposes of the Secretary determining Covered Entity's compliance with the Privacy Rule.
- (10) Business Associate agrees to document such disclosures of PHI and information related to such disclosures as would be required for Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.
- (11) Business Associate agrees to provide to Covered Entity, in a time and manner agreed to by the parties, information collected in accordance with clause h. (10) of this Section of the Contract, to permit Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder. Business Associate agrees at the Covered Entity's direction to provide an accounting of disclosures of PHI directly to an individual in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.
- (12) Business Associate agrees to comply with any state or federal law that is more stringent than the Privacy Rule.
- (13) Business Associate agrees to comply with the requirements of the HITECH Act relating to privacy and security that are applicable to the Covered Entity and with the requirements of 45 C.F.R. sections 164.504(e), 164.308, 164.310, 164.312, and 164.316.

- (14) In the event that an individual requests that the Business Associate (a) restrict disclosures of PHI; (b) provide an accounting of disclosures of the individual's PHI; or (c) provide a copy of the individual's PHI in an electronic health record, the Business Associate agrees to notify the covered entity, in writing, within two business days of the request.
- (15) Business Associate agrees that it shall not, directly or indirectly, receive any remuneration in exchange for PHI of an individual without (1) the written approval of the covered entity, unless receipt of remuneration in exchange for PHI is expressly authorized by this Contract and (2) the valid authorization of the individual, except for the purposes provided under section 13405(d)(2) of the HITECH Act,(42 U.S.C. § 17935(d)(2)) and in any accompanying regulations
- (16) Obligations in the Event of a Breach
- A. The Business Associate agrees that, following the discovery of a breach of unsecured protected health information, it shall notify the Covered Entity of such breach in accordance with the requirements of section 13402 of HITECH (42 U.S.C. 17932(b) and the provisions of this Section of the Contract.
- B. Such notification shall be provided by the Business Associate to the Covered Entity without unreasonable delay, and in no case later than 30 days after the breach is discovered by the Business Associate, except as otherwise instructed in writing by a law enforcement official pursuant to section 13402 (g) of HITECH (42 U.S.C. 17932(g)) . A breach is considered discovered as of the first day on which it is, or reasonably should have been, known to the Business Associate. The notification shall include the identification and last known address, phone number and email address of each individual (or the next of kin of the individual if the individual is deceased) whose unsecured protected health information has been, or is reasonably believed by the Business Associate to have been, accessed, acquired, or disclosed during such breach.
- C. The Business Associate agrees to include in the notification to the Covered Entity at least the following information:
1. A brief description of what happened, including the date of the breach and the date of the discovery of the breach, if known.
 2. A description of the types of unsecured protected health information that were involved in the breach (such as full name, Social Security number, date of birth, home address, account number, or disability code).
 3. The steps the Business Associate recommends that individuals take to protect themselves from potential harm resulting from the breach.
 4. A detailed description of what the Business Associate is doing to investigate the breach, to mitigate losses, and to protect against any further breaches.
 5. Whether a law enforcement official has advised either verbally or in writing the Business Associate that he or she has determined that notification or notice to

individuals or the posting required under section 13402 of the HITECH Act would impede a criminal investigation or cause damage to national security and; if so, include contact information for said official.

- D. Business Associate agrees to provide appropriate staffing and have established procedures to ensure that individuals informed by the Covered Entity of a breach by the Business Associate have the opportunity to ask questions and contact the Business Associate for additional information regarding the breach. Such procedures shall include a toll-free telephone number, an e-mail address, a posting on its Web site and a postal address. Business Associate agrees to include in the notification of a breach by the Business Associate to the Covered Entity, a written description of the procedures that have been established to meet these requirements. Costs of such contact procedures will be borne by the Contractor.
 - E. Business Associate agrees that, in the event of a breach, it has the burden to demonstrate that it has complied with all notifications requirements set forth above, including evidence demonstrating the necessity of a delay in notification to the Covered Entity.
- (i) Permitted Uses and Disclosure by Business Associate.
- (1) General Use and Disclosure Provisions Except as otherwise limited in this Section of the Contract, Business Associate may use or disclose PHI to perform functions, activities, or services for, or on behalf of, Covered Entity as specified in this Contract, provided that such use or disclosure would not violate the Privacy Rule if done by Covered Entity or the minimum necessary policies and procedures of the Covered Entity.
 - (2) Specific Use and Disclosure Provisions
 - (A) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI for the proper management and administration of Business Associate or to carry out the legal responsibilities of Business Associate.
 - (B) Except as otherwise limited in this Section of the Contract, Business Associate may disclose PHI for the proper management and administration of Business Associate, provided that disclosures are Required by Law, or Business Associate obtains reasonable assurances from the person to whom the information is disclosed that it will remain confidential and used or further disclosed only as Required by Law or for the purpose for which it was disclosed to the person, and the person notifies Business Associate of any instances of which it is aware in which the confidentiality of the information has been breached.
 - (C) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI to provide Data Aggregation services to Covered Entity as permitted by 45 C.F.R. § 164.504(e)(2)(i)(B).
- (j) Obligations of Covered Entity.

- (1) Covered Entity shall notify Business Associate of any limitations in its notice of privacy practices of Covered Entity, in accordance with 45 C.F.R. § 164.520, or to the extent that such limitation may affect Business Associate's use or disclosure of PHI.
 - (2) Covered Entity shall notify Business Associate of any changes in, or revocation of, permission by Individual to use or disclose PHI, to the extent that such changes may affect Business Associate's use or disclosure of PHI.
 - (3) Covered Entity shall notify Business Associate of any restriction to the use or disclosure of PHI that Covered Entity has agreed to in accordance with 45 C.F.R. § 164.522, to the extent that such restriction may affect Business Associate's use or disclosure of PHI.
- (k) Permissible Requests by Covered Entity. Covered Entity shall not request Business Associate to use or disclose PHI in any manner that would not be permissible under the Privacy Rule if done by the Covered Entity, except that Business Associate may use and disclose PHI for data aggregation, and management and administrative activities of Business Associate, as permitted under this Section of the Contract.
- (l) Term and Termination.
- (1) Term. The Term of this Section of the Contract shall be effective as of the date the Contract is effective and shall terminate when the information collected in accordance with clause h. (10) of this Section of the Contract is provided to the Covered Entity and all of the PHI provided by Covered Entity to Business Associate, or created or received by Business Associate on behalf of Covered Entity, is destroyed or returned to Covered Entity, or, if it is infeasible to return or destroy PHI, protections are extended to such information, in accordance with the termination provisions in this Section.
 - (2) Termination for Cause Upon Covered Entity's knowledge of a material breach by Business Associate, Covered Entity shall either:
 - (A) Provide an opportunity for Business Associate to cure the breach or end the violation and terminate the Contract if Business Associate does not cure the breach or end the violation within the time specified by the Covered Entity; or
 - (B) Immediately terminate the Contract if Business Associate has breached a material term of this Section of the Contract and cure is not possible; or
 - (C) If neither termination nor cure is feasible, Covered Entity shall report the violation to the Secretary.
 - (3) Effect of Termination
 - (A) Except as provided in (l)(2) of this Section of the Contract, upon termination of this Contract, for any reason, Business Associate shall return or destroy all PHI received from Covered Entity, or created or received by Business Associate on behalf of Covered Entity. Business Associate shall also provide the information collected in accordance with clause h. (10) of this Section of the Contract to the Covered Entity

within ten business days of the notice of termination. This provision shall apply to PHI that is in the possession of subcontractors or agents of Business Associate. Business Associate shall retain no copies of the PHI.

(B) In the event that Business Associate determines that returning or destroying the PHI is infeasible, Business Associate shall provide to Covered Entity notification of the conditions that make return or destruction infeasible. Upon documentation by Business Associate that return or destruction of PHI is infeasible, Business Associate shall extend the protections of this Section of the Contract to such PHI and limit further uses and disclosures of PHI to those purposes that make return or destruction infeasible, for as long as Business Associate maintains such PHI. Infeasibility of the return or destruction of PHI includes, but is not limited to, requirements under state or federal law that the Business Associate maintains or preserves the PHI or copies thereof.

(m) Miscellaneous Provisions.

- (1) Regulatory References. A reference in this Section of the Contract to a section in the Privacy Rule means the section as in effect or as amended.
- (2) Amendment. The Parties agree to take such action as is necessary to amend this Section of the Contract from time to time as is necessary for Covered Entity to comply with requirements of the Privacy Rule and the Health Insurance Portability and Accountability Act of 1996, Pub. L. No. 104-191.
- (3) Survival. The respective rights and obligations of Business Associate shall survive the termination of this Contract.
- (4) Effect on Contract. Except as specifically required to implement the purposes of this Section of the Contract, all other terms of the Contract shall remain in force and effect.
- (5) Construction. This Section of the Contract shall be construed as broadly as necessary to implement and comply with the Privacy Standard. Any ambiguity in this Section of the Contract shall be resolved in favor of a meaning that complies, and is consistent with, the Privacy Standard.
- (6) Disclaimer. Covered Entity makes no warranty or representation that compliance with this Section of the Contract will be adequate or satisfactory for Business Associate's own purposes. Covered Entity shall not be liable to Business Associate for any claim, civil or criminal penalty, loss or damage related to or arising from the unauthorized use or disclosure of PHI by Business Associate or any of its officers, directors, employees, contractors or agents, or any third party to whom Business Associate has disclosed PHI contrary to the provisions of this Contract or applicable law. Business Associate is solely responsible for all decisions made, and actions taken, by Business Associate regarding the safeguarding, use and disclosure of PHI within its possession, custody or control.

(7) Indemnification. The Business Associate shall indemnify and hold the Covered Entity harmless from and against any and all claims, liabilities, judgments, fines, assessments, penalties, awards and any statutory damages that may be imposed or assessed pursuant to HIPAA, as amended or the

HITECH Act, including, without limitation, attorney's fees, expert witness fees, costs of investigation, litigation or dispute resolution, and costs awarded thereunder, relating to or arising out of any violation by the Business Associate and its agents, including subcontractors, of any obligation of Business Associate and its agents, including subcontractors, under this section of the contract, under HIPAA, the HITECH Act, the Privacy Rule and the Security Rule.

Notice to Executive Branch State Contractors and Prospective State Contractors of Campaign Contribution and Solicitation Limitations

This notice is provided under the authority of Connecticut General Statutes §9-612(g)(2), as amended by P.A. 10-1, and is for the purpose of informing state contractors and prospective state contractors of the following law (*italicized words are defined on the reverse side of this page*).

CAMPAIGN CONTRIBUTION AND SOLICITATION LIMITATIONS

No *state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor*, with regard to a *state contract or state contract solicitation* with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee (which includes town committees).

In addition, no holder or principal of a holder of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of State senator or State representative, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

On and after January 1, 2011, no state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor, with regard to a state contract or state contract solicitation with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall **knowingly solicit** contributions from the state contractor's or prospective state contractor's employees or from a *subcontractor or principals of the subcontractor* on behalf of (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

DUTY TO INFORM

State contractors and prospective state contractors are required to inform their principals of the above prohibitions, as applicable, and the possible penalties and other consequences of any violation thereof.

PENALTIES FOR VIOLATIONS

Contributions or solicitations of contributions made in violation of the above prohibitions may result in the following civil and criminal penalties:

Civil penalties—Up to \$2,000 or twice the amount of the prohibited contribution, whichever is greater, against a principal or a contractor. Any state contractor or prospective state contractor which fails to make reasonable efforts to comply with the provisions requiring notice to its principals of these prohibitions and the possible consequences of their violations may also be subject to civil penalties of up to \$2,000 or twice the amount of the prohibited contributions made by their principals.

Criminal penalties—Any knowing and willful violation of the prohibition is a Class D felony, which may subject the violator to imprisonment of not more than 5 years, or not more than \$5,000 in fines, or both.

CONTRACT CONSEQUENCES

In the case of a state contractor, contributions made or solicited in violation of the above prohibitions may result in the contract being voided.

In the case of a prospective state contractor, contributions made or solicited in violation of the above prohibitions shall result in the contract described in the state contract solicitation not being awarded to the prospective state contractor, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

The State shall not award any other state contract to anyone found in violation of the above prohibitions for a period of one year after the election for which such contribution is made or solicited, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

Additional information may be found on the website of the State Elections Enforcement Commission, www.ct.gov/seec. Click on the link to "Lobbyist/Contractor Limitations."

DEFINITIONS

“State contractor” means a person, business entity or nonprofit organization that enters into a state contract. Such person, business entity or nonprofit organization shall be deemed to be a state contractor until December thirty-first of the year in which such contract terminates. “State contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Prospective state contractor” means a person, business entity or nonprofit organization that (i) submits a response to a state contract solicitation by the state, a state agency or a quasi-public agency, or a proposal in response to a request for proposals by the state, a state agency or a quasi-public agency, until the contract has been entered into, or (ii) holds a valid prequalification certificate issued by the Commissioner of Administrative Services under section 4a-100. “Prospective state contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Principal of a state contractor or prospective state contractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a state contractor or prospective state contractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a state contractor or prospective state contractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a state contractor or prospective state contractor, which is not a business entity, or if a state contractor or prospective state contractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any state contractor or prospective state contractor who has *managerial or discretionary responsibilities with respect to a state contract*, (v) the spouse or a *dependent child* who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the state contractor or prospective state contractor.

“State contract” means an agreement or contract with the state or any state agency or any quasi-public agency, let through a procurement process or otherwise, having a value of fifty thousand dollars or more, or a combination or series of such agreements or contracts having a value of one hundred thousand dollars or more in a calendar year, for (i) the rendition of services, (ii) the furnishing of any goods, material, supplies, equipment or any items of any kind, (iii) the construction, alteration or repair of any public building or public work, (iv) the acquisition, sale or lease of any land or building, (v) a licensing arrangement, or (vi) a grant, loan or loan guarantee. “State contract” does not include any agreement or contract with the state, any state agency or any quasi-public agency that is exclusively federally funded, an education loan, a loan to an individual for other than commercial purposes or any agreement or contract between the state or any state agency and the United States Department of the Navy or the United States Department of Defense.

“State contract solicitation” means a request by a state agency or quasi-public agency, in whatever form issued, including, but not limited to, an invitation to bid, request for proposals, request for information or request for quotes, inviting bids, quotes or other types of submittals, through a competitive procurement process or another process authorized by law waiving competitive procurement.

“Managerial or discretionary responsibilities with respect to a state contract” means having direct, extensive and substantive responsibilities with respect to the negotiation of the state contract and not peripheral, clerical or ministerial responsibilities.

“Dependent child” means a child residing in an individual’s household who may legally be claimed as a dependent on the federal income tax of such individual.

“Solicit” means (A) requesting that a contribution be made, (B) participating in any fund-raising activities for a candidate committee, exploratory committee, political committee or party committee, including, but not limited to, forwarding tickets to potential contributors, receiving contributions for transmission to any such committee or bundling contributions, (C) serving as chairperson, treasurer or deputy treasurer of any such committee, or (D) establishing a political committee for the sole purpose of soliciting or receiving contributions for any committee. Solicit does not include: (i) making a contribution that is otherwise permitted by Chapter 155 of the Connecticut General Statutes; (ii) informing any person of a position taken by a candidate for public office or a public official, (iii) notifying the person of any activities of, or contact information for, any candidate for public office; or (iv) serving as a member in any party committee or as an officer of such committee that is not otherwise prohibited in this section.

“Subcontractor” means any person, business entity or nonprofit organization that contracts to perform part or all of the obligations of a state contractor’s state contract. Such person, business entity or nonprofit organization shall be deemed to be a subcontractor until December thirty first of the year in which the subcontract terminates. “Subcontractor” does not include (i) a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or (ii) an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Principal of a subcontractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a subcontractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a subcontractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a subcontractor, which is not a business entity, or if a subcontractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any subcontractor who has managerial or discretionary responsibilities with respect to a subcontract with a state contractor, (v) the spouse or a dependent child who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the subcontractor.

EXHIBIT G

(federal wage rate package will be inserted here)

EXHIBIT H

(state wages will be inserted here)

General Decision Number: CT100001 10/14/2011 CT1

Superseded General Decision Number: CT20080001

State: Connecticut

Construction Type: Highway

Counties: Fairfield, Litchfield, Middlesex, New Haven, Tolland and Windham Counties in Connecticut.

HIGHWAY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	03/12/2010
1	04/23/2010
2	04/30/2010
3	05/07/2010
4	06/04/2010
5	07/02/2010
6	07/16/2010
7	07/23/2010
8	07/30/2010
9	08/20/2010
10	10/08/2010
11	11/05/2010
12	04/22/2011
13	06/03/2011
14	06/10/2011
15	06/17/2011
16	07/08/2011
17	10/07/2011
18	10/14/2011

BRCT0001-004 10/03/2011

	Rates	Fringes
BRICKLAYER		
BRICKLAYERS, CEMENT		
MASONS, CEMENT FINISHERS,		
PLASTERERS AND STONE MASONS.	\$ 32.50	23.55

CARP0024-006 05/02/2011

LITCHFIELD COUNTY
 Harwinton, Plymouth, Thomaston, Watertown
 MIDDLESEX COUNTY
 NEW HAVEN COUNTY
 Beacon Falls, Bethany, Branford, Cheshire, East Haven,
 Guilford, Hamden, Madison, Meriden, Middlebury, Naugatuck, New
 Haven, North Branford, North Haven, Orange (east of Orange
 Center Road and north of Route 1, and north of Route 1 and east
 of the Oyster River), Prospect, Southbury, Wallingford,
 Waterbury, West Haven, Wolcott, Woodbridge
 TOLLAND COUNTY
 Andover, Columbia, Coventry, Hebron, Mansfield, Union,
 Willington
 WINDHAM COUNTY

	Rates	Fringes
Carpenters:		
Carpenters, Piledrivers.....	\$ 29.11	20.29
Diver Tenders.....	\$ 29.11	20.29
Divers.....	\$ 37.57	20.29

CARP0043-004 05/02/2011

	Rates	Fringes
Carpenters: (TOLLAND COUNTY		
Bolton, Ellington, Somers,		
Tolland, Vernon)		
CARPENTERS, PILEDRIEVERS.....	\$ 29.11	20.29
DIVER TENDERS.....	\$ 29.11	20.29
DIVERS.....	\$ 37.57	20.29

CARP0210-002 05/02/2011

Rates Fringes

Carpenters:

CARPENTERS, PILEDRIVERS.....	\$ 29.11	20.29
DIVER TENDERS.....	\$ 29.11	20.29
DIVERS.....	\$ 37.57	20.29

FAIRFIELD COUNTY

Bethel, Bridgeport, Brookfield, Danbury, Darien, Easton, Fairfield, Greenwich, Monroe, New Canaan, New Fairfield, Newtown, Norwalk, Redding, Ridgefield, Shelton, Sherman, Stamford, Stratford, Trumbull, Weston, Westport, Wilton;

LITCHFIELD COUNTY

Barkhamstead, Bethlehem, Bridgewater, Canaan, Colebrook, Cornwall, Goshen, Kent, Litchfield, Morris, New Hartford, New Milford, Norfolk, North Canaan, Roxbury, Salisbury, Sharon, Torrington, Warren, Washington, Winchester, Woodbury;

NEW HAVEN COUNTY

Ansonia, Derby, Milford, Orange (west of Orange Center Road and south of Route 1 and west of the Oyster River), Oxford, Seymour;

ELEC0003-002 05/08/2008

Rates Fringes

Electricians

FAIRFIELD COUNTY

Darien, Greenwich, New Canaan, Stamford.....	\$ 44.75	30.42
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ELEC0035-001 06/01/2011

Rates Fringes

Electricians:

MIDDLESEX COUNTY
(Cromwell, Middlefield, Middleton and Portland);
TOLLAND COUNTY; WINDHAM COUNTY.....

\$ 36.40	21.31
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ELEC0090-002 06/01/2011

Rates Fringes

Electricians:.....	\$ 35.70	21.52
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LITCHFIELD COUNTY

Plymouth Township;

MIDDLESEX COUNTY

Chester, Clinton, Deep River, Durham, East Haddam, East Hampton, Essex, Haddam, Killingworth, Old Saybrook, Westbrook;

NEW HAVEN COUNTY

All Townships excluding Beacon Falls, Middlebury, Milford, Naugatuck, Oxford, Prospect, Seymour, Southbury, Waterbury and Wolcott.

* ELEC0488-002 06/01/2011

Rates Fringes

Electricians.....	\$ 35.10	22.26
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FAIRFIELD COUNTY

Bethel, Bridgeport, Brookfield, Danbury, Easton, Fairfield, Monroe, New Fairfield, Newtown, Norwalk, Redding, Ridgefield, Shelton, Sherman, Stratford, Trumbull, Weston, Westport and Wilton.

LITCHFIELD COUNTY

Except Plymouth;

NEW HAVEN COUNTY

Beacon Falls, Middlebury, Milford, Naugatuck, Oxford, Prospect, Seymour, Southbury, Waterbury and Wolcott

ENGI0478-001 05/07/2011

	Rates	Fringes
Power equipment operators:		
GROUP 1.....	\$ 35.05	19.40
GROUP 2.....	\$ 34.73	19.40
GROUP 3.....	\$ 33.99	19.40
GROUP 4.....	\$ 33.60	19.40
GROUP 5.....	\$ 33.01	19.40
GROUP 6.....	\$ 32.70	19.40
GROUP 7.....	\$ 32.36	19.40
GROUP 8.....	\$ 31.96	19.40
GROUP 9.....	\$ 31.53	19.40
GROUP 10.....	\$ 29.49	19.40
GROUP 11.....	\$ 29.49	19.40
GROUP 12.....	\$ 29.43	19.40
GROUP 13.....	\$ 30.96	19.40
GROUP 14.....	\$ 28.85	19.40
GROUP 15.....	\$ 28.54	19.40
GROUP 16.....	\$ 27.71	19.40
GROUP 17.....	\$ 27.30	19.40
GROUP 18.....	\$ 26.65	19.40

Hazardous waste premium \$3.00 per hour over classified rate.

- Crane with boom, including jib, 150 feet - \$1.50 extra.
- Crane with boom, including jib, 200 feet - \$2.50 extra.
- Crane with boom, including jib, 250 feet - \$5.00 extra.
- Crane with boom, including jib, 300 feet - \$7.00 extra.
- Crane with boom, including jib, 400 feet - \$10.00 extra

a. PAID HOLIDAYS: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday.

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), work boat 26 ft. and over.

GROUP 2: Cranes (100 ton capacity & over), Excavator over 2 cubic yards, piledriver (\$3.00 premium when operator controls hammer).

GROUP 3: Excavator, cranes (under 100 ton rated capacity), gradall, master mechanic, hoisting engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power or operation) Rubber Tire Excavator (drott 1085 or similar); Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.)

GROUP 4: Trenching machines, lighter derrick, concrete finishing machine, CMI machine or similar, Koehring Loader (skoooper).

GROUP 5: Specialty railroad equipment, asphalt spreader, asphalt reclaiming machine, line grider, concrete pumps, drills with self contained power units, boring machine, post hole digger, auger, pounder, well digger, milling machine (over 24' mandrel), side boom, combination hoe and loader, directional driller.

GROUP 6: Front end loader (3 cu. yds. up to 7 cu. yards), bulldozer (Rough grade dozer) .

GROUP 7: Asphalt roller, concrete saws and cutters (ride on types), Vermeer concrete cutter, stump grinder, scraper,

snooper, skidder, milling machine (24" and under Mandrel).

GROUP 8: Mechanic, grease truck operator, hydoblaster, barrier mover, power stone spreader, welder, work boat under 26 ft. transfer machine.

GROUP 9: Front end loader (under 3 cubic yards), skid steer loader (regardless of attachments), bobcat or similar, forklift, power chipper, landscape equipment (including hydroseeder).

GROUP 10: Vibratory hammer, ice machine, diesel & air, hammer, etc.

GROUP 11: Conveyor, earth roller, power pavement breaker (whiphammer), robot demolition equipment.

GROUP 12: Wellpoint operator.

GROUP 13: Portable asphalt plant operator, portable concrete plant operator, portable crusher plant operator.

GROUP 14: Compressor battery operator.

GROUP 15: Power Safety boat, Vacuum truck, Zim mixer, Sweeper; (Minimum for any job requiring a CDL license) .

GROUP 16: Elevator operator, tow motor operator (solid tire no rough terrain).

GROUP 17: Generator operator, compressor operator, pump operator, welding machine operator; Heater operator.

GROUP 18: Maintenance engineer.

IRON0015-002 06/28/2010

	Rates	Fringes
Ironworkers: (Reinforcing, Structural and Precast Concrete Erection).....	\$ 33.00	26.58+a

a. PAID HOLIDAY: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

LABO0056-003 04/03/2011

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 25.75	15.60
GROUP 2.....	\$ 26.00	15.60
GROUP 3.....	\$ 26.25	15.60
GROUP 4.....	\$ 26.75	15.60
GROUP 5.....	\$ 27.50	15.60
GROUP 6.....	\$ 27.75	15.60
GROUP 7.....	\$ 16.00	15.60

LABORERS CLASSIFICATIONS

GROUP 1: Laborers (Unskilled), acetylene burner, concrete specialist

GROUP 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators and powdermen.

GROUP 3: Pipelayers, Jackhammer/Pavement breaker (handheld), mason tenders/catch basin builders, asphalt rakers, air track operators, block paver and curb setter

GROUP 4: Asbestos/lead removal

GROUP 5: Blasters

GROUP 6: Toxic waste remover

GROUP 7: Traffic control signalman

PAIN0011-001 06/01/2011

	Rates	Fringes
Painters:		
Blast and Spray.....	\$ 32.17	16.35
Brush and Roll.....	\$ 29.17	16.35
Tanks, Towers, Swing.....	\$ 31.17	16.35

PAIN0011-003 06/01/2011

	Rates	Fringes
Painters: (BRIDGE CONSTRUCTION)		
Brush, Roller, Blasting (Sand, Water, etc.) Spray...	\$ 41.35	16.35

TEAM0064-001 04/03/2011

	Rates	Fringes
Truck drivers:		
2 Axle Ready Mix.....	\$ 27.98	15.71+a
2 Axle.....	\$ 27.88	15.71+a
3 Axle Ready Mix.....	\$ 28.03	15.71+a
3 Axle.....	\$ 27.98	15.71+a
4 Axle Ready Mix.....	\$ 28.13	15.71+a
4 Axle.....	\$ 28.08	15.71+a
Heavy Duty Trailer 40 tons and over.....	\$ 28.33	15.71+a
Heavy Duty Trailer up to 40 tons.....	\$ 28.08	15.71+a
Specialized (Earth moving equipment other than conventional type on-the-road trucks and semi-trailers, including Euclids).....	\$ 28.13	15.71+a

Hazardous waste removal work receives additional \$1.25 per hour.

a. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.
 =====

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour

Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

General Decision Number: CT100003 10/07/2011 CT3

Superseded General Decision Number: CT20080003

State: Connecticut

Construction Type: Highway

County: New London County in Connecticut.

HIGHWAY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	03/12/2010
1	04/23/2010
2	04/30/2010
3	05/07/2010
4	06/04/2010
5	06/25/2010
6	07/02/2010
7	07/23/2010
8	07/30/2010
9	08/20/2010
10	10/08/2010
11	11/05/2010
12	04/22/2011
13	06/10/2011
14	06/17/2011
15	07/08/2011
16	08/26/2011
17	10/07/2011

* BRCT0001-003 10/03/2011

	Rates	Fringes
BRICKLAYER		
BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, PLASTERERS, STONE MASONS....	\$ 32.50	23.55

CARP0024-002 05/02/2011

	Rates	Fringes
Carpenters:		
Carpenters, Piledrivers.....	\$ 29.11	20.29
Diver Tenders.....	\$ 29.11	20.29
Divers.....	\$ 37.57	20.29

ELEC0035-003 06/01/2011

	Rates	Fringes
Electricians:		
Bozrah, Colchester, Franklin, Griswold, Lebanon, Ledyard, Lisbon, Montville, North Stonington, Norwich, Preston, Salem, Sprague, Stonington and Voluntown....	\$ 36.40	21.31

ELEC0090-003 06/01/2010

East Lyme, Groton, New London, Old Lyme, Waterford, plus the part of Ledyard wherein the property of the Submarine Base is located

	Rates	Fringes
ELECTRICIAN.....	\$ 35.20	20.51

ENGI0478-002 05/07/2011

	Rates	Fringes
Power equipment operators:		
GROUP 1.....	\$ 35.05	19.40+a

GROUP 2	.....\$	34.73	19.40+a
GROUP 3	.....\$	33.99	19.40+a
GROUP 4	.....\$	33.60	19.40+a
GROUP 5	.....\$	33.01	19.40+a
GROUP 6	.....\$	32.70	19.40+a
GROUP 7	.....\$	32.36	19.40+a
GROUP 8	.....\$	31.96	19.40+a
GROUP 9	.....\$	31.53	19.40+a
GROUP 10	.....\$	29.49	19.40+a
GROUP 11	.....\$	29.49	19.40+a
GROUP 12	.....\$	29.43	19.40+a
GROUP 13	.....\$	30.96	19.40+a
GROUP 14	.....\$	28.85	19.40+a
GROUP 15	.....\$	28.54	19.40+a
GROUP 16	.....\$	27.71	19.40+a
GROUP 17	.....\$	27.30	19.40+a
GROUP 18	.....\$	26.65	19.40+a

Hazardous waste premium \$3.00 per hour over classified rate.

Crane with 150 ft. boom (including jib): \$1.50 extra.
 Crane with 200 ft. boom (including jib): \$2.50 extra.
 Crane with 250 ft. boom (including jib): \$5.00 extra.
 Crane with 300 ft. boom (including jib): \$7.00 extra.
 Crane with 400 ft. boom (including jib); \$10.00 extra.

a. PAID HOLIDAYS: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday.

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Crane Handling or Erecting Structural Steel or tone; Hoisting Engineer (2 drums or over); Front End Loader (7 cubic yards or over) Work Boat 26 ft. & over.

GROUP 2: Cranes (100 ton rated capacity and over); Excavator over 2 cubic yards; Piledriver (\$3.00 premium when operator controls hammer).

GROUP 3: Excavator; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber tire Excavator (Drott-1085 or similar); Grader Operator; Bulldozer Fine Grade (slopes. shaping, laser or GPS, etc.)

GROUP 4: Trenching machines; Lighter Derrick; Concrete Finishing Machine, cmi Machine or Similar; Koehring Loader Skooper).

GROUP 5: Specialty Railroad Equipment; Asphalt Spreader; Asphalt Reclaiming achine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell); Side Boom; Combination Hoe and Loader; Directional Driller.

GROUP 6: Front End Loader (3 cu. yds. up to 7 cubic yards); Bulldozer (Rough grade dozer).

GROUP 7: Asphalt Roller; Concrete Saws and Cutters (Ride on Types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and Under Mandrel).

GROUP 8: Mechanic; Grease Truck Operator; Hydroblaster; Barrier Mover; Power Stone Spreader; Welder; Work Boat Under 26 ft.; Transfer Machine.

GROUP 9: Front End Loader (under 3 cubic yards); Skid Steer Loader (regardless of attachments); (Bobcat or similar); Fork Lift; Power Chipper; Landscape Equipment (including Hydroseeder).

GROUP 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.

GROUP 11: Conveyor; Earth Roller; Power Pavement Breaker

(Whiphammer); Robot Demolition Equipment.

GROUP 12: Wellpoint Operator.

GROUP 13: Portable Asphalt Plant Operator; Portable Concrete Plant Operator; Portable Crusher Plant Operator.

GROUP 14: Compressor Battery Operator.

GROUP 15: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (Minimum for any job requiring a CDL License)

GROUP 16: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).

GROUP 17: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater operator.

GROUP 18: Maintenance Engineer.

IRON0015-003 06/28/2010

	Rates	Fringes
Ironworkers: (Reinforcing & Structural).....	\$ 33.00	26.58+a

a. PAID HOLIDAY: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

LABO0056-003 04/03/2011

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 25.75	15.60
GROUP 2.....	\$ 26.00	15.60
GROUP 3.....	\$ 26.25	15.60
GROUP 4.....	\$ 26.75	15.60
GROUP 5.....	\$ 27.50	15.60
GROUP 6.....	\$ 27.75	15.60
GROUP 7.....	\$ 16.00	15.60

LABORERS CLASSIFICATIONS

GROUP 1: Laborers (Unskilled), acetylene burner, concrete specialist

GROUP 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators and powdermen.

GROUP 3: Pipelayers, Jackhammer/Pavement breaker (handheld), mason tenders/catch basin builders, asphalt rakers, air track operators, block paver and curb setter

GROUP 4: Asbestos/lead removal

GROUP 5: Blasters

GROUP 6: Toxic waste remover

GROUP 7: Traffic control signalman

PAIN0011-002 06/01/2011

	Rates	Fringes
Painters:		
Blast and Spray.....	\$ 32.17	16.35
Brush and Roll.....	\$ 29.17	16.35
Tanks, Towers, Swing.....	\$ 31.17	16.35

PAIN0011-003 06/01/2011

	Rates	Fringes
Painters: (BRIDGE CONSTRUCTION)		
Brush, Roller, Blasting (Sand, Water, etc.) Spray...	\$ 41.35	16.35

	Rates	Fringes
Truck drivers:		
2 Axle Ready Mix.....	\$ 27.98	15.71+a
2 Axle.....	\$ 27.88	15.71+a
3 Axle Ready Mix.....	\$ 28.03	15.71+a
3 Axle.....	\$ 27.98	15.71+a
4 Axle Ready Mix.....	\$ 28.13	15.71+a
4 Axle.....	\$ 28.08	15.71+a
Heavy Duty Trailer 40 tons and over.....	\$ 28.33	15.71+a
Heavy Duty Trailer up to 40 tons.....	\$ 28.08	15.71+a
Specialized (Earth moving equipment other than conventional type on-the- road trucks and semi- trailers, including Euclids).....	\$ 28.13	15.71+a

Hazardous waste removal work receives additional \$1.25 per hour.

a. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

General Decision Number: CT100004 10/14/2011 CT4

Superseded General Decision Number: CT20080004

State: Connecticut

Construction Type: Highway

County: Hartford County in Connecticut.

HIGHWAY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	03/12/2010
1	04/23/2010
2	04/30/2010
3	05/07/2010
4	06/04/2010
5	06/25/2010
6	07/02/2010
7	07/23/2010
8	07/30/2010
9	08/20/2010
10	10/08/2010
11	11/05/2010
12	04/22/2011
13	06/10/2011
14	06/17/2011
15	07/08/2011
16	10/07/2011
17	10/14/2011

BRCT0001-003 10/03/2011

	Rates	Fringes
BRICKLAYER		
BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, PLASTERERS, STONE MASONS....	\$ 32.50	23.55

CARP0024-005 05/02/2011

	Rates	Fringes
Carpenters: (Berlin, Bristol, Burlington,Canton, Marlborough, New Britain, Newington, Plainville, Southington)		
CARPENTERS; PILEDRIVERS.....	\$ 29.11	20.29
DIVER TENDERS.....	\$ 29.11	20.29
DIVERS.....	\$ 37.57	20.29

CARP0043-003 05/02/2011

	Rates	Fringes
Carpenters: (Avon, Bloomfied, East Granby, East Hartford, East Windsor, Enfield, Farmington, Glastonbury, Granby, Hartford, hartland, Manchester, Rocky Hill, Simsbury, South Windsor, Suffield, West Hartford, Wethersfield, Windsor, Windsor Locks)		
CARPENTERS; PILEDRIVERS.....	\$ 29.11	20.29
DIVER TENDERS.....	\$ 29.11	20.29
DIVERS.....	\$ 37.57	20.29

ELEC0035-002 06/01/2011

	Rates	Fringes
Electricians: Entire County, excluding Berlin, Bristol, Hartland, New Britain, Newington,		

Plainville and Southington..\$ 36.40 21.31

ELEC0090-001 06/01/2010

Rates Fringes

Electricians:

Berlin, Bristol, New Britain, Newington, Plainville, Southington.....\$ 35.20 20.51

* ELEC0488-004 06/01/2011

Rates Fringes

Electricians:.....\$ 35.10 22.26

ENGI0478-002 05/07/2011

Rates Fringes

Power equipment operators:

GROUP 1.....\$ 35.05 19.40+a
GROUP 2.....\$ 34.73 19.40+a
GROUP 3.....\$ 33.99 19.40+a
GROUP 4.....\$ 33.60 19.40+a
GROUP 5.....\$ 33.01 19.40+a
GROUP 6.....\$ 32.70 19.40+a
GROUP 7.....\$ 32.36 19.40+a
GROUP 8.....\$ 31.96 19.40+a
GROUP 9.....\$ 31.53 19.40+a
GROUP 10.....\$ 29.49 19.40+a
GROUP 11.....\$ 29.49 19.40+a
GROUP 12.....\$ 29.43 19.40+a
GROUP 13.....\$ 30.96 19.40+a
GROUP 14.....\$ 28.85 19.40+a
GROUP 15.....\$ 28.54 19.40+a
GROUP 16.....\$ 27.71 19.40+a
GROUP 17.....\$ 27.30 19.40+a
GROUP 18.....\$ 26.65 19.40+a

Hazardous waste premium \$3.00 per hour over classified rate.

Crane with 150 ft. boom (including jib): \$1.50 extra.
Crane with 200 ft. boom (including jib): \$2.50 extra.
Crane with 250 ft. boom (including jib): \$5.00 extra.
Crane with 300 ft. boom (including jib): \$7.00 extra.
Crane with 400 ft. boom (including jib); \$10.00 extra.

a. PAID HOLIDAYS: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday.

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Crane Handling or Erecting Structural Steel or tone; Hoisting Engineer (2 drums or over); Front End Loader (7 cubic yards or over) Work Boat 26 ft. & over.

GROUP 2: Cranes (100 ton rated capacity and over); Excavator over 2 cubic yards; Piledriver (\$3.00 premium when operator controls hammer).

GROUP 3: Excavator; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber tire Excavator (Drott-1085 or similar); Grader Operator; Bulldozer Fine Grade (slopes. shaping, laser or GPS, etc.)

GROUP 4: Trenching machines; Lighter Derrick; Concrete Finishing Machine, cmi Machine or Similar; Koehring Loader Skooper).

GROUP 5: Specialty Railroad Equipment; Asphalt Spreader; Asphalt Reclaiming achine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling

Machine (over 24" Mandrell); Side Boom; Combination Hoe and Loader; Directional Driller.

GROUP 6: Front End Loader (3 cu. yds. up to 7 cubic yards); Bulldozer (Rough grade dozer).

GROUP 7: Asphalt Roller; Concrete Saws and Cutters (Ride on Types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and Under Mandrel).

GROUP 8: Mechanic; Grease Truck Operator; Hydroblaster; Barrier Mover; Power Stone Spreader; Welder; Work Boat Under 26 ft.; Transfer Machine.

GROUP 9: Front End Loader (under 3 cubic yards); Skid Steer Loader (regardless of attachments); (Bobcat or similar); Fork Lift; Power Chipper; Landscape Equipment (including Hydroseeder).

GROUP 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.

GROUP 11: Conveyor; Earth Roller; Power Pavement Breaker (Whiphammer); Robot Demolition Equipment.

GROUP 12: Wellpoint Operator.

GROUP 13: Portable Asphalt Plant Operator; Portable Concrete Plant Operator; Portable Crusher Plant Operator.

GROUP 14: Compressor Battery Operator.

GROUP 15: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (Minimum for any job requiring a CDL License)

GROUP 16: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).

GROUP 17: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater operator.

GROUP 18: Maintenance Engineer.

IRON0015-002 06/28/2010

	Rates	Fringes
Ironworkers: (Reinforcing, Structural and Precast Concrete Erection).....	\$ 33.00	26.58+a

a. PAID HOLIDAY: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

LABO0056-003 04/03/2011

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 25.75	15.60
GROUP 2.....	\$ 26.00	15.60
GROUP 3.....	\$ 26.25	15.60
GROUP 4.....	\$ 26.75	15.60
GROUP 5.....	\$ 27.50	15.60
GROUP 6.....	\$ 27.75	15.60
GROUP 7.....	\$ 16.00	15.60

LABORERS CLASSIFICATIONS

GROUP 1: Laborers (Unskilled), acetylene burner, concrete specialist

GROUP 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators and powdermen.

GROUP 3: Pipelayers, Jackhammer/Pavement breaker (handheld), mason tenders/catch basin builders, asphalt rakers, air track operators, block paver and curb setter

GROUP 4: Asbestos/lead removal

GROUP 5: Blasters

GROUP 6: Toxic waste remover

GROUP 7: Traffic control signalman

PAIN0011-003 06/01/2011

	Rates	Fringes
Painters: (BRIDGE CONSTRUCTION)		
Brush, Roller, Blasting (Sand, Water, etc.) Spray...	\$ 41.35	16.35

PAIN0011-004 06/01/2011

	Rates	Fringes
Painters:		
Blast and Spray.....	\$ 32.17	16.35
Brush and Roll.....	\$ 29.17	16.35
Tanks, Towers, Swing.....	\$ 31.17	16.35

TEAM0064-005 04/03/2011

	Rates	Fringes
Truck drivers:		
2 Axle Ready Mix.....	\$ 27.98	15.71+a
2 Axle.....	\$ 27.88	15.71+a
3 Axle Ready Mix.....	\$ 28.03	15.71+a
3 Axle.....	\$ 27.98	15.71+a
4 Axle Ready Mix.....	\$ 28.13	15.71+a
4 Axle.....	\$ 28.08	15.71+a
Heavy Duty Trailer 40 tons and over.....	\$ 28.33	15.71+a
Heavy Duty Trailer up to 40 tons.....	\$ 28.08	15.71+a
Specialized (Earth moving equipment other than conventional type on-the-road trucks and semi-trailers, including Euclids).....	\$ 28.13	15.71+a

Hazardous waste removal work receives additional \$1.25 per hour.

a. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.
=====

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

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The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

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200 Constitution Avenue, N.W.
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4.) All decisions by the Administrative Review Board are final.

=====
END OF GENERAL DECISION

U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

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=====

END OF GENERAL DECISION

General Decision Number: CT100008 01/21/2011 CT8

Superseded General Decision Number: CT20080008

State: Connecticut

Construction Type: Heavy Dredging

Counties: Connecticut Statewide.

CONNECTICUT

ALL DREDGING, EXCEPT SELF-PROPELLED HOPPER DREDGES, ON THE ATLANTIC OCEAN AND TRIBUTARY WATERS EMPTYING INTO THE ATLANTIC OCEAN.

Modification Number	Publication Date
0	03/12/2010
1	07/16/2010
2	01/21/2011

* ENGI0025-001 10/01/2009

STATEWIDE

	Rates	Fringes
Dredging:		
CLASS A.....	\$ 32.89	8.05+a+b
CLASS B1.....	\$ 28.49	8.05+a+b
CLASS B2.....	\$ 26.84	8.05+a+b
CLASS C1(a).....	\$ 25.55	8.05+a+b
CLASS C1.....	\$ 26.14	8.05+a+b
CLASS C2.....	\$ 25.29	8.05+a+b
CLASS D(a).....	\$ 20.43	8.05+a+b
CLASS D.....	\$ 21.09	8.05+a+b

CLASSIFICATIONS:

- CLASS A: Lead Dredgeman, Operator, Leverman, Licensed Tug Operator over 1000 HP
- CLASS B1: Derrick Operator, Spider/Spill Barge Operator, Engineer, Electrician. Chief Welder, Cheif Mate, Fill Placer, Operator II, Maintenance Engineer, Licensed Boat Operator
- CLASS B2: Licensed Boat Operator, Certified Welder.
- CLASS C1: Mate, Drag Barge Operator, Steward, Assistant Fill Placer.
- CLASS C1(a): Welder.
- CLASS C2: Boat Operator
- CLASS D: Shoreman, Deckhand, Rodman, Scowman, Cook, Messman, Porter/Janitor.
- CLASS D(a) Oiler.

PREMIUMS: Additional 20% for hazardous material work

FOOTNOTES APPLICABLE TO ABOVE CRAFTS:

- a. PAID HOLIDAYS: New Year's Day, Martin Luther King, Jr.'s Birthday, Memorial Day, Good Friday, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day and Christmas Day
- b. VACATION: Eight percent (8%) of the straight time rate, multiplied by the total hours worked.

INCENTIVE PAY: (Add to Hourly Rate)

- Operator (NCCCO License/Certification) \$0.50 Licensed Tug Operator over 1000 HP (Assigned as Master) (USCG licensed Master of Towing Vessels (MOTV) \$1.00;
- Licensed Boat Operator (Assigned as lead boat captain) USCG licensed boat operator \$0.50;
- Engineer (QMED and Tankerman endorsement or licensed engineer (USCG) \$0.50
- Oiler (QMED and Tankerman endorsement (USCG) \$0.50; All

classifications (Tankerman endorsement only) USCG \$0.25;
Deckhand or Mate (AB with Lifeboatman endorsement (USCG)
\$0.50; All classifications (lifeboatman endorsement only
(USCG) \$0.25; Welder (ABS certification) \$0.50

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

Unlisted classifications needed for work not included within
the scope of the classifications listed may be added after
award only as provided in the labor standards contract clauses
(29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates
listed under the identifier do not reflect collectively
bargained wage and fringe benefit rates. Other designations
indicate unions whose rates have been determined to be
prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can
be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on
a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests
for summaries of surveys, should be with the Wage and Hour
Regional Office for the area in which the survey was conducted
because those Regional Offices have responsibility for the
Davis-Bacon survey program. If the response from this initial
contact is not satisfactory, then the process described in 2.)
and 3.) should be followed.

With regard to any other matter not yet ripe for the formal
process described here, initial contact should be with the
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Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an
interested party (those affected by the action) can request
review and reconsideration from the Wage and Hour Administrator
(See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

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U.S. Department of Labor
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payment data, project description, area practice material,
etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an
interested party may appeal directly to the Administrative
Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

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=====
END OF GENERAL DECISION

General Decision Number: CT100015 10/14/2011 CT15

Superseded General Decision Number: CT20080015

State: Connecticut

Construction Type: Heavy

County: Fairfield County in Connecticut.

HEAVY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	03/12/2010
1	04/30/2010
2	05/07/2010
3	06/04/2010
4	07/02/2010
5	07/16/2010
6	07/23/2010
7	07/30/2010
8	10/08/2010
9	11/05/2010
10	04/22/2011
11	06/17/2011
12	10/07/2011
13	10/14/2011

BRCT0001-011 10/03/2011

	Rates	Fringes
BRICKLAYER.....	\$ 32.50	23.55

BRCT0001-012 10/03/2011

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 32.50	23.55

CARP0210-005 05/02/2011

	Rates	Fringes
CARPENTER.....	\$ 29.11	20.29

ELEC0003-004 05/06/2010

Darien, Greenwich, New Canaan, Stamford and the portion of Norwalk lying West of Five Mile River

	Rates	Fringes
ELECTRICIAN.....	\$ 47.75	34.84

* ELEC0488-006 06/01/2011

Bethel, Bridgeport, Brookfield, Danbury, Easton, Fairfield, Monroe, New Fairfield, Newtown, Norwalk, Redding, Ridgefield, Shelton, Sherman, Stratford, Trumbull, Weston, Westport and Wilton Townships

	Rates	Fringes
ELECTRICIAN.....	\$ 35.10	22.26

ENGI0478-007 05/07/2011

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
Asphalt Paver.....	\$ 33.01	19.40+a
Asphalt Roller.....	\$ 32.36	19.40+a
Asphalt Spreader.....	\$ 33.01	19.40+a
Backhoe/Excavator 2 cubic yards and over.....	\$ 34.73	19.40+a
Backhoe/Excavator under 2 cubic yards.....	\$ 33.99	19.40+a

Bulldozer (Rough Grade Dozer).....	\$ 32.70	19.40+a
Bulldozer Fine Grade(includes slopes, shaping, laser or gps).....	\$ 33.99	19.40+a
Crane handling or erecting structural steel or stone...	\$ 35.05	19.40+a
Cranes (100 ton capacity & over).....	\$ 34.73	19.40+a
Cranes (under 100 ton rated capacity).....	\$ 33.99	19.40+a
Drills with self contained power units; Directional driller.....	\$ 33.01	19.40+a
Earth Roller.....	\$ 29.49	19.40+a
Forklift.....	\$ 31.53	19.40+a
Front End Loader (3 cubic yards up to 7 cubic yards)..	\$ 32.70	19.40+a
Front End Loader (7 cubic yards or over).....	\$ 35.05	19.40+a
Front End Loader (under 3 cubic yards).....	\$ 31.53	19.40+a
Grader/Blade.....	\$ 33.99	19.40+a
Maintenance Engineer/Oiler..	\$ 26.65	19.40+a
Mechanic.....	\$ 31.96	19.40+a
Rubber Tire Backhoe/Excavator.....	\$ 33.99	19.40+a

a. PAID HOLIDAYS: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday.

- b. Crane with boom, including jib, 150 feet - \$1.50 extra .
- Crane with boom, including jib, 200 feet- \$2.50 extra .
- Crane with boom, including jib, 250 feet - \$5.00 extra.
- Crane with boom, including jib, 300 feet - \$7.00 extra.
- Crane with boom, including jib, 400 feet - \$10.00 extra.

IRON0015-005 06/28/2010

	Rates	Fringes
IRONWORKER, REINFORCING.....	\$ 33.00	26.58+a

a. PAID HOLIDAY: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

LABO0056-005 04/03/2011

	Rates	Fringes
LABORERS		
GROUP 1.....	\$ 25.75	15.60
GROUP 2.....	\$ 26.00	15.60
GROUP 3.....	\$ 26.25	15.60
GROUP 4.....	\$ 26.75	15.60
GROUP 5.....	\$ 27.50	15.60
GROUP 6.....	\$ 27.75	15.60
GROUP 7.....	\$ 16.00	15.60

LABORERS CLASSIFICATIONS

GROUP 1: Laborers (Unskilled), acetylene burner, concrete specialist

GROUP 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators and powdermen.

GROUP 3: Pipelayers, Jackhammer/Pavement breaker (handheld), mason tenders/catch basin builders, asphalt rakers, air track operators, block paver and curb setter

GROUP 4: Asbestos/lead removal

GROUP 5: Blasters

GROUP 6: Toxic waste remover

GROUP 7: Traffic control signalman

PAIN0011-013 06/01/2010

	Rates	Fringes
PAINTER		
Brush and Roller.....	\$ 28.47	15.40
Spray Only.....	\$ 31.47	15.40
Steel Only.....	\$ 30.47	15.40

SUCT2002-008 12/16/2008

	Rates	Fringes
IRONWORKER, STRUCTURAL.....	\$ 28.62	10.84

TEAM0064-006 04/03/2011

	Rates	Fringes
TRUCK DRIVER: 4 Axle Truck.....	\$ 28.08	15.71+a

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====
Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

--
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--
WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

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U.S. Department of Labor
200 Constitution Avenue, N.W.
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2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7).
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Washington, DC 20210

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END OF GENERAL DECISION

General Decision Number: CT100016 10/14/2011 CT16

Superseded General Decision Number: CT20080016

State: Connecticut

Construction Type: Heavy

County: Hartford County in Connecticut.

HEAVY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	03/12/2010
1	04/30/2010
2	05/07/2010
3	06/04/2010
4	07/02/2010
5	07/23/2010
6	07/30/2010
7	10/08/2010
8	11/05/2010
9	04/22/2011
10	06/03/2011
11	06/17/2011
12	07/08/2011
13	10/07/2011
14	10/14/2011

BRCT0001-012 10/03/2011

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 32.50	23.55

CARP0024-014 05/02/2011

Berlin, Bristol, Burlington, Canton, Marlborough, New Britain, Newington, Plainville and Southington

	Rates	Fringes
CARPENTER, Includes Form Work...	\$ 29.11	20.29

CARP0043-005 05/02/2011

Avon, Bloomfield, East Branby, East Hartfod, East Windsor, Enfield, Farmington, Glastonbury, Granby, Hartford, Hartland, Manchester, Rocky Hill, Simsbury, South Windsor, Suffield, West Hartford, Wethersfield, Windsor, Windsor Locks

	Rates	Fringes
CARPENTER, Includes Form Work...	\$ 29.11	20.29

ELEC0035-006 06/01/2011

Entire County excluding Berlin, Bristol, Hartland, New Britain, Newington, Plainville and Southington Townships

	Rates	Fringes
ELECTRICIAN.....	\$ 36.40	21.31

ELEC0090-005 06/01/2011

Berlin, Bristol, New Britain, Newington, Plainville, Southington Townships

	Rates	Fringes
ELECTRICIAN.....	\$ 35.70	21.52

* ELEC0488-005 06/01/2011

Hartland Township

	Rates	Fringes
ELECTRICIAN.....	\$ 35.10	22.26

 ENGI0478-010 05/07/2011

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
Asphalt Paver.....	\$ 33.01	19.40+a
Asphalt Roller.....	\$ 32.36	19.40+a
Asphalt Spreader.....	\$ 33.01	19.40+a
Bulldozer (Rough Grade Dozer).....	\$ 32.70	19.40+a
Bulldozer Fine Grade(includes slopes, shaping, laser or gps).....	\$ 33.99	19.40+a
Crane handling or erecting structural steel or stone...\$	35.05	19.40+a
Cranes (100 ton capacity & over).....	\$ 34.73	19.40+a
Cranes (under 100 ton rated capacity).....	\$ 33.99	19.40+a
Drills with self contained power units; Directional driller.....	\$ 33.01	19.40+a
Earth Roller.....	\$ 29.49	19.40+a
Excavator/Backhoe 2 cubic yards and over.....	\$ 34.73	19.40+a
Excavator/Backhoe under 2 cubic yards.....	\$ 33.99	19.40+a
Forklift.....	\$ 31.53	19.40+a
Front End Loader (3 cubic yards up to 7 cubic yards)..\$	32.70	19.40+a
Front End Loader (7 cubic yards or over).....	\$ 35.05	19.40+a
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 IRON0015-007 06/28/2010

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IRONWORKER, STRUCTURAL.....	\$ 33.00	26.58+a

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 LABO0056-006 04/03/2011

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GROUP 4: Asbestos/lead removal

GROUP 5: Blasters

GROUP 6: Toxic waste remover

GROUP 7: Traffic control signalman

PAIN0011-013 06/01/2010

	Rates	Fringes
PAINTER		
Brush and Roller.....	\$ 28.47	15.40
Spray Only.....	\$ 31.47	15.40
Steel Only.....	\$ 30.47	15.40

SUCT2002-009 12/16/2008

	Rates	Fringes
IRONWORKER, REINFORCING.....	\$ 27.13	13.57
LABORER: Common or General.....	\$ 21.03	5.30
OPERATOR: Excavator.....	\$ 27.77	7.60
TRUCK DRIVER: 3 Axle & Semi - Truck.....	\$ 19.93	7.39

TEAM0064-006 04/03/2011

	Rates	Fringes
TRUCK DRIVER: 4 Axle Truck.....	\$ 28.08	15.71+a

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====
Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

--
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WAGE DETERMINATION APPEALS PROCESS

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a wage
determination matter
* a conformance (additional classification and rate) ruling

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END OF GENERAL DECISION

General Decision Number: CT100017 07/08/2011 CT17

Superseded General Decision Number: CT20080017

State: Connecticut

Construction Type: Heavy

Counties: Middlesex and Tolland Counties in Connecticut.

HEAVY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	03/12/2010
1	05/07/2010
2	06/04/2010
3	07/02/2010
4	07/23/2010
5	07/30/2010
6	11/05/2010
7	04/22/2011
8	06/03/2011
9	06/17/2011
10	07/08/2011

CARP0024-016 05/02/2011

MIDDLESEX COUNTY
TOLLAND COUNTY
Andover, Columbia, Coventry, Hebron, Mansfield, Union,
Willington

	Rates	Fringes
CARPENTER, Includes Form Work....	\$ 29.11	20.29

CARP0043-006 05/02/2011		

TOLLAND COUNTY
Bolton, Ellington, Somers, Tolland, Vernon

	Rates	Fringes
CARPENTER, Includes Form Work....	\$ 29.11	20.29

* ELEC0035-004 06/01/2011		

Cromwell, Middlefield, Middleton and Portland

	Rates	Fringes
ELECTRICIAN.....	\$ 36.40	21.31

ELEC0090-006 06/01/2011		

Chester, Clinton, Deep River, Durham, East Haddam, East
Hampton, Essex, Haddam, Killingsworth, Old Saybrook, Westbrook

	Rates	Fringes
ELECTRICIAN.....	\$ 35.70	21.52

ENGI0478-007 05/07/2011		

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
Asphalt Paver.....	\$ 33.01	19.40+a
Asphalt Roller.....	\$ 32.36	19.40+a
Asphalt Spreader.....	\$ 33.01	19.40+a
Backhoe/Excavator 2 cubic yards and over.....	\$ 34.73	19.40+a
Backhoe/Excavator under 2 cubic yards.....	\$ 33.99	19.40+a
Bulldozer (Rough Grade Dozer).....	\$ 32.70	19.40+a
Bulldozer Fine		

Grade(includes slopes, shaping, laser or gps).....	\$ 33.99	19.40+a
Crane handling or erecting structural steel or stone...	\$ 35.05	19.40+a
Cranes (100 ton capacity & over).....	\$ 34.73	19.40+a
Cranes (under 100 ton rated capacity).....	\$ 33.99	19.40+a
Drills with self contained power units; Directional driller.....	\$ 33.01	19.40+a
Earth Roller.....	\$ 29.49	19.40+a
Forklift.....	\$ 31.53	19.40+a
Front End Loader (3 cubic yards up to 7 cubic yards)..	\$ 32.70	19.40+a
Front End Loader (7 cubic yards or over).....	\$ 35.05	19.40+a
Front End Loader (under 3 cubic yards).....	\$ 31.53	19.40+a
Grader/Blade.....	\$ 33.99	19.40+a
Maintenance Engineer/Oiler..	\$ 26.65	19.40+a
Mechanic.....	\$ 31.96	19.40+a
Rubber Tire Backhoe/Excavator.....	\$ 33.99	19.40+a

a. PAID HOLIDAYS: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday.

- b. Crane with boom, including jib, 150 feet - \$1.50 extra .
- Crane with boom, including jib, 200 feet- \$2.50 extra.
- Crane with boom, including jib, 250 feet - \$5.00 extra.
- Crane with boom, including jib, 300 feet - \$7.00 extra.
- Crane with boom, including jib, 400 feet - \$10.00 extra.

IRON0015-008 06/28/2010

	Rates	Fringes
IRONWORKER, REINFORCING AND STRUCTURAL.....	\$ 33.00	26.58+a

a. PAID HOLIDAY: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

LABO0056-007 04/03/2011

	Rates	Fringes
LABORERS		
GROUP 1.....	\$ 25.75	15.60
GROUP 2.....	\$ 26.00	15.60
GROUP 3.....	\$ 26.25	15.60
GROUP 4.....	\$ 26.75	15.60
GROUP 5.....	\$ 27.50	15.60
GROUP 6.....	\$ 27.75	15.60
GROUP 7.....	\$ 16.00	15.60

LABORERS CLASSIFICATIONS

GROUP 1: Laborers (Unskilled), acetylene burner, concrete specialist

GROUP 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators and powdermen.

GROUP 3: Pipelayers, Jackhammer/Pavement breaker (handheld), mason tenders/catch basin builders, asphalt rakers, air track operators, block paver and curb setter

GROUP 4: Asbestos/lead removal

GROUP 5: Blasters

GROUP 6: Toxic waste remover

GROUP 7: Traffic control signalman

PAIN0011-013 06/01/2010

	Rates	Fringes
PAINTER		
Brush and Roller.....	\$ 28.47	15.40
Spray Only.....	\$ 31.47	15.40
Steel Only.....	\$ 30.47	15.40

SUCT2002-010 12/16/2008

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 25.52	8.49
TRUCK DRIVER: 3 Axle & Semi		
- Truck.....	\$ 19.93	7.39

TEAM0064-006 04/03/2011

	Rates	Fringes
TRUCK DRIVER: 4 Axle Truck.....	\$ 28.08	15.71+a

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====
Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

--
In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

--
WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7).

Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

General Decision Number: CT100018 10/14/2011 CT18

Superseded General Decision Number: CT20080018

State: Connecticut

Construction Type: Heavy

County: New Haven County in Connecticut.

HEAVY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	03/12/2010
1	04/30/2010
2	05/07/2010
3	06/04/2010
4	07/02/2010
5	07/23/2010
6	07/30/2010
7	10/08/2010
8	11/05/2010
9	04/22/2011
10	06/03/2011
11	06/17/2011
12	10/07/2011
13	10/14/2011

BRCT0001-011 10/03/2011

	Rates	Fringes
BRICKLAYER.....	\$ 32.50	23.55

BRCT0001-012 10/03/2011

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 32.50	23.55

CARP0024-015 05/02/2011

Beacon Falls, Bethany, Branford, Cheshire, East Haven, Guilford, Hamden, Madison, Meriden, Middlebury, Naugatuck, New Haven, North Branford, North Haven, Orange (east of Orange Center Road and north of Route 1, and north of Route 1 and east of the Oyster River), Prospect, Southbury, Wallingford, Waterbury, West Haven, Wolcott, Woodbridge

	Rates	Fringes
CARPENTER.....	\$ 29.11	20.29

CARP0210-006 05/02/2011

Ansonia, Derby, Milford, Orange (West of Orange Center Road and South of Route 1 and West of the Oyster River), Oxford, Seymour

	Rates	Fringes
CARPENTER.....	\$ 29.11	20.29

ELEC0090-004 06/01/2011

Entire County excluding Beacon Falls, Middlebury, Milford, Naugatuck, Oxford, Prospect, Seymour, Southbury, Waterbury and Wolcott Townships

	Rates	Fringes
ELECTRICIAN.....	\$ 35.70	21.52

* ELEC0488-007 06/01/2011

Beacon Falls, Middlebury, Milford, Naugatuck, Oxford, Prospect, Seymour, Southbury, Waterbury and Wolcott Townships

	Rates	Fringes
ELECTRICIAN.....	\$ 35.10	22.26

 ENGI0478-011 05/07/2011

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
Asphalt Paver.....	\$ 33.01	19.40+a
Asphalt Roller.....	\$ 32.36	19.40+a
Asphalt Spreader.....	\$ 33.01	19.40+a
Backhoe/Excavator 2 cubic yards and over.....	\$ 34.73	19.40+a
Backhoe/Excavator under 2 cubic yards.....	\$ 33.99	19.40+a
Crane handling or erecting structural steel or stone...	\$ 35.05	19.40+a
Cranes (100 ton capacity & over).....	\$ 34.73	19.40+a
Cranes (under 100 ton rated capacity).....	\$ 33.99	19.40+a
Drills with self contained power units; Directional driller.....	\$ 33.01	19.40+a
Earth Roller.....	\$ 29.49	19.40+a
Forklift.....	\$ 31.53	19.40+a
Front End Loader (3 cubic yards up to 7 cubic yards)..	\$ 32.70	19.40+a
Front End Loader (7 cubic yards or over).....	\$ 35.05	19.40+a
Front End Loader (under 3 cubic yards).....	\$ 31.53	19.40+a
Grader/Blade.....	\$ 33.99	19.40+a
Maintenance Engineer/Oiler..	\$ 26.65	19.40+a
Mechanic.....	\$ 31.96	19.40+a
Rubber Tire Backhoe/Excavator.....	\$ 33.99	19.40+a

a. PAID HOLIDAYS: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday.

- b. Crane with boom, including jib, 150 feet - \$1.50 extra .
- Crane with boom, including jib, 200 feet- \$2.50 extra .
- Crane with boom, including jib, 250 feet - \$5.00 extra.
- Crane with boom, including jib, 300 feet - \$7.00 extra.
- Crane with boom, including jib, 400 feet - \$10.00 extra.

 IRON0015-005 06/28/2010

	Rates	Fringes
IRONWORKER, REINFORCING.....	\$ 33.00	26.58+a

a. PAID HOLIDAY: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

 LABO0056-005 04/03/2011

	Rates	Fringes
LABORERS		
GROUP 1.....	\$ 25.75	15.60
GROUP 2.....	\$ 26.00	15.60
GROUP 3.....	\$ 26.25	15.60
GROUP 4.....	\$ 26.75	15.60
GROUP 5.....	\$ 27.50	15.60
GROUP 6.....	\$ 27.75	15.60
GROUP 7.....	\$ 16.00	15.60

LABORERS CLASSIFICATIONS

GROUP 1: Laborers (Unskilled), acetylene burner, concrete specialist

GROUP 2: Chain saw operators, fence and guard rail erectors,

pneumatic tool operators and powdermen.

GROUP 3: Pipelayers, Jackhammer/Pavement breaker (handheld), mason tenders/catch basin builders, asphalt rakers, air track operators, block paver and curb setter

GROUP 4: Asbestos/lead removal

GROUP 5: Blasters

GROUP 6: Toxic waste remover

GROUP 7: Traffic control signalman

PAIN0011-013 06/01/2010

	Rates	Fringes
PAINTER		
Brush and Roller.....	\$ 28.47	15.40
Spray Only.....	\$ 31.47	15.40
Steel Only.....	\$ 30.47	15.40

SUCT2002-011 12/16/2008

	Rates	Fringes
IRONWORKER, STRUCTURAL.....	\$ 24.85	13.83
OPERATOR: Bulldozer.....	\$ 25.33	9.64

TEAM0064-006 04/03/2011

	Rates	Fringes
TRUCK DRIVER: 4 Axle Truck.....	\$ 28.08	15.71+a

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====
Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

--
In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

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WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in

which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

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Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

General Decision Number: CT100019 07/08/2011 CT19

Superseded General Decision Number: CT20080019

State: Connecticut

Construction Type: Heavy

County: New London County in Connecticut.

HEAVY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	03/12/2010
1	05/07/2010
2	06/04/2010
3	07/02/2010
4	07/23/2010
5	07/30/2010
6	11/05/2010
7	04/22/2011
8	06/17/2011
9	07/08/2011

CARP0024-007 05/02/2011

	Rates	Fringes
CARPENTER, Includes Form Work....	\$ 29.11	20.29

* ELEC0035-011 06/01/2011

Bozrah, Colchester, Franklin, Griswold, Lebanon, Ledyard, Lisbon, Montville, North Stonington, Norwich, Preston, Salem, Sprague, Stonington and Voluntown

	Rates	Fringes
ELECTRICIAN.....	\$ 36.40	21.31

ELEC0090-003 06/01/2010

East Lyme, Groton, New London, Old Lyme, Waterford, plus the part of Ledyard wherein the property of the Submarine Base is located

	Rates	Fringes
ELECTRICIAN.....	\$ 35.20	20.51

ENGI0478-008 05/07/2011

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
Asphalt Paver.....	\$ 33.01	19.40+a
Asphalt Roller.....	\$ 32.36	19.40+a
Asphalt Spreader.....	\$ 33.01	19.40+a
Backhoe/Excavator 2 cubic yards and over.....	\$ 34.73	19.40+a
Backhoe/Excavator under 2 cubic yards.....	\$ 33.99	19.40+a
Bulldozer (Rough Grade Dozer).....	\$ 32.70	19.40+a
Bulldozer Fine Grade(includes slopes, shaping, laser or gps).....	\$ 33.99	19.40+a
Crane handling or erecting structural steel or stone...	\$ 35.05	19.40+a
Cranes (100 ton capacity & over).....	\$ 34.73	19.40+a
Cranes (under 100 ton rated capacity).....	\$ 33.99	19.40+a
Drills with self contained power units; Directional driller.....	\$ 33.01	19.40+a
Earth Roller.....	\$ 29.49	19.40+a
Forklift.....	\$ 31.53	19.40+a

Front End Loader (3 cubic yards up to 7 cubic yards)..	\$ 32.70	19.40+a
Front End Loader (7 cubic yards or over).....	\$ 35.05	19.40+a
Front End Loader (under 3 cubic yards).....	\$ 31.53	19.40+a
Grader/Blade.....	\$ 33.99	19.40+a
Maintenance Engineer/Oiler..	\$ 26.65	19.40+a
Mechanic.....	\$ 31.96	19.40+a
Rubber Tire		
Backhoe/Excavator.....	\$ 33.99	19.40+a

a. PAID HOLIDAYS: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday.

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- Crane with boom, including jib, 250 feet - \$5.00 extra.
- Crane with boom, including jib, 300 feet - \$7.00 extra.
- Crane with boom, including jib, 400 feet - \$10.00 extra.

IRON0015-008 06/28/2010

	Rates	Fringes
IRONWORKER, REINFORCING AND STRUCTURAL.....	\$ 33.00	26.58+a

a. PAID HOLIDAY: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

LABO0056-007 04/03/2011

	Rates	Fringes
LABORERS		
GROUP 1.....	\$ 25.75	15.60
GROUP 2.....	\$ 26.00	15.60
GROUP 3.....	\$ 26.25	15.60
GROUP 4.....	\$ 26.75	15.60
GROUP 5.....	\$ 27.50	15.60
GROUP 6.....	\$ 27.75	15.60
GROUP 7.....	\$ 16.00	15.60

LABORERS CLASSIFICATIONS

GROUP 1: Laborers (Unskilled), acetylene burner, concrete specialist

GROUP 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators and powdermen.

GROUP 3: Pipelayers, Jackhammer/Pavement breaker (handheld), mason tenders/catch basin builders, asphalt rakers, air track operators, block paver and curb setter

GROUP 4: Asbestos/lead removal

GROUP 5: Blasters

GROUP 6: Toxic waste remover

GROUP 7: Traffic control signalman

PAIN0011-013 06/01/2010

	Rates	Fringes
PAINTER		
Brush and Roller.....	\$ 28.47	15.40
Spray Only.....	\$ 31.47	15.40
Steel Only.....	\$ 30.47	15.40

SUCT2002-012 12/16/2008

Rates	Fringes
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CEMENT MASON/CONCRETE FINISHER...\$ 25.52 8.49
TRUCK DRIVER: 3 Axle & Semi
- Truck.....\$ 19.93 7.01

TEAM0064-006 04/03/2011

Rates Fringes
TRUCK DRIVER: 4 Axle Truck.....\$ 28.08 15.71+a

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====
Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

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WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

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U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

General Decision Number: CT100029 10/14/2011 CT29

Superseded General Decision Number: CT20080029

State: Connecticut

Construction Type: Heavy

Counties: Litchfield and Windham Counties in Connecticut.

HEAVY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	03/12/2010
1	04/23/2010
2	04/30/2010
3	05/07/2010
4	06/04/2010
5	07/02/2010
6	07/23/2010
7	07/30/2010
8	08/20/2010
9	09/03/2010
10	10/08/2010
11	11/05/2010
12	04/22/2011
13	05/13/2011
14	06/03/2011
15	06/10/2011
16	06/17/2011
17	07/08/2011
18	10/07/2011
19	10/14/2011

BRCT0001-015 10/03/2011

	Rates	Fringes
BRICKLAYER		
BRICKLAYERS, CEMENT		
MASONS, CEMENT FINISHERS,		
STONE MASONS.....	\$ 32.50	23.55

CARP0024-011 05/02/2011

	Rates	Fringes
CARPENTER		
Carpenters, Piledrivers.....	\$ 29.11	20.29
Diver Tenders.....	\$ 29.11	20.29
Divers.....	\$ 37.57	20.29
Millwrights.....	\$ 30.01	20.18

ELEC0035-008 06/01/2011

	Rates	Fringes
WINDHAM COUNTY		
ELECTRICIAN.....	\$ 36.40	21.31

ELEC0042-001 08/30/2010

	Rates	Fringes
Line Construction: (Line Construction)		
Driver Groundmen.....	\$ 30.92	6.5%+9.70
Groundmen.....	\$ 22.67	6.5%+6.20
Heavy Equipment Operators...	\$ 37.10	6.5%+10.70
Linemen, Cable Splicers, Dynamite Men.....	\$ 41.22	6.5%+12.20
Material Men, Tractor Trailer Drivers, Equipment Operators.....	\$ 35.04	6.5%+10.45
Line Construction: (Railroad Construction and Maintenance)		
Driver Groundmen.....	\$ 33.27	3%+13.70
Heavy Equipment Operators...	\$ 39.92	3%+13.70

Linemen, Cable Splicers, Dynamite Men.....	\$ 44.36	3%+13.70
Material Men, Tractor Trailer Drivers, Equipment Operators.....	\$ 37.71	3%+13.70

ELEC0090-008 06/01/2011

LITCHFIELD COUNTY
Plymouth Township

	Rates	Fringes
ELECTRICIAN.....	\$ 35.70	21.52

* ELEC0488-011 06/01/2011

LITCHFIELD COUNTY (Excluding Plymouth Township)

	Rates	Fringes
ELECTRICIAN.....	\$ 35.10	22.26

ENGI0478-001 05/07/2011

	Rates	Fringes
Power equipment operators:		
GROUP 1.....	\$ 35.05	19.40
GROUP 2.....	\$ 34.73	19.40
GROUP 3.....	\$ 33.99	19.40
GROUP 4.....	\$ 33.60	19.40
GROUP 5.....	\$ 33.01	19.40
GROUP 6.....	\$ 32.70	19.40
GROUP 7.....	\$ 32.36	19.40
GROUP 8.....	\$ 31.96	19.40
GROUP 9.....	\$ 31.53	19.40
GROUP 10.....	\$ 29.49	19.40
GROUP 11.....	\$ 29.49	19.40
GROUP 12.....	\$ 29.43	19.40
GROUP 13.....	\$ 30.96	19.40
GROUP 14.....	\$ 28.85	19.40
GROUP 15.....	\$ 28.54	19.40
GROUP 16.....	\$ 27.71	19.40
GROUP 17.....	\$ 27.30	19.40
GROUP 18.....	\$ 26.65	19.40

Hazardous waste premium \$3.00 per hour over classified rate.

Crane with boom, including jib, 150 feet - \$1.50 extra.
 Crane with boom, including jib, 200 feet - \$2.50 extra.
 Crane with boom, including jib, 250 feet - \$5.00 extra.
 Crane with boom, including jib, 300 feet - \$7.00 extra.
 Crane with boom, including jib, 400 feet - \$10.00 extra

a. PAID HOLIDAYS: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday.

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), work boat 26 ft. and over.

GROUP 2: Cranes (100 ton capacity & over), Excavator over 2 cubic yards, piledriver (\$3.00 premium when operator controls hammer).

GROUP 3: Excavator, cranes (under 100 ton rated capacity), gradall, master mechanic, hoisting engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power or operation) Rubber Tire Excavator (drott 1085 or similar); Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.)

GROUP 4: Trenching machines, lighter derrick, concrete finishing machine, CMI machine or similar, Koehring Loader

(skoopper).

GROUP 5: Specialty railroad equipment, asphalt spreader, asphalt reclaiming machine, line grider, concrete pumps, drills with self contained power units, boring machine, post hole digger, auger, pounder, well digger, milling machine (over 24' mandrel), side boom, combination hoe and loader, directional driller.

GROUP 6: Front end loader (3 cu. yds. up to 7 cu. yards), bulldozer (Rough grade dozer) .

GROUP 7: Asphalt roller, concrete saws and cutters (ride on types), Vermeer concrete cutter, stump grinder, scraper, snooper, skidder, milling machine (24" and under Mandrel).

GROUP 8: Mechanic, grease truck operator, hydoblaster, barrier mover, power stone spreader, welder, work boat under 26 ft. transfer machine.

GROUP 9: Front end loader (under 3 cubic yards), skid steer loader (regardless of attachments), bobcat or similar, forklift, power chipper, landscape equipment (including hydroseeder).

GROUP 10: Vibratory hammer, ice machine, diesel & air, hammer, etc.

GROUP 11: Conveyor, earth roller, power pavement breaker (whiphammer), robot demolition equipment.

GROUP 12: Wellpoint operator.

GROUP 13: Portable asphalt plant operator, portable concrete plant operator, portable crusher plant operator.

GROUP 14: Compressor battery operator.

GROUP 15: Power Safety boat, Vacuum truck, Zim mixer, Sweeper; (Minimum for any job requiring a CDL license) .

GROUP 16: Elevator operator, tow motor operator (solid tire no rough terrain).

GROUP 17: Generator operator, compressor operator, pump operator, welding machine operator; Heater operator.

GROUP 18: Maintenance engineer.

IRON0015-001 06/28/2010

	Rates	Fringes
Ironworkers: (Ornamental, Reinforcing, Structural and Precast Concrete Erection).....	\$ 33.00	26.58+a

PAID HOLIDAY: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

LABO0056-004 04/03/2011

	Rates	Fringes
Laborers: (TUNNEL CONSTRUCTION)		
CLEANING, CONCRETE AND CAULKING TUNNEL:		
Concrete Workers, Form Movers and Strippers.....	\$ 29.44	15.60
Form Erectors.....	\$ 29.74	15.60
ROCK SHAFT, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:		
Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers.....	\$ 29.44	15.60
Laborers Topside, Cage Tenders, Bellman.....	\$ 29.33	15.60
Miners.....	\$ 30.32	15.60
SHIELD DRIVE AND LINER		

PLATE TUNNELS IN FREE AIR:		
Brakemen and Trackmen.....\$	29.44	15.60
Miners, Motormen, Mucking Machine Operators, Nozzlemen, Grout Men, Shaft and Tunnel, Steel and Rodmen, Shield and Erector, Arm Operator, Cable Tenders.....\$		
	30.32	15.60
TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR:		
Blaster.....\$	35.213	15.60
Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders.....\$		
	35.036	15.60
Change House Attendants, Powder Watchmen, Top on Iron Bolts.....\$		
	33.268	15.60
Mucking Machine Operator...\$	35.745	15.60

a. PAID HOLIDAYS: On tunnel work only: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

LABO0056-013 04/03/2011

	Rates	Fringes
LABORER (HEAVY CONSTRUCTION)		
GROUP 1.....\$	25.75	15.60
GROUP 2.....\$	26.00	15.60
GROUP 3.....\$	26.25	15.60
GROUP 4.....\$	26.75	15.60
GROUP 5.....\$	27.50	15.60
GROUP 6.....\$	27.75	15.60
GROUP 7.....\$	16.00	15.60

LABORERS CLASSIFICATIONS

GROUP 1: Laborers (Unskilled), acetylene burner, concrete specialist

GROUP 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators and powdermen.

GROUP 3: Pipelayers, Jackhammer/Pavement breaker (handheld), mason tenders/catch basin builders, asphalt rakers, air track operators, block paver and curb setter

GROUP 4: Asbestos/lead removal

GROUP 5: Blasters

GROUP 6: Toxic waste remover

GROUP 7: Traffic control signalman

PAIN0011-003 06/01/2011

	Rates	Fringes
Painters: (BRIDGE CONSTRUCTION)		
Brush, Roller, Blasting (Sand, Water, etc.) Spray...\$	41.35	16.35

PAIN0011-018 06/01/2010

	Rates	Fringes
PAINTER		
Blast and Spray.....\$	31.47	15.40
Brush and Roll.....\$	28.47	15.40
Tanks, Towers, Swing.....\$	30.47	15.40

PLUM0777-002 06/01/2011

	Rates	Fringes
PLUMBER/PIPEFITTER.....	\$ 38.67	24.46

TEAM0064-001 04/03/2011

	Rates	Fringes
Truck drivers:		
2 Axle Ready Mix.....	\$ 27.98	15.71+a
2 Axle.....	\$ 27.88	15.71+a
3 Axle Ready Mix.....	\$ 28.03	15.71+a
3 Axle.....	\$ 27.98	15.71+a
4 Axle Ready Mix.....	\$ 28.13	15.71+a
4 Axle.....	\$ 28.08	15.71+a
Heavy Duty Trailer 40 tons and over.....	\$ 28.33	15.71+a
Heavy Duty Trailer up to 40 tons.....	\$ 28.08	15.71+a
Specialized (Earth moving equipment other than conventional type on-the- road trucks and semi- trailers, including Euclids).....	\$ 28.13	15.71+a

Hazardous waste removal work receives additional \$1.25 per hour.

a. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.
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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

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In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

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WAGE DETERMINATION APPEALS PROCESS

- 1.) Has there been an initial decision in the matter? This can be:
- * an existing published wage determination
 - * a survey underlying a wage determination
 - * a Wage and Hour Division letter setting forth a position on a wage determination matter
 - * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices

have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7).

Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

Project: Roundabout At Salem Four Corners Routes 82 And 85

**Minimum Rates and Classifications
for Heavy/Highway Construction**

H 15865

**Connecticut Department of Labor
Wage and Workplace Standards Division**

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number:

Project Town Salem

FAP Number: 0085(111)

State Number: 120-86

Project: Roundabout At Salem Four Corners Routes 82 And 85

CLASSIFICATION

Hourly Rate

Benefits

01) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters. **See Laborers Group 5 and 7**

1) Boilermaker

33.79

34% + 8.96

1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons

32.50

23.55

2) Carpenters, Piledrivermen

29.11

20.29

2a) Diver Tenders

29.11

20.29

As of:

Friday, December 09, 2011

Project: Roundabout At Salem Four Corners Routes 82 And 85

3) Divers	37.57	20.29
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	41.35	16.35
4a) Painters: Brush and Roller	29.17	16.35
4b) Painters: Spray Only	31.47	15.40
4c) Painters: Steel Only	30.47	15.40
4d) Painters: Blast and Spray	32.17	16.35
4e) Painters: Tanks, Tower and Swing	31.17	16.35
5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	36.40	21.31

As of:

Friday, December 09, 2011

Project: Roundabout At Salem Four Corners Routes 82 And 85

6) Ironworkers: (Ornamental, Reinforcing, Structural, and Precast Concrete Erection)	33.00	26.58 + a
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7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	38.67	24.46
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----LABORERS---- - Last updated 4/27/11

8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	25.75	15.60
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9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen, air tool operator	26.00	15.60
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10) Group 3: Pipelayers (Installation of water, storm drainage or sewage lines outside of the building line with P6, P7 license)	26.25	15.60
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11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block pavers and curb setters	26.25	15.60
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12) Group 5: Toxic waste removal (non-mechanical systems)	27.75	15.60
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Project: Roundabout At Salem Four Corners Routes 82 And 85

13) Group 6: Blasters	27.50	15.60
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Group 7: Asbestos Removal, non-mechanical systems (does not include leaded joint pipe)	26.75	15.60
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Group 8: Traffic control signalmen	16.00	15.60
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----LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.---- Last updated 4/27/11----

13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	30.32	15.60 + a
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13b) Brakemen, Trackmen	29.44	15.60 + a
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----CLEANING, CONCRETE AND CAULKING TUNNEL----Last updated 4/27/11----

14) Concrete Workers, Form Movers, and Strippers	29.44	15.60 + a
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Project: Roundabout At Salem Four Corners Routes 82 And 85

15) Form Erectors	29.74	15.60 + a
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----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND
TUNNEL IN FREE AIR:----Last updated 4/27/11----

16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	29.44	15.60 + a
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17) Laborers Topside, Cage Tenders, Bellman	29.33	15.60 + a
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18) Miners	30.32	15.60 + a
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----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED
AIR: ----Last updated 4/27/11----

18a) Blaster	35.213	15.60 + a
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19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	35.036	15.60 + a
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Project: Roundabout At Salem Four Corners Routes 82 And 85

20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	33.268	15.60 + a
21) Mucking Machine Operator	35.745	15.60 + a
----TRUCK DRIVERS----(*see note below)		
Two axle trucks	27.88	15.71 + a
Three axle trucks; two axle ready mix	27.98	15.71 + a
Three axle ready mix	28.03	15.71 + a
Four axle trucks, heavy duty trailer (up to 40 tons)	28.08	15.71 + a
Four axle ready-mix	28.13	15.71 + a

Project: Roundabout At Salem Four Corners Routes 82 And 85

Heavy duty trailer (40 tons and over)	28.33	15.71 + a
Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	28.13	15.71 + a

----POWER EQUIPMENT OPERATORS----

Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over. (Trade License Required)	35.05	19.40 + a
Group 2: Cranes (100 ton rate capacity and over); Backhoe/Excavator over 2 cubic yards; Piledriver (\$3.00 premium when operator controls hammer). (Trade License Required)	34.73	19.40 + a
Group 3: Excavator/Backhoe under 2 cubic yards; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar); Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required)	33.99	19.40 + a
Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	33.60	19.40 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell)	33.01	19.40 + a

Project: Roundabout At Salem Four Corners Routes 82 And 85

Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	33.01	19.40 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	32.70	19.40 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and Under Mandrel).	32.36	19.40 + a
Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	31.96	19.40 + a
Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder).	31.53	19.40 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	29.49	19.40 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	29.49	19.40 + a
Group 12: Wellpoint Operator.	29.43	19.40 + a

Project: Roundabout At Salem Four Corners Routes 82 And 85

Group 13: Compressor Battery Operator.	28.85	19.40 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	27.71	19.40 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	27.30	19.40 + a
Group 16: Maintenance Engineer/Oiler	26.65	19.40 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	30.96	19.40 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	28.54	19.40 + a

**NOTE: SEE BELOW

----LINE CONSTRUCTION----(Railroad Construction and Maintenance)----Last updated 9/3/2010----

Project: Roundabout At Salem Four Corners Routes 82 And 85

20) Lineman, Cable Splicer, Dynamite Man	44.36	3% + 13.70
21) Heavy Equipment Operator	39.92	3% + 13.70
22) Equipment Operator, Tractor Trailer Driver, Material Men	37.71	3% + 13.70
23) Driver Groundmen	33.27	3% + 13.70
----LINE CONSTRUCTION----Last updated 4/17/09----		
24) Driver Groundmen	30.92	6.5% + 9.70
25) Groundmen	22.67	6.5% + 6.20
26) Heavy Equipment Operators	37.10	6.5% + 10.70

Project: Roundabout At Salem Four Corners Routes 82 And 85

27) Linemen, Cable Splicers, Dynamite Men	41.22	6.5% + 12.20
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28) Material Men, Tractor Trailer Drivers, Equipment Operators	35.04	6.5% + 10.45
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As of:

Friday, December 09, 2011

Project: Roundabout At Salem Four Corners Routes 82 And 85

Welders: Rate for craft to which welding is incidental.

**Note: Hazardous waste removal work receives additional \$1.25 per hour for truck drivers.*

***Note: Hazardous waste premium \$3.00 per hour over classified rate*

- Crane with 150 ft. boom (including jib) - \$1.50 extra
- Crane with 200 ft. boom (including jib) - \$2.50 extra
- Crane with 250 ft. boom (including jib) - \$5.00 extra
- Crane with 300 ft. boom (including jib) - \$7.00 extra
- Crane with 400 ft. boom (including jib) - \$10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyman instructing and supervising the work of each apprentice in a specific trade.

~~Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work ~~

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

As of:

Friday, December 09, 2011

Project: Roundabout At Salem Four Corners Routes 82 And 85

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

As of:

Friday, December 09, 2011

CONNECTICUT DEPARTMENT OF LABOR
Wage and Workplace Standards Division

FOOTNOTES

Please Note: If the “Benefits” listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the “Benefits” section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Plasters, Stone Masons
(Building Construction)
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

- a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Bricklayer (Residential- Fairfield County)

- a. Paid Holiday: If an employee works on Christmas Eve until noon he shall be paid for 8 hours.

Electricians

Fairfield County: West of the Five Mile River in Norwalk

- a. \$2.00 per hour not to exceed \$14.00 per day.

Elevator Constructors: Mechanics

- a. Paid Holidays: New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.
- b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

- a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators

(Heavy and Highway Construction & Building Construction)

- a. Paid Holidays: New Year's Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

- a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive workdays prior to Labor Day.

Laborers (Tunnel Construction)

- a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular workday preceding the holiday or the regular workday following the holiday.

Roofers

- a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

- a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers

(Heavy and Highway Construction & Building Construction)

- a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

Revised: March 12, 2008

Informational Bulletin


Occupational Classifications

The Connecticut Department of Labor has the responsibility to properly determine "job classification" on prevailing wage projects covered under C.G.S. Section 31-53.

✓Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification.

On any construction project, an assortment of workers are needed to carry out all of the required tasks. Employees include various skilled crafts people, machine operators, general laborers, and apprentices. Prevailing wage rate schedules identify the classes of workers likely to be employed on each of the four types of construction projects. (If a contractor wants to use a class of worker not listed in a wage determination, there is a process for requesting the U.S. Department of Labor to establish a prevailing wage rate for that additional classification). (Contact U.S. Department of Labor at 202.693.0062 or 215.861.5800)

A registered apprentice is not a separate prevailing wage job classification. Apprentices are paid a percentage of the base rate received by the craft that they are training to become and the full fringe rate. This percentage increases in steps, as the apprentice advances through the stages of the apprenticeship process.

 Any questions regarding the proper classification should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd, Wethersfield, CT 06109 at 860.263.6543.

Below are additional clarifications of specific job duties performed for certain classifications:

⇒ ASBESTOS WORKERS/INSULATORS:

- ▶ Handle, install, apply, fabricate, distribute, prepare, alter, repair, or dismantle heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

⇒ BOILERMAKERS:

- ▶ Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

⇒ BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS, STONE MASONS, TERRAZZO WORKERS, TILE SETTERS:

- ▶ Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

⇒ CARPENTERS, MILLWRIGHTS, PILEDRIVERMEN, LATHERS, RESILIENT FLOOR LAYERS, DOCK BUILDERS, DIVERS, DIVER TENDERS:

- ▶ Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs.
- ▶ Assembly and installation of modular furniture/furniture systems.
[New] a. Free-standing furniture is not covered. This includes: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two- position information access station, file cabinets, storage cabinets, tables, etc.

⇒ CLEANING LABORER:

- ▶ The clean up of any construction debris and the general cleaning, including sweeping, wash down, mopping, wiping of the construction facility, washing, polishing, dusting, etc., prior to the issuance of a certificate of occupancy falls under the *Labor classification*.

⇒DELIVERY PERSONNEL:

- ▶ If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.
- ▶ An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer/tradesman and not a delivery personnel.

⇒ELECTRICIANS:

- ▶ Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes. ***License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.**

⇒ELEVATOR CONSTRUCTORS:

- ▶ Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. ***License required by Connecticut General Statutes: R-1,2,5,6.**

⇒FORK LIFT OPERATOR:

- ▶ Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.
- ▶ Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

⇒GLAZIERS: [updated]

- ▶ Installs light metal sash, head sills, and 2-story aluminum commercial storefronts.

⇒IRONWORKERS:

- ▶ Handling, sorting, and installation of reinforcing steel (rebar).
- ▶ Installation of aluminum window walls and curtain walls.
- ▶ Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation.
- ▶ Installation of handrails, stairs, and platforms installed on Wastewater Treatment Plant projects. [new]

⇒INSULATOR:

- ▶ Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings. Past practice using the applicable licensed trades, Plumber, Sheet Metal, Sprinkler Fitter, and Electrician, is not inconsistent with the Insulator classification and would be permitted.

⇒LEAD PAINT REMOVAL:

- ▶ Painter Rate -
 - 1) Removal of lead paint from bridges.
 - 2) Removal of lead paint as preparation of any surface to be repainted.
 - 3) Where removal is on a *Demolition* project prior to reconstruction.
- ▶ Laborer Rate-
 - 1) Removal of lead paint from any surface *NOT* to be repainted.
 - 2) Where removal is on a *TOTAL* Demolition project only.

⇒LABORERS:

- ▶ Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector, hand operated concrete vibrator operator, mason tenders, pipelayers (installation of water, storm drainage or sewage lines outside of the building line with P6, P7 license), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

⇒PAINTERS:

- ▶ Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall finishing for any and all types of building and residential work.

⇒PLUMBERS AND PIPEFITTERS:

- ▶ Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. ***License required per Connecticut General Statutes: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2. S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.**

⇒POWER EQUIPMENT OPERATORS:

- ▶ Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ***License required, crane operators only, per Connecticut General Statutes.**

⇒ROOFERS:

- ▶ Preparation of surface, tear-off and/or removal of any type of roofing, and/or clean-up of any areas where a roof is to be relaid.

⇒SHEET METAL WORKER:

- ▶ Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, fascia, louvers, partitions, wall panel siding, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Insulated metal and insulated composite panels are still installed by the Iron Worker. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers.

⇒SPRINKLER FITTERS:

Installation, alteration, maintenance and repair of fire protection sprinkler systems. ***License required per Connecticut General Statutes: F-1,2,3,4.**

⇒TILE, MARBLE AND TERRAZZO FINISHERS:

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

⇒TRUCK DRIVERS:

- ▶ Truck Drivers delivering asphalt are covered under prevailing wage while on the site and directly involved in the paving operation.
- ▶ Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
- ▶ Hauling material off site is not covered provided they are not dumping it at a location outlined above.
- ▶ Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

Statute 31-55a

Last Updated: June 02, 2008

You are here: [DOL Web Site](#) ▶ [Wage and Workplace Issues](#) ▶ Statute 31-55a

- Special Notice -

To All State and Political Subdivisions, Their Agents, and Contractors

Connecticut General Statute 31-55a - Annual adjustments to wage rates by contractors doing state work.

Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54 of the general statutes, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 of the general statutes shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.

- The prevailing wage rates applicable to any contract or subcontract awarded on or after October 1, 2002 are subject to annual adjustments each July 1st for the duration of any project which was originally advertised for bids on or after October 1, 2002.
- Each contractor affected by the above requirement shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the *contractor's* responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's Web Site. The annual adjustments will be posted on the Department of Labor Web page: www.ctdol.state.ct.us. For those without internet access, please contact the division listed below.
- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project. All subsequent annual adjustments will be posted on our Web Site for contractor access.

Any questions should be directed to the Contract Compliance Unit, Wage and Workplace

Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd.,
Wethersfield, CT 06109 at (860)263-6790.

[Workplace Laws](#)

Published by the Connecticut Department of Labor, Project Management Office

November 29, 2006

Notice
To All Mason Contractors and Interested Parties
Regarding Construction Pursuant to Section 31-53 of the
Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.
- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

(applicable to public building contracts entered into *on or after July 1, 2007*, where the total cost of all work to be performed is at least \$100,000)

- (1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);
- (2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;
- (3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least \$100,000;
- (4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;
- (5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;
- (6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;
- (7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;
- (8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;
- (9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

- (10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;
- (11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;
- (12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;
- (13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;
- (14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and
- (15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.
- (16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of <http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm>; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTIMATELY ARISE CONCERNING THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

Sec. 31-53b. Construction safety and health course. Proof of completion required for employees on public building projects. Enforcement. Regulations. (a) Each contract entered into on or after July 1, 2007, for the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public building project by the state or any of its agents, or by an political subdivision of the state or any of its agents, where the total cost of all work to be performed by all contractors and subcontractors in connection with the contract is at least one hundred thousand dollars, shall contain a provision requiring that, not later than thirty days after the date such contract is awarded, each contractor furnish proof to the Labor Commissioner that all employees performing manual labor on or in such public building, pursuant to such contract, have completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, in the case of telecommunications employees, have completed at least ten hours of training in accordance with 29 CFR 1910.268.

(b) Any employee required to complete a construction safety and health course required under subsection (a) of this section who has not completed the course shall be subject to removal from the worksite if the employee does not provide documentation of having completed such course by the fifteenth day after the date the employee is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2007, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) For the purposes of this section, "public building" means a structure, paid for in whole or in part with state funds, within a roof and within exterior walls or fire walls, designed for the housing, shelter, enclosure and support or employment of people, animals or property of any kind, including, but not limited to, sewage treatment plants and water treatment plants, "Public building" does not include site work, roads or bridges, rail lines, parking lots or underground water, sewer or drainage systems including pump houses or other utility systems.

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM

I, _____ of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

Street

City

and all of its subcontractors will pay all workers on the

Project Name and Number

Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

Signed

Subscribed and sworn to before me this _____ day of _____, 2004.

Notary Public

 Return to:

Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109